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Family Risk and Protective Factors and Child Development

Edited by

Susan H. Yoon

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Editorial

Understanding Family Risk and Protective Factors That Shape Child Development

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Understanding the various family characteristics and contextual factors that shape children's health and developmental outcomes is important for promoting optimal child development. Research has suggested that family can have a salient influence on child development across social, emotional, physical, and cognitive domains. Despite a large body of existing studies on family environment and child development, much remains to be learned. Prior research has faced multiple conceptual and methodological challenges, including a reliance on mother-reported data (versus fathers) when examining parenting or other parent-related constructs. A lack of rigorous longitudinal data and conceptual complexity, such as changes in family structure over time, also adds to challenges. Furthermore, it remains unclear how risk and protective factors within families may contribute to child development among different subgroups of children and families across cultures. The articles presented in this Special Issue aim to overcome some of these limitations and advance the field's understanding of the complex roles played by family risk and protective factors in explaining diverse developmental outcomes among children and youths.

This Special Issue features 18 articles that examine family risk and resilience among children and adolescents across developmental stages, ranging from early childhood to late adolescence/young adulthood. A wide range of child outcomes are examined in these studies, including children's use of electronic devices [1,2], maltreatment experiences [3], mental health [4–7], school readiness and academic functioning [8], suicidal thoughts and behaviors [9], socioemotional development [10–13], and resilient/adaptive functioning [14–16].

Several salient family risk factors are identified and discussed in these studies. In Husa et al.'s study, pre-birth household challenges (e.g., homelessness, incarceration, substance use, intimate partner violence) were associated with lower reading proficiency and greater chronic absenteeism; these findings demonstrate the long-term negative effects of family risks on later child outcomes [8]. Similarly, Maguire-Jack et al. found that economic hardship, maternal substance use, intimate partner violence (IPV), and exposure to community violence were related to increased child abuse risk across three stages of child development: early childhood (age 3 years), young school age (age 5 years), and middle childhood (age 9 years) [3]. Furthermore, Showalter et al.'s qualitative study suggested that maternal IPV and IPV-related workplace disruptions threaten the safety and well-being of children [17].

Focusing on child physical abuse as a risk factor, Favre et al. identified distinct profiles of peer status among adolescents with and without physical abuse experiences. They found that higher levels of dissociation predicted membership in the rejected–unpopular group for adolescents with physical abuse experiences [13]. Interestingly, many unique family risk factors were found in studies that focused on problematic electronic use by children. Examining mobile device use among young children in Malaysia, Abdullah et al. found that when parents gave mobile devices to their children to make them sit still, children were more likely to become problematic users [2]. In Lee et al.'s study, the parent's positive attitude toward media use and material rewards predicted the child's daytime and nighttime media use, respectively, among children between 4 and 6 years of age [1].

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Looking beyond risk factors, several papers focused on family strengths and protective factors related to childhood resilience. For example, Kassis et al. examined hedonic and eudaimonic well-being among adolescents with physical abuse experiences and identified distinct violence-resilient patterns and trajectories [14]. Not surprisingly, many studies found parenting or other parent-related constructs (e.g., parental relationships, parental support) to be key family protective factors in relation to positive child outcomes. In Quinn et al.'s study, positive parenting, operationalized as parents' supportive verbal behaviors, was identified as a promotive factor for suicidal thoughts and behaviors in a national sample of justice-involved Black youth aged 12–17 [9]. Zhan et al. examined associations among emotion regulation, parental relationships, and psychotic-like experiences among adolescents (mean age 17.9 years) and found that positive parental relationships buffered the adverse effects of maladaptive emotional regulation patterns on distress from psychotic-like experiences [7]. Focusing on Black youth affected by community violence, Donte et al. found that positive parent relationships and parent bonding predicted resilience to adverse community experiences [4]. Barnhart et al. found that family resilience (e.g., staying hopeful, drawing on strengths, working together when facing a problem) was positively associated with higher levels of child and adolescent flourishing [15].

Compared with the many papers that have examined psychological and relational strengths as family protective factors, fewer studies have considered material resources, such as food, housing, and financial security, as potential protective factors. Kobulsky et al. found that food security and housing stability buffered the negative effects of abuse and neglect on adolescent adaptive functioning [16]. In line with Kobulsky et al.'s study—but focusing on low-income Hispanic families and their young children during the COVID-19 pandemic—Cabrera et al. found that positivity (e.g., staying optimistic about the future) and economic support (e.g., WIC/SNAP) buffered the adverse effects of economic risk and helped parents to manage their parenting stress and stay engaged with their children [11]. Notably, Evans et al. found that having family support and material support predicted greater life satisfaction among youths with a history of out-of-home care; highlighting the importance of both relational and material resources as important family protective factors [5].

It is important to highlight the papers in this Special Issue that focused on fathers as a source of protection and resilience. Yoon et al. examined the role of father involvement in the development of social, behavioral, and cognitive functioning among low-income children (age 5 years and under). Cognitive stimulation by fathers was found to be an important promotive factor for positive child socioemotional and cognitive development [10]. In Donte et al.'s study, father bonding was associated with a reduction in pre-exposure prophylaxis (PrEP) stigma among young Black and Latino men (aged 16–24 years) [18]. Olofson and Schoppe-Sullivan used a newly developed coding system for measuring parenting behaviors and reported that fathers' and mothers' behaviors were differently associated with children's social–emotional development. Fathers' allowance of greater autonomy and lower overprotection predicted lower levels of internalizing symptoms; at the same time, when mothers challenged children's regulatory competence, lower levels of externalizing symptoms and higher levels of competence were predicted among toddlers [12].

Notably, this Special Issue includes studies that represent diverse regions, cultures, and contexts. The international studies featured in this Special Issue involve study participants from South Africa and Canada [6], China [7], Switzerland [13,14], Malaysia [2], and South Korea [1]. Findings from these studies offer valuable insights that enrich our understanding of cultural differences and nuances related to the influence of family risk and protective factors on child development. Cameranesi et al. drew from the multisystemic resilience framework to examine positive adaptation following exposure to family adversity using two different samples: Canadian adolescents and South African adolescents. They found different results between the two samples, with peer support serving as a protective factor against family adversity for Canadian adolescents but not for South African

adolescents. Interestingly, a strong appreciation for community traditions was positively and significantly associated with conduct difficulties for South African adolescents. See Cameranesi et al. [6] for further discussion of these novel findings.

Together, the collection of articles featured in this Special Issue validate the important role of family in determining child outcomes; further contributing to our understanding of the various ways in which family risk and protective factors may promote or inhibit positive child development. All the works included in the Special Issue provide invaluable contributions to the field of family science and child development. The included works also add support to the need for continued investigation and rigorous research to disentangle complex relations among family risk and resilience factors and child outcomes.

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References

1. Lee, H.E.; Kim, J.Y.; Kim, C. The Influence of Parent Media Use, Parent Attitude on Media, and Parenting Style on Children's Media Use. *Children* **2022**, *9*, 37. [CrossRef]
2. Abdullah, N.N.; Mohamed, S.; Abu Bakar, K.; Satari, N. The Influence of Sociodemographic Factors on Mobile Device Use among Young Children in Putrajaya, Malaysia. *Children* **2022**, *9*, 228. [CrossRef] [PubMed]
3. Maguire-Jack, K.; Yoon, S.; Chang, Y.; Hong, S. The Relative Influence of Family and Neighborhood Factors on Child Maltreatment at Critical Stages of Child Development. *Children* **2022**, *9*, 163. [CrossRef] [PubMed]
4. Boyd, D.T.; Jones, K.V.; Quinn, C.R.; Gale, A.; Williams, E.-D.G.; Lateef, H. The Mental Health of Black Youth Affected by Community Violence: Family and School Context as Pathways to Resilience. *Children* **2022**, *9*, 259. [CrossRef]
5. Evans, R.; Katz, C.C.; Fulginiti, A.; Taussig, H. Sources and Types of Social Supports and Their Association with Mental Health Symptoms and Life Satisfaction among Young Adults with a History of Out-of-Home Care. *Children* **2022**, *9*, 520. [CrossRef] [PubMed]
6. Cameranesi, M.; Theron, L.; Höltge, J.; Jefferies, P.; Ungar, M. Understanding the Mechanisms through Which Family Risk Affects Adolescent Mental Health: A Model of Multisystemic Resilience in Context. *Children* **2022**, *9*, 546. [CrossRef] [PubMed]
7. Zhan, C.; Mao, Z.; Zhao, X.; Shi, J. Association between Parents' Relationship, Emotion-Regulation Strategies, and Psychotic-like Experiences in Adolescents. *Children* **2022**, *9*, 815. [CrossRef] [PubMed]
8. Husa, R.A.; Parrish, J.W.; Johnson, H.S. Pre-Birth Household Challenges Predict Future Child's School Readiness and Academic Achievement. *Children* **2022**, *9*, 414. [CrossRef] [PubMed]
9. Quinn, C.R.; Duprey, E.B.; Boyd, D.T.; Lynch, R.; Mitchell, M.; Ross, A.; Handley, E.D.; Cerulli, C. Individual and Contextual Risk and Protective Factors for Suicidal Thoughts and Behaviors among Black Adolescents with Arrest Histories. *Children* **2022**, *9*, 522. [CrossRef] [PubMed]
10. Yoon, S.; Kim, M.; Yang, J.; Lee, J.Y.; Latelle, A.; Wang, J.; Zhang, Y.; Schoppe-Sullivan, S. Patterns of Father Involvement and Child Development among Families with Low Income. *Children* **2021**, *8*, 1164. [CrossRef] [PubMed]
11. Cabrera, N.; He, M.; Chen, Y.; Reich, S.M. Risks and Protective Factors of Hispanic Families and Their Young Children during the COVID-19 Pandemic. *Children* **2022**, *9*, 792. [CrossRef] [PubMed]
12. Olofson, E.L.; Schoppe-Sullivan, S.J. Same Behaviors, Different Outcomes: Mothers' and Fathers' Observed Challenging Behaviors Measured Using a New Coding System Relate Differentially to Children's Social-Emotional Development. *Children* **2022**, *9*, 675. [CrossRef] [PubMed]
13. Favre, C.A.; Aksoy, D.; Janousch, C.; Garrote, A. Peer Status as a Potential Risk or Protective Factor: A Latent Profile Analysis on Peer Status and Its Association with Internalizing Symptoms in Adolescents with and without Parental Physical Abuse Experience. *Children* **2022**, *9*, 599. [CrossRef] [PubMed]
14. Kassis, W.; Aksoy, D.; Favre, C.A.; Janousch, C.; Artz, S.T.-G. Thriving despite Parental Physical Abuse in Adolescence: A Two-Wave Latent Transition Analysis on Hedonic and Eudaimonic Violence-Resilience Outcome Indicators. *Children* **2022**, *9*, 553. [CrossRef] [PubMed]
15. Barnhart, S.; Bode, M.; Gearhart, M.C.; Maguire-Jack, K. Supportive Neighborhoods, Family Resilience and Flourishing in Childhood and Adolescence. *Children* **2022**, *9*, 495. [CrossRef] [PubMed]
16. Kobulsky, J.M.; Yoon, D.; Villodas, M.T.; Schuler, B.R.; Wildfeuer, R.; Reyes, J.N., III. Neglect, Abuse, and Adaptive Functioning: Food Security and Housing Stability as Protective Factors for Adolescents. *Children* **2022**, *9*, 390. [CrossRef] [PubMed]

17. Showalter, K.; Maguire-Jack, K.; McCloskey, R. Mothers' Resilience: Experiences of Intimate Partner Violence Survivors at Work. *Children* **2022**, *9*, 373. [CrossRef]
18. Boyd, D.T.; Abubakari, G.M.; Turner, D.; Ramos, S.R.; Hill, M.J.; Nelson, L.E. The Influence of Family Bonding, Support, Engagement in Healthcare, on PrEP Stigma among Young Black and Latino Men Who Have Sex with Men: A Path Analysis. *Children* **2022**, *9*, 330. [CrossRef]

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Article

Same Behaviors, Different Outcomes: Mothers' and Fathers' Observed Challenging Behaviors Measured Using a New Coding System Relate Differentially to Children's Social-Emotional Development

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Abstract: This study used a newly developed coding system for measuring the quality of parenting behavior to examine associations with children's social-emotional development. The Risky Interaction Support and Challenge Scale (RISCS) measures the extent to which parents engage in behaviors that present physical and regulatory challenges to children, as well as parents' tendency to allow children to pursue action goals autonomously. These behaviors were observed while parents (n = 57 fathers; n = 55 mothers; n = 50 pairs) interacted with their 1-year-olds who played on a structure that included a slide, a small climbing wall, and a tunnel. Trained raters reliably used the RISCS to measure several dimensions of parent behaviors related to children's exploration, and all but one of the dimensions captured adequate variability in parent behavior. Although mothers and fathers did not differ in any of the dimensions, the associations between parent behavior and children's social-emotional development did not overlap. Fathers who engaged in greater autonomy allowance and lower overprotection had toddlers with lower levels of internalizing behavior, whereas mothers who challenged children's regulatory competence had toddlers with lower levels of externalizing behavior and greater competence. We discuss the implications of the findings for the literature on attachment theory and father-child relationships.

Keywords: exploration; attachment; activation; socioemotional development; internalizing problems; externalizing problems; fathers

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1. Introduction

From the beginning of Bowlby's writings [1] on the nature and function of the attachment relationship, he emphasized the formative role of quality caregiving behavior in constructing secure attachments. His insights, tested and refined by Ainsworth and colleagues [2,3], elucidated how a caregiver's sensitive response to a child's distress provides that child with useful information about whom they can trust in times of stress. Research in this tradition has resulted in a rich and nuanced understanding of how this dynamic, reciprocal relationship forms [4], and the long-term outcomes associated with the quality of children's trust in their caregiver as a secure base in times of stress [5].

However, as developmental researchers began to learn that the existing literature—built primarily on research about infants and their primary caregiver mothers [6]—did not explain father-child attachment relationships as well as mother-child attachment relationships [7], they began to call for a "wider view of attachment" [8] to better explain the form and function of father-child attachment relationships. These calls were motivated by theoretical [9,10] and empirical [11] work suggesting that fathers may play a more important role in children's ability to take risks and explore, than they do in children's desire to seek safe refuge in times of stress. In recent years, researchers have begun to

retrace Ainsworth's steps in identifying tasks that can elicit parent behaviors that promote children's exploration. In this paper we introduce the Risky Interaction Support and Challenge Scale (RISCS) which measures parent behaviors that promote children's desire and attempts to push the limits of their competence in risky exploration.

1.1. Traditional Research in Attachment Theory

Although Bowlby [1] and Ainsworth [12] emphasized the complementary functions of proximity-seeking and exploration, operationalizations of attachment-relevant parent behaviors have emphasized parent behaviors that build trust in the parent as a safe haven. Both the Strange Situation Procedure (SSP) and coding systems for the quality of attachment-related parent behaviors were tailored to measure the safe haven function of attachment relationships over the exploration function [8]. The most commonly used measurement system to assess the quality of parent behaviors [13,14] assesses parents' skill in reading children's behavioral and emotional cues, responding appropriately, avoiding adding to children's distress by being intrusive, and setting a positive emotional tone. These behaviors signal to their children that they can be trusted in times of distress [15]. However, aside from one scale regarding the parent's stimulation of the child's development, these same behaviors are not as clearly important for children's ability to confidently explore their surroundings and take the kinds of behavioral and intellectual risks that support cognitive and emotional development. Updated theories and operationalizations are needed to capture this aspect of parent-child relationships.

1.2. A Wider View of Attachment: Theory and Operationalizations

Calls to widen the view of attachment theory have emphasized the need to better measure quality support for children's exploration behaviors. Given fathers' greater tendency to engage in rough-and-tumble play with their children [16,17], one intriguing possibility is that fathers are more likely to focus their efforts on promoting exploration when the attachment system is not activated, than on providing a safe haven when it is. Therefore, the benefits of the wider view of attachment are twofold. First, research on the quality of parent support when children pursue challenging activities, engage in vigorous play, and take risks, may reveal unique developmentally beneficial effects on children. Second, by attending equally to parent behavior when children are distressed and seeking comfort and parent behavior when children are comfortable and ready to explore, developmental researchers can better understand the roles of mothers and fathers in fostering beneficial outcomes.

Two types of operationalizations of parent support for exploration have emerged. Groundbreaking research on the differential importance of SSP-measured attachment and support for exploration demonstrated the importance of assessing parenting behaviors that effectively support children's secure exploration [11]. Grossmann and colleagues had mothers and fathers interact with their children in a cooperative, goal-directed play task and measured parent support for exploration using the Sensitive and Challenging Interactive Play (SCIP) Scale. The SCIP Scale was used to assign parents a single, global score that reflected their ability to present children with ability-appropriate challenges and support children's attempts at autonomous solutions. Fathers'—but not mothers'—SCIP scores were unique and reliable predictors of later attachment security, providing initial evidence that support for exploration is an important part of attachment and, perhaps, a more valid assessment of father-child attachment than the SSP.

The validity of parental support for exploration is supported by findings that the quality of fathers' support for exploration and risk-taking is predictive of children's willingness to take age-appropriate risks [18]. More recent work by Majdandžić and colleagues [19] expanded coding of exploration support by introducing separate scales for parental overprotection, warmth, and challenging parenting behavior. This coding system assesses parental behaviors that support their children's attempts at mastery, as well as parental behaviors that inhibit those attempts.

A second type of operationalization measured parent engagement in and support for play, an interaction context that is particularly important for father-child relationships [9,17,20,21]. Play—and especially rough-and-tumble play common among fathers in Western cultures [22]—introduces self-regulatory challenges for young children. Rough-and-tumble play arouses powerful emotions. In addition to intense pleasure, physical play can also elicit anger or sadness in a child if the play partner is too rough as well as frustration if the play partner tries to set limits on the child's behavior. In these situations, children must learn to regulate their behavior and emotions in order to continue the largely pleasurable activity.

By measuring parent behaviors during play contexts, these operationalizations recognize that promoting secure exploration may play an important role in helping children develop mature self-regulatory strategies [8,9]. Fletcher, StGeorge, and Freeman [23] had father-child dyads play physical games while coders assigned fathers a global score on the Rough-and-Tumble Play Quality (RTP-Q) scale, which reflects a parent's warmth, control during play, sensitivity, ability to balance winning and losing, and playfulness. Bureau and colleagues [24] used a relatively unstructured task—the Laughing Task, in which parents simply tried to make their children laugh—to elicit several behaviors related to the wider view of attachment: physical proximity, appropriate parental effort, following the child's rhythm (the opposite of intrusiveness), and focus on the dyadic interaction.

The key advancement of both types of operationalizations of parental support for exploration is that they posit a role for parents during exploration. In contrast to Bowlby's approach that saw children using the parent as a secure base for exploration, current approaches emphasize the parent's ability to encourage children to push their behavioral and regulatory competencies further than children could do on their own.

1.3. Exploration Support and Child Outcomes

A burgeoning literature demonstrates that parental support for exploration can predict positive child outcomes [25]. Fathers' scores on both the SCIP scale and the Laughing Task have been associated with children's attachment representations, a set of findings consistent with the theoretical argument that exploration support is more central to father-child attachment than sensitive responsiveness to distress.

Beyond the relationship with attachment, the wider view of attachment has received additional support from findings of associations between fathers' exploration support and children's emotional development. Children who are supported in exploration learn to trust in their ability to overcome challenges rather than respond to roadblocks by becoming anxious [26]. Parental—especially paternal—challenging behavior predicts low levels of child anxiety [27–29]. The converse may also be true; parents who are overprotective have more anxious children than parents who are low in overprotective behavior [30].

This association between parental challenge and children's internalizing problems also holds when researchers have examined children's willingness to take developmentally appropriate risks. Children who are "activated" [9] to take physical risks in their father's presence have fewer internalizing problems than children who are either risk-averse or reckless [31,32]. The view that fathers' rough-and-tumble play is a rich context for activating children's desire to take physical risks is supported by the increasing number of studies finding that fathers' rough-and-tumble play is associated with positive outcomes in children [33]. High quality parental engagement in rough-and-tumble play predicts fewer behavioral [23] and emotional [34] problems.

1.4. Limitations of Existing Coding Systems

Despite the growth in systems for coding parent support for exploration, two limitations in the existing literature motivated the current study. First, existing coding systems generally reserve high scores for behaviors that are sensitive (but see [19] for an exception). However, it is still an open question whether parent behaviors central to the secure base function of attachment relationships are also central to the exploration support function.

For example, challenging children to push beyond their current abilities to acquire more advanced skills may necessarily be intrusive, a behavior that is incompatible with sensitive caregiving in traditional coding systems [14]. Similarly, when children are making progress toward a challenging goal on their own, it may be beneficial for parents to avoid interacting with their children so that they can diagnose and solve problems on their own and practice regulating any frustration that arises during this process. This potentially positive parental behavior would be coded as detachment—and thus a lack of sensitivity—in traditional coding systems. In some systems for measuring exploration support, parents' active support for children's autonomy is coded [19,35] but none include unique codes for parents' willingness to adopt a stance of nonintervention. For example, Majdandžić and colleagues [19,35] coding system includes a scale that separates behavior that either actively encourages autonomy or takes it away through intrusive behavior. In their coding system, simply adopting a stance of watchful nonintervention is considered a mild form of challenging parenting behavior.

The second limitation in the current literature is that in existing systems for measuring parent support for exploration, either parents' attempts to challenge children's behavioral skill or to activate their regulatory systems through play are coded. No existing coding systems have separate scales to measure parents' ability to challenge their children's behavioral competence and their regulatory competence. For example, the challenging parenting behavior scale in Majdandžić and colleagues' [19] system captures both rough-and-tumble-play and encouragement to perform more difficult tasks. These two different types of behavior are both challenging but are conceptually distinct. Rough-and-tumble play destabilizes children, thus challenging their ability to maintain emotional and behavioral self-regulation [9]. In contrast, challenging children to perform difficult tasks stimulates their cognitive development and scaffolds their behavioral competence. In light of the lack of a coding scheme that distinguishes these types of challenges, it is not clear whether these conceptually distinct types of parental challenge are differentially associated with child outcomes.

1.5. The Current Study

The purpose of the current study was to test the reliability and validity of the newly-developed Risky Interaction Support and Challenge Scale (RISCS) [36]. The RISCS was influenced by the system developed by Majdandžić and colleagues [19]. We incorporated the Overprotection scale from their system and used their Challenging Parenting Behavior scale as the basis for the Challenging Behavioral Competence scale in the RISCS, including the definition of those constructs (see Appendix A). Due to the emerging findings that fathers' exploration support may impart developmental benefits to children, the RISCS separated parents' ability to challenge children's regulatory competence, out of Challenging Parenting Behavior into a new scale called Challenging Regulatory Competence. We also introduced a second scale called Autonomy Allowance for coding parents' adoption of a stance of nonintervention to allow the child to act autonomously.

In contrast to traditional parent coding systems [13,14] and certain exploration support scales [11], the RISCS does not reserve high scores for behaviors that are clearly sensitive. Behavior that may lead to high intrusiveness and low sensitivity scores in traditional systems, but which successfully challenges the child's behavioral or regulatory competence, may earn high scores for those dimensions in the RISCS. Likewise, behavior that may lead to high detachment and low sensitivity scores in traditional systems, may earn high scores for that dimension in the RISCS if it allows the child to act autonomously.

We tested the RISCS on parent interactions with their one-year-old children while those children were playing on a toy that invites mild physical risks. Mothers and fathers were observed playing with their children in a room containing a climber toy. The climber toy presented mild physical risks to children as they climbed steps on one side and used a slide on the other end. This is a popular toy and thus presents an ecologically valid context

in which to observe parent-child interactions that involve more physical risk than is typical in studies that investigate sensitive parent behavior.

The current study was motivated by five research questions: (1) Will coders achieve adequate interrater reliability using the RISCS when coding both fathers and mothers? (2) Does the RISCS appear to capture variability in behaviors engaged in by fathers and mothers during the climber task? (3) What similarities and differences exist between mothers and fathers in behaviors coded by the RISCS? (4) Are children's characteristics (i.e., gender and temperament) associated with fathers' and mothers' behaviors coded using the RISCS? (5) Are RISCS scores of mothers and fathers related to children's social-emotional development, and do these associations differ for mothers and fathers?

2. Materials and Methods

2.1. Participants and Procedure

Data were drawn from a longitudinal study of child and family development in dual-earner families in a large city and surrounding area in the Midwestern United States. Different-sex couples expecting their first biological child were recruited during the third trimester of pregnancy from childbirth education classes and via advertisements in doctors' offices and newspapers, and through snowball sampling and word-of-mouth. To be eligible for participation, expectant parents had to be at least 18 years old, married or cohabiting, working full time and planning to return to work postpartum, and able to read and speak English. As compensation for participating at each wave of the study, participants received small incentives in the form of cash, gift cards, and infant books or toys.

The original sample consisted of 182 couples. The data used in this report come from a longitudinal follow-up that focused on a subsample of toddlers (n = 62) and their parents (n = 112 parents; 57 fathers; 55 mothers; 50 matched mother-father pairs) who participated in two laboratory assessments spaced one month apart when the child was approximately 12–18 months old. Which parent visited the lab first with their toddler was counterbalanced. As part of these laboratory assessments, each parent and child participated in a 5-min video recorded episode in which the parent and child were introduced to a play structure that included a slide, small climbing wall, and a tunnel. The parent was asked to encourage their child to try the different things they were able to do on the play structure. At the mother-child assessment, mothers also completed the ITSEA [37], a survey measure of toddler social-emotional development, described below.

The n = 62 participating toddlers were age 16.37 months on average (SD = 1.39), comprising 40 boys and 22 girls. At recruitment, children's mothers were 27.90 years old on average (SD = 4.11), and 89% identified as White, 5% as Black or African American, 3% as mixed race, and <2% each identified as Asian or another race. Less than 2% of mothers identified as Hispanic. At recruitment, children's fathers were 29.40 years old on average (SD = 3.94), and 87% identified as White, 5% as Black or African American, 3% as Asian, and <2% each identified as Pacific Islander, mixed race, or another race. Three percent of fathers identified as Hispanic. Overall, 81% of mothers and 73% of fathers had a bachelor's degree or higher-level education. Median annual family income at recruitment was $79,500 and 87% of couples were married. Demographic characteristics of the parents and children who participated in the toddlerhood follow-up were similar to those in the larger sample. There were no significant differences between parents who participated and those who did not in terms of marital status, family income, race/ethnicity, age, or education. The only significant difference was for child gender (chi-square = 7.34, df = 1, p = 0.007), such that participating children in the toddler follow-up were more likely to be boys compared with children who did not participate in the toddler follow-up. The larger number of boys than girls at the toddler follow-up was not explained by other demographic variables. However, comparisons between families of boys and girls in the original sample on involvement in childcare from 3 to 9 months postpartum found that fathers of boys were more involved in caring for their infants than fathers of girls (further details available from the authors

upon request). It is thus possible that fathers of boys were more motivated to continue participating in the study.

2.2. Measures

2.2.1. Risky Interaction Support and Challenge Scale (RISCS) Coding

The RISCS uses a series of 5-point ratings to capture aspects of parent behavior relevant to supporting children's developmentally appropriate increasing desire for independent exploration and achievement. The 5 min observed climber task episodes with mothers and fathers were coded for the quality of parents' parenting behaviors by trained raters. The complete RISCS is provided in Appendix A [36]. In brief, the parenting behaviors coded include *challenging behavioral competence* (physical, expressive), which reflects the extent to which the parent encourages the child to go outside their comfort zone to expand their skills and achieve their goals; *challenging regulatory competence*, which captures parents' efforts to challenge children's ongoing self-regulation or encourage the child's regulatory efforts; *overprotection* (expressive, physical), which reflects the extent to which the parent conveys exaggerated worry or concern for the child's wellbeing and safety in the absence of legitimate risk; and *autonomy allowance*, or parent behavior that permits children to pursue activities that are outside of their comfort zone, beyond their current abilities, or contravene typical expectations of behavior, by simply attending to the child's activities while adopting a stance of non-intervention.

The authors, the developers of the RISCS, trained three coders to rate each parent-toddler interaction according to each of these parent behaviors. Coders were unaware of the hypotheses concerning associations with child characteristics. They first practiced identifying codable behaviors on videotaped parent-child interactions from a different study. Next, coders established reliability using the RISCS on a set of six videos of parent-child interactions (three with mothers, three with fathers) from the current study that had already been coded by the authors with perfect agreement. After an initial round of coding, the first author and the coders discussed which behaviors were seen as codable in the current study but did not discuss scores. Coders then re-coded the six pilot videos and repeated the process until all scores were within one point of the authors' scores and intraclass correlation coefficients were above 0.80. After achieving this level of reliability, the rest of the videos were double-coded. When scores differed by one point, the average rating was used. When scores differed by more than one point, discrepancies were resolved in discussion with one of the authors. Interrater reliabilities across the entire sample are reported in the Results section.

2.2.2. Infant-Toddler Social-Emotional Assessment

Mothers completed the Infant-Toddler Social-Emotional Assessment (ITSEA) [37,38], a reliable and valid assessment tool appropriate for children aged 12–48 months and designed to identify competencies and areas of concern in toddlers' social–emotional development across four broad domains: Competence, Internalizing, Externalizing, and Dysregulation. All items were rated on a scale of 0 to 2, where 0 = Not true/rarely, 1 = Somewhat true/sometimes, and 2 = Very true/often. Competence (37 items; $\alpha = 0.85$) includes aspects such as compliance, attention regulation, imitation and pretend play skills, mastery motivation, empathy, emotional awareness, and prosocial peer behaviors. Internalizing (32 items, $\alpha = 0.73$) reflects depression, social withdrawal, anxiety, separation distress, and extreme inhibition/shyness, whereas Externalizing (24 items, $\alpha = 0.79$) reflects high activity, impulsivity, aggression, and defiance. Dysregulation (34 items, $\alpha = 0.81$) captures problems in sleeping and eating, problems regulating negative emotional states with respect to reactivity and regulation, and unusual sensory sensitivities.

2.2.3. Infant Temperament

At 3-months postpartum, mothers reported on children's surgency (13 items; $\alpha = 0.83$), negative affect (12 items; $\alpha = 0.77$), and effortful control (12 items; $\alpha = 0.65$) via the Revised Infant Behavior Questionnaire–Very Short Form [39]. Each of the 37 items required mothers to rate on a scale of 1 to 7 the extent to which children exhibited a particular behavior, where 1 meant that the parent never observed their infant exhibiting the behavior and 7 meant the behavior was very frequently observed. Mothers could also select "NA" if they had not observed their infant in the situation described during the last week. Item responses were averaged to create scores for each dimension of temperament.

3. Results

3.1. Analysis Plan

First, coders' reliability in applying the RISCS scales to the observed father- and mother-toddler interactions was assessed using percent agreement within one point and intraclass correlations. Second, means, standard deviations, and ranges of the RISCS scales were inspected to describe the distributions of parents' behaviors in this sample. Third, correlations, paired-samples *t*-tests, and chi-square tests were used to assess similarities and differences in father and mother behaviors captured by the RISCS. Fourth, associations of children's characteristics (temperament and gender) with mothers' and fathers' RISCS scores were computed. Finally, correlations between fathers' and mothers' RISCS scores were calculated to examine relations between parents' behaviors and children's social-emotional adjustment, Fisher's *r*-to-*z* tests were used to compare corresponding correlations for fathers and mothers, and these correlations were recomputed controlling for mothers' reports of infant temperament at 3 months postpartum.

3.2. Reliability and Distribution of RISCS Scores

Interrater reliability is reported in Table 1. Percent agreement within one scale point ranged from 81–100% and was similar for fathers' and mothers' behaviors. With the exception of the expressive overprotection scale, coders achieved strong intraclass correlations, ranging from 0.791 to 0.900, which was similar in strength for fathers and mothers. Moreover, the descriptive RISCS statistics (except expressive overprotection) reflected the fact that these scales appeared to capture adequate variability in parent behavior. Reliability was low for expressive overprotection because of its restricted range; moderate to high levels of this behavior were observed for neither fathers nor mothers.

Table 1. Interrater reliability for RISCS, descriptive statistics, and mother–father comparisons.

	Percent Agreement within 1 Point		**Intraclass Correlation Coefficients**		**Means (*SD*)** [2]		**Ranges**		**Paired *t*-Value**	***p*-Value**
RISCS Subscale	**Fathers**	**Mothers**	**Fathers**	**Mothers**	**Fathers**	**Mothers**	**Fathers**	**Mothers**		
PCBC [1]	87.8	95.2	0.791	0.876	1.94 (0.93)	1.98 (0.84)	1.00–4.00	1.00–4.00	−0.60	0.550
CRC	95.1	95.2	0.857	0.900	2.18 (1.33)	1.80 (0.93)	1.00–5.00	1.00–4.50	1.65	0.104
PO	90.2	95.2	0.796	0.873	1.54 (0.91)	1.77 (1.05)	1.00–5.00	1.00–5.00	−1.23	0.222
EO	100	97.6	0.500	N/A	1.12 (0.26)	1.11 (0.23)	1.00–2.50	1.00–2.00	−0.70	0.489
AA	82.9	81.0	0.852	0.845	3.29 (1.12)	3.16 (1.15)	1.00–5.00	1.00–5.00	0.82	0.415

[1] PCBC = Physical Challenging Behavioral Competence; CRC = Challenging Regulatory Competence; PO = Physical Overprotection; EO = Expressive Overprotection; AA = Autonomy Allowance. [2] $N = 57$ for fathers and $N = 55$ for mothers. $N = 50$ and $df = 49$ for paired comparisons.

3.3. Similarities and Differences between Fathers and Mothers

Correlations between corresponding RISCS scores for fathers and mothers (Table 2) revealed one significant association: fathers' scores on autonomy allowance were positively associated with mothers' scores on autonomy allowance, $r = 0.378$, $p < 0.01$. The other corresponding correlations ranged from −0.095 to 0.174 and did not reach statistical significance. Notably, for both fathers and mothers, higher scores on overprotection were related to lower scores on autonomy allowance, and higher scores on challenging behavioral competence were also related to lower scores on autonomy allowance.

Table 2. Intercorrelations among RISCS scores.

RISCS	1	2	3	4	5	6	7	8
Fathers								
1. PCBC [1]	–							
2. CRC	0.05	–						
3. OP	−0.04	−0.22	–					
4. AA	−0.26 *	0.18	−0.59 ***	–				
Mothers								
5. PCBC	0.06	−0.16	0.24	−0.10	–			
6. CRC	0.03	0.17	0.04	−0.01	0.09	–		
7. OP	0.25	−0.28 *	0.12	−0.31 *	0.11	−0.27 *	–	
8. AA	−0.31 *	0.29 *	−0.24	0.38 **	−0.31 *	0.06	−0.70 ***	–

[1] PCBC = Physical Challenging Behavioral Competence; CRC = Challenging Regulatory Competence; OP = Overprotection (physical and expressive combined); AA = Autonomy Allowance. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. *N*s range from 50 to 57. Expressive and Physical Overprotection scores were combined due to low variability in Expressive Overprotection.

Paired *t*-test analysis revealed no statistically significant differences in the mean values for fathers' and mothers' RISCS behaviors (Table 1). However, follow-up analysis further considered the distributions of RISCS scores for fathers and mothers (with the exception of expressive overprotection, which had inadequate variability), and used chi-square tests to examine whether very high scores were more characteristic of one parent or the other. On each of the other four scales (challenging behavioral competence, challenging regulatory competence, physical overprotection, and autonomy allowance), fathers and mothers were divided into groups on the basis of whether they received high scores (4 s or 5 s) or lower scores. Of the four scales examined, there was a significant difference in the distribution of fathers' and mothers' scores on challenging regulatory competence, $\chi^2(1) = 3.99$, $p = 0.046$. Fathers were more likely to receive high scores on challenging regulatory competence ($n = 10$ of 57) than were mothers ($n = 3$ of 55).

3.4. Children's Characteristics and RISCS Scores

Prior to examining relations between children's characteristics and RISCS scores, the physical and expressive overprotection scales were summed (separately for fathers and mothers) in order to provide an overall score for overprotection with adequate variability. Independent sample *t*-tests considered whether fathers' and mothers' RISCS scores differed for boys versus girls. No statistically significant differences were observed, with *p*-values ranging from 0.167 to 0.970. Correlations of fathers' and mothers' perceptions of infant temperament at 3 months postpartum (i.e., surgency, negative affect, and effortful control) with fathers' and mothers' RISCS behaviors also revealed no statistically significant associations. For fathers and mothers, these correlations ranged in absolute value from 0.01 to 0.19.

3.5. Relations between RISCS Scores and Toddlers' Social-Emotional Adjustment

Correlations between fathers' and mothers' RISCS scores and toddlers' social-emotional adjustment are shown in Table 3. Fathers who engaged in greater autonomy allowance had toddlers with lower levels of internalizing behavior, $r = -0.28$, $p < 0.05$. In contrast, fathers who showed higher combined physical and expressive overprotection had toddlers with higher levels of internalizing behavior, $r = 0.34$, $p < 0.01$. When mothers were observed to challenge children's regulatory competence more strongly, their toddlers demonstrated lower levels of externalizing behavior, $r = -0.32$, $p < 0.05$, and greater competence, $r = 0.29$, $p < 0.05$.

Table 3. Correlations between RISCS scores and toddler social-emotional development.

	ITSEA Domains			
RISCS Subscale	**Externalizing**	**Dysregulation**	**Internalizing**	**Competence**
Fathers				
PCBC [1]	−0.04	−0.03	0.10	0.06
CRC	−0.18	−0.10	−0.07	−0.16
OP	0.01	0.12	0.34 **	0.01
AA	0.00	−0.13	−0.28 *	−0.12
Mothers				
PCBC	−0.02	−0.07	0.23	0.12
CRC	−0.32 *	0.00	0.14	0.29 *
OP	−0.03	−0.02	0.05	0.02
AA	0.13	0.03	−0.15	−0.21

[1] PCBC = Physical Challenging Behavioral Competence; CRC = Challenging Regulatory Competence; OP = Overprotection (physical and expressive combined); AA = Autonomy Allowance. * $p < 0.05$. ** $p < 0.01$. *N*s range from 55 to 57. Expressive and Physical Overprotection scores were combined due to low variability in Expressive Overprotection.

For the $n = 50$ subsample of families in which we had parent behavior data from matched pairs of mothers and fathers and ITSEA data on toddlers, we were able to further follow up and test whether the strength of the pairs of associations were significantly different using Fisher's *r*-to-*z* test for comparison of correlations from dependent samples. The associations of challenging regulatory competence with children's competence were significantly different for mothers ($r = 0.30$) and fathers ($r = -0.14$), $z = 2.42$, $p = 0.008$; however, the associations for challenging regulatory competence and children's externalizing were not ($r_m = -0.31$, $r_f = -0.17$, $z = -0.78$, $p = 0.216$). The associations of autonomy allowance and children's internalizing were not significantly different for fathers ($r = -0.30$) and mothers ($r = -0.17$), $z = -0.84$, $p = 0.201$, but the associations of overprotection with children's internalizing were significantly different for fathers ($r = 0.39$) and mothers ($r = 0.08$), $z = 1.68$, $p = 0.047$.

Finally, in light of anticipated and significant associations between mothers' perceptions of infant temperament at 3 months and toddlers' social-emotional adjustment (Table 4), we re-ran the correlations between parents' RISCS scores and toddlers' ITSEA scores controlling for mothers' reports of children's surgency, negative affect, and effortful control at 3 months postpartum. These partial correlations revealed that three of the four significant associations between parents' RISCS scores and toddlers' social-emotional adjustment retained their statistical significance even when controlling for mothers' reports of infant temperament. The exception was the correlation between mothers' challenging regulatory competence and toddlers' externalizing behavior, which dropped below $p < 0.05$ when controlling for mothers' reports of infant temperament, $pr = -0.27$, $p = 0.064$.

Table 4. Descriptive Statistics and Intercorrelations of Infant Temperament and ITSEA scores.

	1	2	3	4	5	6	7	Means (*SD*)
Infant Temperament								
1. Surgency	–							3.81 (0.85)
2. Negative Affect	0.07	–						3.42 (0.86)
3. Effortful Control	0.38 **	−0.17	–					5.44 (0.54)
ITSEA Scores								
4. Externalizing	0.14	0.31 *	−0.09	–				0.48 (0.23)
5. Dysregulation	0.00	0.41 ***	−0.05	0.45 ***	–			0.38 (0.20)
6. Internalizing	0.11	0.18	−0.24	0.07	0.25 *	–		0.52 (0.16)
7. Competence	0.22	−0.27 *	0.32 *	−0.09	−0.09	−0.04	–	1.31 (0.23)

Note: * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. $N = 62$.

4. Discussion

The current study investigated the reliability and validity of a newly developed coding system for measuring parents' support for exploration with their young children. We found that coders could rate reliably the behaviors captured in the RISCS, including autonomy allowance, which focuses on the parent's lack of interference in the child's activities. In addition, we found that fathers' and mothers' scores on the RISCS were largely similar. We also found that parents' RISCS scores were associated with children's social and emotional development. Consistent with our predictions and with previous research e.g., [29], fathers' lower levels of overprotection and higher levels of autonomy allowance were associated with lower levels of internalizing problems in children. Finally, we found unexpected associations between higher levels of maternal challenging regulatory competence and lower externalizing problems and higher competence in toddlers. Taken together, these patterns suggest that the RISCS captures exploration-relevant parenting behaviors that are similar between parents but have different associations with child outcomes.

These data contribute to the burgeoning scholarship on parental support for children's exploration and on father-child relationship quality. One important theoretical advance lies in the differential conception of what it means when parents refrain from involving themselves in children's ongoing activities. Coding scales of parent behavior from the attachment tradition treat such instances as evidence of parental detachment, or being "emotionally uninvolved or disengaged and unaware of the child's needs for appropriate interaction" [14]. Detachment in the context of the safe-haven function of attachment is associated with poorer child outcomes [40], but the current findings suggest that allowing autonomy by "attending to the child's activities while adopting a stance of non-intervention" may be an important protective factor for children by supporting healthy risk-taking in the context of the exploration function of attachment. Similarly, the positive relation between paternal overprotection and children's internalizing problems is consistent with other studies [41] and with the view that overprotection is a risk factor in children's development. When it comes to children's autonomous exploration activities, it may be best for fathers to err on the side of non-intervention.

The current study is broadly consistent with the empirical literature in finding that when fathers demonstrate high-quality parenting behaviors, their children are less likely to have internalizing problems. Low paternal overprotection and high autonomy allowance were associated with fewer internalizing problems in children. This pattern fits with empirically-based models of the etiology of anxiety that emphasize the father's role in opening children to the world and promoting their independence [42]. Notably, no other variables in the current study explained a significant amount of variance in internalizing problems, although interpretations regarding the uniqueness of fathers' roles must be tentative because differences in statistical significance do not entail differences in relations between constructs [43].

Although the findings regarding fathers' behavior and children's internalizing problems are broadly consistent with the empirical literature, there was one clear difference. Other studies have found that fathers' challenging parenting behavior is associated with fewer anxiety symptoms in their children [28,44], a finding that did not emerge in the current study. One plausible explanation lies in the different operationalizations of children's behavior problems. Previous studies investigating challenging parenting behavior have focused on child anxiety, whereas the current study used a scale for internalizing problems that included depression, extreme shyness, and social withdrawal. A second plausible explanation for the differences lies in the age at which internalizing problems were measured. Children in the current study were tested between 12-and 18-months, whereas previous studies have focused on children's anxiety later in later preschool years. Not only might mothers of toddlers have struggled to report anxiety symptoms as distinct from other related behaviors, but also theoretical models of the relation between fathers' parenting and child anxiety emphasize the importance of those effects as children mature and gain independence [8,9,42]. It is possible that anxiety-specific effects do not emerge until the later preschool years.

The lack of association between paternal scores on challenging regulatory competence (CRC) and child outcomes was surprising, because the RISCS places physical play within the CRC subscale. Empirical [23,28,31,33] and theoretical [8,9,42] studies have found that quality rough-and-tumble play between fathers and children is associated with positive outcomes in children. There are several possible explanations for why these relations did not emerge in the current study. First, it is possible that that paternal CRC at 16 months does not serve the exploration function of attachment, and that these relations emerge later in the child's life. Second, the perceptual salience of the climber toy in the room may have dictated the nature of the play and made it difficult for fathers to engage in more open-ended physical play. Third, it is possible that parental encouragement of children's own regulatory efforts, which comprises part of the CRC subscale, is not related to paternal activation of risk-taking or rough-and-tumble play. This may have resulted in some fathers who do not typically engage in physical play with children scoring highly on CRC.

Comparisons between mothers' and fathers' results are noteworthy for several reasons. Mothers and fathers scored similarly on each of the RISCS subscales, a finding that is consistent with other comparisons between mothers' and fathers' exploration-relevant behaviors with first-born children [24,29]. However, none of the significant correlations between RISCS subscales and child outcomes overlapped between mothers and fathers, raising the possibility that the same parenting behaviors in mothers and fathers may have different behavioral consequences for children. Although this explanation must be treated with caution, as differences in significance do not entail significant differences, Fisher's *r*-to-*z* tests found that two of these pairs of correlations differed significantly between parents. First, fathers' overprotection, but not mothers', was associated with children's internalizing problems. This pattern would make sense if fathers in the current study were more likely than mothers to encourage their children's risk-taking and exploration; overprotection in that role is likely to be more detrimental to children than overprotection by the parent serving as the child's safe haven in times of distress [9,31].

The other significant difference in RISCS-to-outcomes correlations was that mothers' CRC, but not fathers', was associated with greater competence in children. This finding was unexpected and is more difficult to explain using the existing literature on father-child interaction. One possibility is that high and low scores on CRC reflect different kinds of behaviors. Lower-to-moderate levels of CRC may reflect variability in parental engagement and stimulation of development. If this is true, then the relation between mothers' CRC and children's competence may have been driven by variability in maternal engagement. As nearly all of the mothers scored within this lower range of CRC, there was a sufficient sample size to uncover relations with child competence. In contrast, perhaps only higher scores reflect behaviors that are sufficiently challenging to children's regulatory systems. Consistent with theories positing that fathers often fill this role [9], post-hoc analyses

confirmed that fathers were significantly more likely than mothers to score highly on CRC. However, it is possible that not enough fathers scored in this range to test associations with child outcomes. Therefore, it is possible that the intensity of challenges changes their developmental significance, with gentle challenges relating to sensitive engagement within the safe-haven context of attachment, and more intense regulatory challenges relating to exploration and risk-taking.

The current study had several limitations. The demographics of the study sample limit the generalizability of the findings. Families in the current study were all heterosexual parents raising their first child in a dual-earner, cohabiting household. Preliminary research with homosexual fathers suggests that in those households, like those led by heterosexual parents, primary caregivers act as safe havens and secondary caregivers act to support exploration [45]. These data suggest that the patterns in the current study may apply to primary and secondary caregiving gay male fathers, but this is speculative. Regarding the child's status as first-born, it is possible that parents' exploration-supportive behavior may be different with later-born children [29]. The limited range of socioeconomic status and ethnicity limit the study's generalizability to lower-income and BIPOC samples. For example, fathers with more education spend more time interacting with children [46], which may have contributed to the lack of parent-gender differences in RISCS scores. However, the limited research on parental support for exploration using samples from a broad range of socioeconomic status makes it difficult to hypothesize precisely what patterns might be expected [25]. It is also possible that the overrepresentation of boys in the sample meant we had especially involved fathers participating, which could further limit the generalizability of the findings. The sample size was modest, which limited the feasibility of factor analytic and other multivariate analyses. Despite that limitation, given the inclusion of much-needed observational data on fathers' behavior [6], and the need for development and validation of additional measures of parental support for exploration, the findings are noteworthy. It is important to state that the current study relied on uncorrected zero-order correlations to answer the research questions. This decision was made because the purpose of the current study was not to test theories, but rather to introduce a novel tool for researchers and to limit Type II errors when suggesting avenues for additional research. Therefore, there is a risk that some of the findings reflect Type I errors. Finally, child outcomes were measured concurrently with parent behavior, so no firm claims regarding the direction of relations can be made, although controlling for infant temperament does strengthen the claim that parent behavior in support of exploration contributes to children's social-emotional development.

Findings from the current study suggest several directions for future research. Given the theoretical importance of exploration support in the preschool years and beyond, future studies using the RISCS should examine behavior in older children engaging in riskier activities. This would give overprotective more opportunities for parents to display those behaviors, and opportunity to investigate their relations with child outcomes. Including older children would also help address the appropriate way to assess overprotection. In the current study and in other studies using observational measures of overprotection e.g., [19], expressive and physical overprotection were combined. Future research should investigate whether the method of measuring overprotection is theoretically meaningful or if it is simply a byproduct of other factors such as context and child age. It is also important to recruit a more diverse sample. The sample used in the current study was originally recruited specifically to investigate the transition to parenthood in dual-earner couples, so future studies investigating parental support for risk-taking specifically should take care to broaden the demographic characteristics of the sample. Although coders in the current study achieved strong reliability when coding videotaped parent behavior with toddlers, it is unclear whether the RISCS could be used reliably to code more intense expressive overprotection, live behavior, or parent behavior during interactions with older children. Longitudinal studies and studies with larger sample sizes will help assess the direction of relations between parent behavior and child outcomes, and will enable more robust

model-testing approaches. Factor analyses will be especially important to address whether challenging children's behavioral and regulatory competencies should be considered as one or two constructs.

5. Conclusions

The current study adds to the literature on parental support for children's exploration-relevant behaviors and the associations between those behaviors and child outcomes. The RISCS appears to be a reliable and valid measure of parenting behavior for fathers and mothers. The study contributes to research in this tradition in three distinct ways. First, the findings suggest that in the context of children's exploration, simply attending to children's ongoing activity while taking a stance of non-intervention may support children's development. Second, the findings extend the literature on the connection between paternal exploration support and children's internalizing problems, by including toddlers in the study results. Third, the findings provide a nuanced picture of similarities and differences between mothers and fathers, and thus challenge the idea that mothers' and fathers' roles are necessarily linked with gender.

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Informed Consent Statement: Informed consent was obtained from all adult participants involved in the study.

Data Availability Statement: The data presented in this study are available on request from S.J.S.-S. The data are not publicly available due to the need to protect confidentiality of participants.

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Appendix A

The Risky Interaction Support and Challenge Scale:

The Risky Interaction Support and Challenge Scale (RISCS) is designed to allow coding of parent behavior during periods in which children are engaged in tasks that involve physical risk and/or behavioral challenge. The four scales capture aspects of parent behavior relevant to supporting children's increasing desire for independent exploration and achievement.

These scales are meant to accompany the Qualitative Ratings of Parent-Child Interaction (colloquially "NICHD Scales") developed by the NICHD [13] and most recently by Cox and Mills-Koonce [14], although the RISCS may be used independently. The rating procedures are similar to those used in the NICHD Scales. After coders are familiar with the breadth of behaviors in a given task, they should (1) watch a tape once while taking minimal notes; (2) watch the tape a second time while taking careful longhand notes that identify

codable behaviors, the time stamp at which the behaviors occurred, and the intensity of each behavior; (3) assign an initial score for each dimension; (4) watch the tape a third time to consider the initial scores; (5) assign a final score for each dimension; and (6) watch the tape a fourth time to consider the scores. Note that for both the challenging competence and overprotection scales, only observed behaviors are coded and assigned scores are based solely on the frequency of displayed behaviors; the absence of a behavior is not considered. The absence of intervention is, however, coded in the autonomy allowance scale.

Identifying codable behaviors follows a two-step process. Coders should first determine if the behavior fits the description in the scale introduction. If a behavior is determined to fit the characteristics in the scale introduction, then the coder determines the intensity of the behavior.

The score assigned for each scale is determined by the frequency and intensity of coded behaviors. Codes for all four scales are as follows:

1. The relevant behavior is not at all characteristic of the interaction. Generally, the parent either does not show any clear instances of the behavior or shows infrequent and low-intensity behavior.
2. The interaction is characterized by low-intensity behavior. Generally, the parent shows frequent low-intensity behavior. Some moderate-intensity behavior may be present, but rare.
3. Moderate-intensity behavior is somewhat characteristic of the interaction. Generally, the parent shows infrequent moderately-intense—but no highly-intense—behavior.
4. Moderate-intensity behavior is clearly characteristic of the interaction. Generally, the parent shows frequent moderately-intense behavior. Some high-intensity behavior may be present, but rare.
5. The parent shows strong behavior. The parent shows some highly-intense instances of behavior in the context of an interaction characterized by consistent moderate behavior.

A non-zero value must be given for the two scales that code parent challenging behavior. However, both overprotection and autonomy allowance code parents' responses to children's behavior and thus coders may assign a zero ("not applicable") if children never engage in any eliciting behavior.

Note: This coding system is heavily influenced by Mirjana Majdandžić's "Coding Protocol of Parenting Behavior in Parents of Toddlers" [35] described by Majdandžić et al. [29]. Construct definitions for Challenging Parenting Behavior and Overprotection are taken from her coding system, as are the differentiation between physical and expressive challenging parenting behavior and overprotection.

Challenging Behavioral Competence:

"The challenging behavioral competence (CBC) construct reflects the extent to which the parent encourages the child to go outside of their comfort zone" [35] (p. 10) and push the limits of their behavioral competence, including by taking risks. Behavioral competence refers to the ability to achieve action goals without assistance, and may be challenged when parents encourage children to add new behaviors to their repertoire or to pursue action goals through more mature means. Codable behaviors encourage children (a) to engage in behaviors beyond their current ability and/or (b) to develop cognitive abilities that directly support behavioral competence relative to ongoing tasks. Parents could challenge their children through either physical interaction (e.g., physical support during climbing) or expressions (e.g., verbal encouragement or teaching children novel solutions to problems). Both quantity and intensity of challenging behavior are considered.

CBCs that are poorly-attuned to their child's abilities and potential and are unwelcome to the child should not be coded in this scale. Examples of poorly attuned behaviors include those that occur while the child is clearly dysregulated or which lead to dysregulation (but not necessarily lower-level frustration), those that encourage clearly dangerous behavior, or those that are clearly beyond the child's developmental level. However, the presence of distress does not mean the CBC is inappropriate. Effective challenging behavior causes

the child to go outside their comfort zone and into the zone of proximal development; this should be expected to cause some distress (but not dysregulation). Additionally, behavior that may appear intrusive to the coder may not be experienced by the child as such. For example, a child who is calmly acting toward an easy goal may welcome a parent's prodding to attempt a more ambitious goal. Therefore, coders should use a lax criterion when deciding whether a behavior is challenging, and disregard only behaviors that are clearly poorly-attuned to the child's current actions or beyond the child's zone of proximal development. Because this scale is meant to complement the NICHD scales—which differentiate intrusive and sensitive behaviors—the coder should not reserve high scores on this scale for sensitive challenging parenting behavior. Additionally, purely supportive comments about behavior that don't encourage persistence toward goals (e.g., "good job!") do not qualify as CBC.

Provide separate numerical scores for physical and expressive challenging behavior. Physical CBC includes behaviors that involve physical contact or object-mediated physical play (e.g., tug-of-war) and that encourage children to attempt more challenging tasks than they are currently attempting. Coders should use contextual information to help determine if behaviors are intended to support the development of children's competence or are driven by the parent's agenda. For example, a parent who relocates a child to another area may be alerting the child to a new activity; in this context, the physical interaction is intended to present the child with a new challenge. However, a parent who relocates a child away from a potentially risky area to a safer area may be either protecting the child (in a situation with legitimate risk) or being overprotective (in a situation without legitimate risk); in this context, the behavior is not challenging.

Expressive CBC includes verbal or nonverbal expressions that encourage the child to do what they find difficult and to think in more mature ways. Coders should use contextual information to help determine if behaviors are intended to support the development of children's competence. For example, a parent who explains a problem at a level clearly too advanced for their child may be attempting to impress an audience rather than challenging their child.

Coding:

Intensity is determined by the level of challenge, parent affect, the degree of unpredictability, the duration of activity, and the amount of physical force used. The guides below are not comprehensive. Coders should use their knowledge of typical parent behavior and use their judgment to determine intensity.

Physical CBC:

- Low intensity CBCs use physical means to provide mild challenges to children's behavioral competence. Examples include gently and physically supporting children's attempts toward easy ongoing action goals (e.g., holding the hand of a child who is climbing an easy incline, gently manipulating the child's body in a task requiring physical coordination) or behaviors where the physical interaction is not clearly or effectively supporting the more challenging goal (e.g., moving the child's hand but not explaining the goal of the intervention).
- Moderate intensity CBCs use physical means that clearly challenge children's *demonstrated* behavioral competence but not their *potential* behavioral competence. Examples include physically supporting children to engage in an action more difficult than the ongoing action, but which the child is comfortable attempting (e.g., physically encouraging the child to climb an object they would not have climbed at that moment, manipulating the child's body in a way that they would not have attempted naturally) or attempting to challenge the child's potential competence but doing so ineffectively (e.g., moving the child's hand but ineffectively explaining the goal of the intervention).
- High intensity CBCs effectively use physical means to challenge children to reach their behavioral potential. Examples include effective physical encouragement to children to accomplish a feat that they are clearly apprehensive to attempt or struggling to accomplish (e.g., succeeding at supporting a child who climbs an object despite some

difficulty or resistance—but not dysregulation—on the part of the child). Coders may also consider moving moderate intensity behaviors to intense behaviors if they occur unpredictably (e.g., when the child is attending elsewhere or early in the interaction when the child may not be familiar with the space).

Expressive CBC:

- Low intensity CBCs use expressive means to provide mild challenges to children's behavioral competence. Examples include verbally encouraging the child to persist toward an easy ongoing action goal, suggesting a more challenging task but not encouraging further efforts, encouraging children to use objects in novel ways, and using an animated facial expression or gesture to motivate the child to persist on an easy task when parental motivation seems to be required. Behaviors that may appear to be moderate intensity but which are clearly ineffective should be coded as low intensity.
- Moderate intensity CBCs use expressive means that clearly challenge children's *demonstrated* behavioral competence but not their *potential* behavioral competence. Examples include successfully using verbal or gestural means to encourage children to engage in an action or goal more difficult than the ongoing action but which is within the child's demonstrated abilities, asking challenging questions in the service of fostering behavioral competence, teaching the child a behavioral strategy within the child's abilities, or attempting to challenge the child's potential competence but doing so ineffectively (e.g., encouraging the child to reach their behavioral potential but the child disregards the comment).
- High intensity CBCs effectively use expressive means to challenge children to reach their behavioral potential. Examples include expressions that effectively push children to reach ambitious goals, scaffolding that results in creative problem-solving and/or the use of objects or activities in more sophisticated and complex ways, comments presented in an emotionally-charged tone of voice that successfully encourage the child to reach their behavioral potential, commands or forceful prodding of the child to switch tasks, teaching the child a challenging concept (i.e., the parent must persist in teaching the new concept for an extended time).

Challenging Regulatory Competence:

The challenging regulatory competence (CRC) construct reflects the extent to which the parent either creates a challenge to the child's ongoing self-regulation or encourages the child's regulatory efforts. Codable behaviors are those that (a) destabilize the child by creating an emotional reaction; (b) interrupt the child during an ongoing task creating an attention-regulation challenge (if the child is required to return to the task) or emotion-regulation challenge (if the child frustrated by an inability to return to the task); or (c) support or encourage the child's regulatory efforts. High scores on this scale suggest that parent behaviors support children's ability to regulate intense emotions or solve challenging regulatory problems. Both quantity and intensity of challenging behavior are considered.

As with challenging behavioral competence, CRCs that are poorly attuned to their child's abilities and potential and are unwelcome to the child should not be coded in this scale. Examples of poorly attuned behaviors include those that occur while the child is clearly dysregulated or which lead to dysregulation (but not necessarily lower-level frustration), those that encourage clearly dangerous behavior, or those that are clearly beyond the child's developmental level. Therefore, coders should use a lax criterion when deciding whether a behavior is challenging, and disregard only behaviors that are clearly poorly attuned to the child's current actions or beyond the child's zone of proximal development.

Coding:

Intensity is determined by the level of challenge, parent affect, the degree of unpredictability, the duration of activity, and the amount of physical force used. The guides below

are not comprehensive. Coders should use their knowledge of typical parent behavior and use their judgment to determine intensity.

Low intensity CRCs are those that provide mild challenges to children's regulatory competence or encourage children to regulate mild distress. Examples include gentle physical games (light tickling), gently eliciting new emotions through verbal or gestural means (e.g., saying "boo" in a relatively calm tone of voice), encouraging children to manage mild distress, or ineffective support for children's attempts to manage moderate distress.

Moderate intensity CRCs are those that clearly challenge children's regulatory competence, introduce some risk where mild distress may be justified, or encourage children to regulate obvious distress. Examples include brief physical games that require the child to use some amount of force (e.g., tug-of-war, chasing) or feel momentary distress (e.g., gentle tossing in the air), longer bouts of gentle physical play, more intense attempts at destabilization that either do not elicit a strong reaction or do not interrupt intense focus, gentle teasing (e.g., playfully saying "can you really do that?" while the child is engaged in a mild struggle), effective support for children's attempts to manage moderate distress, or ineffective support for children's attempts to manage extreme distress.

High intensity CRCs are those that push children to the limit of their regulatory competence or are effective in encouraging children to regulate intense emotions. Examples include extended physical games that involve the use of force and a change in the child's emotional state (e.g., tickling that leads to intense laughter, chasing that involves running, wrestling), destabilization that interrupts a child who is engrossed in a task and/or results in a strong reaction but *not* dysregulation, teasing the child in ways that more forcefully challenge the child's competencies (e.g., saying "no way, you can't climb all the way up there" or "I don't think you can solve such a difficult puzzle all by yourself" where the intent is clearly to spur the child to reach a more advanced goal, but not belittle the child).

Overprotection:

"Overprotection reflects the extent to which the parent conveys exaggerated worry or concern for the child's wellbeing and safety. During coding, attention is paid to how carefully the parent handles the child and to what extent the parent shows behavior aimed at protecting the child" [35] (p. 12). Note that behavior that is protective of children's safety during times of legitimate potential for harm is not considered overprotective. Both quantity and intensity of overprotection are considered.

Coding:

Provide separate numerical scores for physical and expressive overprotection.

Examples of behaviors that indicate physical overprotection are those that use physical force to restrict child movement. Low, moderate, and intense ratings are given based on the level of protection inherent in the parent behavior, the degree of legitimate risk, duration of activity, parent affect, and child affect.

- Low intensity examples include briefly restraining the child when the risk of danger is small, redirecting movement away from perceived danger despite small degree of risk (and with no resistance from the child), or maintaining constant close physical proximity to the child and willingness to intervene during periods of no risk of danger.
- Moderate intensity examples include restraining the child despite no clear sign of risk, restraint or redirection from low-risk situations which results in some child resistance, or hovering over the child in a pose that suggests readiness to intervene during periods of minimal risk to the child.
- High intensity examples include firmly holding the child while they attempt to pull free and attempt an activity with no clear sign of risk, and picking up the child in order to either redirect movement or remove them from the situation.

Examples of behaviors that indicate expressive overprotection are those that use verbal or facial expressions to restrict child movement.

- Low intensity examples include calm expressions of concern (e.g., reminders to be cautious, "hold on," mild facial expressions of apprehension), or warnings against

proceeding with an activity (e.g., "I don't think you should do that"), or disapproving facial expressions when children are engaging in a task) when the risk of danger is small.

- Moderate intensity examples include expressions of concern or warnings against proceeding with an activity, either when those activities show no clear sign of risk or when those expressions are given with a worried tone of voice.
- High intensity examples include: expressions (e.g., gasping, very fearful expressions, "watch out!") with emotional displays that signal a risk of impending danger that substantially exaggerates the degree of risk, explicit prohibitions ("stop!") against proceeding with a safe activity, or explicit statements ("that's scary," "that makes me nervous") about the parent's concern for the child's safety in safe activities.

Note: When assigning an overprotection score, parents whose children never attempt risky activities (for reasons of their own choosing, not because of parental overprotection) can be given a zero.

Autonomy Allowance:

Autonomy allowance describes behavior that allows children to autonomously pursue activities that are outside of their comfort zone, beyond their current abilities, or contravene typical expectations of behavior, by simply attending to the child's activities while adopting a stance of non-intervention. Parents who allow children to work autonomously due to being detached and unaware of the child's activities are not considered to be demonstrating autonomy allowance; there must be evidence that parents are visually or aurally attending to the child's activities to determine that non-intervention is the result of a parent decision to allow autonomy. Autonomy allowance also occurs when parents allow children to act in unconventional—but not inappropriate—ways without correcting the behavior. Intervention refers to parent behaviors that insert their own agency into the process of task completion (i.e., the parent completes steps that the child is capable of completing or gives instructions that the child would know).

Low, moderate, and intense ratings are given based on the degree of the child's struggle to make progress, the parent's intervention latency, the extent to which the behavior contravenes typical expectations that parents have of children's behavior, and the type of intervention. At low levels, the parent initially does not intervene, but may intervene quickly after the child does not make progress. At high levels, the parent maintains attentive non-interference for extended periods despite the child's continued lack of progress, signs of struggle, or signs of distress. The coder should take intervention latency into account; parents who attend to the child's struggle for a considerable amount of time before reaffirming the child's skill may still get scores reflecting high levels of autonomy allowance.

Coding:

- Low intensity examples include situations in which the parent allows the child to work on easy tasks without intervention only until the child shows signs of struggle, after which intervention is swift; any situation in which parents engage in unnecessary physical intervention after allowing independent work (i.e., a lengthy period of autonomy allowance ended by unnecessary physical intervention cannot receive an intensity rating above low); or maintaining proximity to the child during low-risk activities but not indicating a desire to intervene.
- Moderate intensity examples include situations in which the parent allows the child to work on easy tasks with no intervention for long periods of time and/or waits briefly before intervening when the child shows signs of struggling on a task; refraining from unnecessary physical intervention—but still offering verbal interventions—during challenging behavioral tasks; comments about the child's lack of need for parent assistance during tasks within the child's demonstrated competence, allowing the child to disregard parent suggestions or directives, or maintaining close proximity—but not hovering in manner suggesting a desire to intervene—during physically challenging tasks.

- High intensity examples include situations in which the parent allows the child to work on challenging tasks with no intervention or minimal intervention for long periods of time; waiting until signs of significant distress (but not dysregulation) before even verbal intervention; comments about the child's lack of need for parent assistance on tasks that challenge the child's potential competence, or keeping physical distance even during significant physical challenge. These parents are content to let their child encounter any struggle autonomously as long as the parent believes that goal-completion is within the child's ability.

Notes: (1) parents who intervene when children show signs of dysregulation should not be penalized on their score; (2) when assigning an autonomy allowance score, parents whose children never attempt activities outside of their comfort zone or beyond their current abilities can be given a zero.

References

1. Bowlby, J. *Attachment and Loss: Vol. 1. Attachment*; The Hogarth Press and the Institute of Psycho-Analysis: London, UK, 1969.
2. Ainsworth, M.D.S.; Blehar, M.C.; Waters, E.; Wall, S. *Patterns of Attachment: A Psychological Study of the Strange Situation*; Lawrence Erlbaum: Oxford, UK, 1978; p. xviii 391. ISBN 978-0-470-26534-5.
3. Bell, S.M.; Ainsworth, M.D.S. Infant Crying and Maternal Responsiveness. *Child Dev.* **1972**, *43*, 1171. [CrossRef] [PubMed]
4. Belsky, J.; Fearon, R.M.P. Precursors of Attachment Security. In *Handbook of Attachment: Theory, Research, and Clinical Applications*, 2nd ed.; The Guilford Press: New York, NY, USA, 2008; pp. 295–316. ISBN 978-1-59385-874-2.
5. Groh, A.M.; Fearon, R.M.P.; IJzendoorn, M.H.; Bakermans-Kranenburg, M.J.; Roisman, G.I. Attachment in the Early Life Course: Meta-Analytic Evidence for Its Role in Socioemotional Development. *Child Dev. Perspect.* **2017**, *11*, 70–76. [CrossRef]
6. Cabrera, N.J.; Volling, B.L.; Barr, R. Fathers Are Parents, Too! Widening the Lens on Parenting for Children's Development. *Child Dev. Perspect.* **2018**, *12*, 152–157. [CrossRef]
7. Lucassen, N.; Tharner, A.; IJzendoorn, M.H.V.; Bakermans-Kranenburg, M.J.; Volling, B.L.; Verhulst, F.C.; Lambregtse-Van den Berg, M.P.; Tiemeier, H. The Association between Paternal Sensitivity and Infant–Father Attachment Security: A Meta-Analysis of Three Decades of Research. *J. Fam. Psychol.* **2011**, *25*, 986. [CrossRef] [PubMed]
8. Grossmann, K.; Grossmann, K.E.; Kindler, H.; Zimmermann, P. A Wider View of Attachment and Exploration: The Influence of Mothers and Fathers on the Development of Psychological Security from Infancy to Young Adulthood. In *Handbook of Attachment: Theory, Research, and Clinical Applications*; Shaver, J.C.P.R., Ed.; Guilford Press: New York, NY, USA, 2008; pp. 857–879. ISBN 978-1-59385-874-2.
9. Paquette, D. Theorizing the Father-Child Relationship: Mechanisms and Developmental Outcomes. *Hum. Dev.* **2004**, *47*, 193–219. [CrossRef]
10. Paquette, D.; Bolté, C.; Turcotte, G.; Dubeau, D.; Bouchard, C. A New Typology of Fathering: Defining and Associated Variables. *Infant Child Dev.* **2000**, *9*, 213–230. [CrossRef]
11. Grossmann, K.; Grossmann, K.E.; Fremmer-Bombik, E.; Kindler, H.; Scheuerer-Englisch, H. The Uniqueness of the Child–Father Attachment Relationship: Fathers' Sensitive and Challenging Play as a Pivotal Variable in a 16-year Longitudinal Study. *Soc. Dev.* **2002**, *11*, 301–337. [CrossRef]
12. Ainsworth, M.D.S.; Bell, S.M. Attachment, Exploration, and Separation: Illustrated by the Behavior of One-Year-Olds in a Strange Situation. *Child Dev.* **1970**, *41*, 49–67. [CrossRef]
13. Child Care and Mother-Child Interaction in the First 3 Years of Life. NICHD Early Child Care Research Network. *Dev. Psychol.* **1999**, *35*, 1399–1413.
14. Cox, M.J.; Mills-Koonce, W.R. Qualitative Ratings for Parent-Child Interaction at 24–48 Months of Age. Unpublished work. 2012.
15. de Wolff, M.S.; IJzendoorn, M.H. van Sensitivity and Attachment: A Meta-Analysis on Parental Antecedents of Infant Attachment. *Child Dev.* **1997**, *68*, 571–591. [CrossRef]
16. Lindsey, E.W.; Mize, J.; Pettit, G.S. Mutuality in Parent-Child Play: Consequences for Children's Peer Competence. *J. Soc. Pers. Relatsh.* **1997**, *14*, 523–538. [CrossRef]
17. MacDonald, K.; Parke, R.D. Bridging the Gap: Parent-Child Play Interaction and Peer Interactive Competence. *Child Dev.* **1984**, *55*, 1265. [CrossRef] [PubMed]
18. Paquette, D.; Bigras, M. The Risky Situation: A Procedure for Assessing the Father–Child Activation Relationship. *Early Child Dev. Care* **2010**, *180*, 33–50. [CrossRef]
19. Majdandžić, M.; de Vente, W.; Bögels, S.M. Challenging Parenting Behavior from Infancy to Toddlerhood: Etiology, Measurement, and Differences between Fathers and Mothers. *Infancy* **2016**, *21*, 423–452. [CrossRef]
20. Bretherton, I.; Lambert, J.D.; Golby, B. Involved Fathers of Preschool Children as Seen by Themselves and Their Wives: Accounts of Attachment, Socialization, and Companionship. *Attach. Hum. Dev.* **2005**, *7*, 229–251. [CrossRef]
21. Craig, L. Does Father Care Mean Fathers Share? A Comparison of How Mothers and Fathers in Intact Families Spend Time with Children. *Gend. Soc.* **2006**, *20*, 259–281. [CrossRef]
22. Parke, R.D. *Future Families: Diverse Forms, Rich Possibilities*; John Wiley & Sons: West Sussex, UK, 2013.

23. Fletcher, R.; StGeorge, J.; Freeman, E. Rough and Tumble Play Quality: Theoretical Foundations for a New Measure of Father–Child Interaction. *Early Child Dev. Care* **2013**, *183*, 746–759. [CrossRef]
24. Bureau, J.-F.; Yurkowski, K.; Schmiedel, S.; Martin, J.; Moss, E.; Pallanca, D. Making Children Laugh: Parent–Child Dyadic Synchrony and Preschool Attachment. *Infant Ment. Health J.* **2014**, *35*, 482–494. [CrossRef]
25. Feldman, J.S.; Shaw, D.S. The Premise and Promise of Activation Parenting for Fathers: A Review and Integration of Extant Literature. *Clin. Child Fam. Psychol. Rev.* **2021**, *24*, 414–449. [CrossRef]
26. Stevenson, M.M.; Crnic, K.A. Activative Fathering Predicts Later Children's Behaviour Dysregulation and Sociability. *Early Child Dev. Care* **2013**, *183*, 774–790. [CrossRef]
27. Lazarus, R.S.; Dodd, H.F.; Majdandžić, M.; de Vente, W.; Morris, T.; Byrow, Y.; Bögels, S.M.; Hudson, J.L. The Relationship between Challenging Parenting Behaviour and Childhood Anxiety Disorders. *J. Affect. Disord.* **2016**, *190*, 784–791. [CrossRef] [PubMed]
28. Möller, E.L.; Nikolić, M.; Majdandžić, M.; Bögels, S.M. Associations between Maternal and Paternal Parenting Behaviors, Anxiety and Its Precursors in Early Childhood: A Meta-Analysis. *Clin. Psychol. Rev.* **2016**, *45*, 17–33. [CrossRef] [PubMed]
29. Majdandžić, M.; Möller, E.L.; de Vente, W.; Bögels, S.M.; van den Boom, D.C. Fathers' Challenging Parenting Behavior Prevents Social Anxiety Development in Their 4-Year-Old Children: A Longitudinal Observational Study. *J. Abnorm. Child Psychol.* **2014**, *42*, 301–310. [CrossRef] [PubMed]
30. McLeod, B.D.; Wood, J.J.; Weisz, J.R. Examining the Association between Parenting and Childhood Anxiety: A Meta-Analysis. *Clin. Psychol. Rev.* **2007**, *27*, 155–172. [CrossRef]
31. Dumont, C.; Paquette, D. What about the Child's Tie to the Father? A New Insight into Fathering, Father-Child Attachment, Children's Socio-Emotional Development and the Activation Relationship Theory. *Early Child Dev. Care* **2013**, *183*, 430–446. [CrossRef]
32. Gaumon, S.; Paquette, D. The Father-Child Activation Relationship and Internalising Disorders at Preschool Age. *Early Child Dev. Care* **2013**, *183*, 447–463. [CrossRef]
33. Robinson, E.L.; StGeorge, J.; Freeman, E.E. A Systematic Review of Father-Child Play Interactions and the Impacts on Child Development. *Children* **2021**, *8*, 389. [CrossRef]
34. StGeorge, J.; Freeman, E. Measurement of Father-Child Rough-and-Tumble Play and Its Relations to Child Behavior. *Infant Ment. Health J.* **2017**, *38*, 709–725. [CrossRef]
35. Majdandžić, M. *Coding Protocol of Parenting Behavior in Parents of Toddlers: Meso-Level Coding of Challenging Parenting Behavior, Overprotection, Intrusiveness, Warmth, Responsivity, Discipline, Permissivity, and Negativity*; Research Institute Child Development and Education, University of Amsterdam: Amsterdam, The Netherlands, 2014.
36. Olofson, E.L.; (Wabash College, Crawfordsville, Indiana); Arellano, A.; (Wabash College, Crawfordsville, Indiana); Cox, K.; (Wabash College, Crawfordsville, Indiana); Havlin, Z.; (Wabash College, Crawfordsville, Indiana); Schoppe-Sullivan, S.J.; (Wabash College, Crawfordsville, Indiana). The Risky Interaction Support and Challenge Scale. Unpublished work. 2018.
37. Carter, A.S.; Briggs-Gowan, M.J. *ITSEA: Infant-Toddler Social and Emotional Assessment Examiner's Manual*; PsychCorp: San Antonio, TX, USA, 2006.
38. Carter, A.S.; Briggs-Gowan, M.J.; Jones, S.M.; Little, T.D. The Infant–Toddler Social and Emotional Assessment (ITSEA): Factor Structure, Reliability, and Validity. *J. Abnorm. Child Psychol.* **2003**, *31*, 495–514. [CrossRef]
39. Putnam, S.P.; Helbig, A.L.; Gartstein, M.A.; Rothbart, M.K.; Leerkes, E. Development and Assessment of Short and Very Short Forms of the Infant Behavior Questionnaire–Revised. *J. Pers. Assess.* **2014**, *96*, 445–458. [CrossRef]
40. Ryan, R.M.; Martin, A.; Brooks-Gunn, J. Is One Good Parent Good Enough? Patterns of Mother and Father Parenting and Child Cognitive Outcomes at 24 and 36 Months. *Parenting* **2006**, *6*, 211–228. [CrossRef]
41. Gere, M.K.; Villabø, M.A.; Torgersen, S.; Kendall, P.C. Overprotective Parenting and Child Anxiety: The Role of Co-Occurring Child Behavior Problems. *J. Anxiety Disord.* **2012**, *26*, 642–649. [CrossRef] [PubMed]
42. Bögels, S.; Phares, V. Fathers' Role in the Etiology, Prevention and Treatment of Child Anxiety: A Review and New Model. *Clin. Psychol. Rev.* **2008**, *28*, 539–558. [CrossRef] [PubMed]
43. Gelman, A.; Stern, H. The Difference between "Significant" and "Not Significant" Is Not Itself Statistically Significant. *Am. Stat.* **2006**, *60*, 328–331. [CrossRef]
44. Majdandžić, M.; de Vente, W.; Colonnesi, C.; Bögels, S.M. Fathers' Challenging Parenting Behavior Predicts Less Subsequent Anxiety Symptoms in Early Childhood. *Behav. Res. Ther.* **2018**, *109*, 18–28. [CrossRef]
45. Carone, N.; Baiocco, R.; Lingiardi, V.; Kerns, K. Child Attachment Security in Gay Father Surrogacy Families: Parents as Safe Havens and Secure Bases during Middle Childhood. *Attach. Hum. Dev.* **2020**, *22*, 269–289. [CrossRef]
46. Macon, T.A.; Tamis-LeMonda, C.S.; Cabrera, N.J.; McFadden, K.E. Predictors of Father Investment of Time and Finances: The Specificity of Resources, Relationships, and Parenting Beliefs. *J. Fam. Issues* **2017**, *38*, 2642–2662. [CrossRef]

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Article

Peer Status as a Potential Risk or Protective Factor: A Latent Profile Analysis on Peer Status and Its Association with Internalizing Symptoms in Adolescents with and without Parental Physical Abuse Experience

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Abstract: Research has well established that parental physical abuse experiences can lead to devastating consequences for adolescents, with peer relationships acting as both protective and risk factors. With the person-centered latent profile analysis (LPA), we analyzed questionnaire data from a cross-sectional study in 2020 composed of a sample of 1959 seventh-grade high school students from Switzerland. This study investigated and compared peer-status profiles combining peer acceptance and peer popularity for adolescents with and without parental physical abuse experiences. We conducted a multinomial logistic regression analysis to investigate further depression, anxiety, and dissociation as predictors of profile membership. With LPA, we identified three distinct profiles for adolescents within the subgroup with experiences of parental physical abuse (n = 344), namely liked, liked-popular, and rejected-unpopular. Within the subgroup of adolescents without parental physical abuse experiences (n = 1565), LPA revealed four profiles, namely liked, liked-popular, rejected-unpopular, and average. For adolescents with parental physical abuse experiences, higher levels of dissociation significantly indicated they were more likely to belong to the rejected-unpopular group than belong to the liked group. Anxious students without experiences of parental physical abuse were more likely to belong to the rejected-unpopular and liked profiles than belong to the liked-popular and average profiles. These findings clearly argue for a deeper understanding of the role of parental physical abuse when analyzing the relationship between dissociation and anxiety and peer status. Operationalizing peer status with the four individual dimensions of likeability, rejection, popularity, and unpopularity was valuable in that the role of peer rejection with respect to different internalizing symptoms became apparent.

Keywords: peer status; parental physical abuse; internalizing symptoms; peer acceptance; peer rejection; popularity; latent profile analysis

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1. Introduction

Research has shown that parental abuse is a common burden for youth [1,2]. In Switzerland, approximately 19% of youth are exposed to parental physical abuse [3], in the European Union around 20–25% [2–4] and 18% of American youth experience parental physical abuse at least once in their lifetime [5]. Parental abuse, also called child maltreatment, can take on different forms, including parental physical abuse being and inflicting nonaccidental bodily injury. In meta-analyses, Evans et al. [6], Kitzmann et al. [7], and Lindert et al. [8] show significant evidence that exposure to parental abuse leads to a range of negative psychosocial outcomes in adolescence, in particular an increase in internalizing symptoms, such as depression [9–11], anxiety [12,13], and dissociation [14,15].

How adolescents respond to such adverse abuse experiences can be understood in multisystemic terms [16]. That is, whether a person embedded in interdependent systems

has the capacity to adapt successfully to adversity and therefore shows resilience [17]. Resilience in the context of abuse concerns individuals who, despite histories of abuse and thus increased risk for developing internalizing and externalizing symptoms, do not exhibit negative developmental trajectories [18]. In the context of adolescents' experiences of abuse and resilience, peers play an important role. Peer acceptance acts as a key protective factor that can prevent psychopathological symptoms [15,19,20]. However, the peer group can also increase the risk of rejection due to dysregulated behaviors of adolescents with and without parental physical abuse experiences as another risk factor in the social environment [21]. Peer rejection, as a dimension of peer acceptance, increases the attribution of hostile intentions for others' behavior, decreases the development of competent solutions to interpersonal situations [22], and it can be an additional risk factor for healthy development. In this context, peer acceptance importantly indicates resilient adaptation to adversity [23,24].

With the frequency and intensity of peer relationships increasing as children enter adolescence [25], peer relationships begin to play a crucial role in cognitive and emotional development [26,27]. Studies examining the relationship between parental abuse and peer status primarily show that abuse leads to higher levels of peer rejection [28–30] and lower levels of peer acceptance [31–34]. This can be inferred from the fact that abuse influences how someone behaves in the peer group. Bolger and Patterson [23] found a causal link between abuse, dysregulated behavior toward others, and resulting peer rejection at an early school age that persists into early adolescence.

Most research focuses on studies of externalizing behaviors in relation to peer status, and only a few studies address internalizing symptoms related to peer status [35].

A basic approach to identifying and studying the resources and protective factors associated with resilience is a person-centered analysis. Studies have compared groups of people who meet certain criteria for risk and positive adjustment with other groups who either have the same risk but are poorly adjusted or have the same positive outcomes but are at lower risk [17].

The present study, with its large sample of participants, combines both approaches by using a person-centered latent profile analysis (LPA) to examine how a group of adolescents with parental physical abuse experiences and their peer status are associated. We aim to discover whether patterns regarding peer status can be identified in adolescents with and without abuse experiences; that is, whether they can be assigned to homogeneous peer-status profiles. Another goal is to examine internalizing symptomatology, such as depression, anxiety, and dissociation, in the adolescents with and without physical abuse experiences and examine whether these symptoms relate to the peer status patterns that have been identified. A downward spiral can occur in the reciprocal relationship among adolescent behavior, internalizing symptoms, and peer rejection [36]. Furthermore, the same procedure in both adolescent groups enables a comparison between the profiles with and without abuse experiences. Moreover, most studies addressing peer status use the approach of classifying adolescents into status groups with cut-off values or combine various dimensions, such as combining likeability and rejection to peer preference. The present study does not use cut-off values or combinations of the four dimensions of likeability, rejection, popularity, and unpopularity. This is because subtle nuances could be lost in combining indicators; in particular, peer rejection seems to be an important indicator and should stand alone. As a first step, following van den Berg, Burk, and Cillessen [37], this study uses a person-centered approach to understand peer-status profiles in their complexity using four dimensions with and without parental physical abuse experiences. As a second step, this paper investigates whether internalizing symptoms relates to membership in the respective peer-status profiles that LPA can identify.

1.1. Peer Acceptance and Popularity as Two Distinct Aspects of Youths' Peer Status

Peer status reflects each individual's social position within their social group and is a multidimensional construct [38]. As Mayeux et al. [39] pointed out, popularity was

originally described as the peer group generally accepting an individual and was associated with positive attributes attached to status (e.g., with prosocial behavior and low levels of aggression). Coie et al. [40] were the first to present five sociometric status categories for adolescents that sociometric methods assessed: popular, average, rejected, neglected, and controversial. In the late 1990s, Parkhurst and Hopmeyer [41], as well as La Fontana and Cillessen [42], distinguished between sociometric popularity—most liked by peers—describing "popular" through Coie et al.'s [40] five sociometric status categories and reputation-based popularity. Sociometric popularity referred to positive attributes and nonaggressive behavior, while reputation-based popularity linked to both positive and negative attributes. Since then, research has started to focus on two forms of higher status: peer acceptance based on likeability and rejection and reputation-based popularity [39], which henceforth will be called popularity. Although related, popularity and peer acceptance are two unique and distinct peer status dimensions [39,43,44]. Popularity reflects visibility and being an influential peer group member [43,45], while acceptance refers to peers liking an individual more than disliking them [40]. The operationalization of these two status forms is applied differently in peer relationship research, and thus it leads to varying results. To measure peer acceptance, Cillessen and Marks [46] suggested including explicitly both likeability and rejection as two separate indicators of peer acceptance. Marks et al.'s [47] recent findings on popularity similarly showed popularity has in fact two dimensions and should be measured separately through popularity and unpopularity. To capture these four constructs, so-called computer-based unlimited peer nominations have proven to be best for large samples [46]. Based on Coie et al. [40], who found that likeability and peer rejection are not opposite ends of the same continuum, and to follow Marks et al.'s [47] recommendations for likeability and rejection, we conclude it is methodologically useful for our research questions to measure separately the four sociometric dimensions.

1.2. Person-Centered Approach in Peer-Status Research

Most peer-status studies use the Coie, Dodge, and Coppotelli [40] (CDC) approach to create status categories, which is based on computed subjective cut-off values [48]. Although increasingly used in peer-relationship research, person-centered approaches, such as LPA, are still understudied in peer-status research. However, a few studies have used them to construct peer status [44]. For example, Hubbard et al. [49] showed in their study that although there was a group of rejected children with the CDC approach as well as with an LPA, these groups differed regarding rejection from each other, and considerably more children were in the rejected category according to CDC than in the rejected LPA group. Van den Berg et al. [44] highlighted in their meta-analysis that the distinction between popular and likeable groups of high-status adolescents in the early years of secondary school was only found in studies using person-centered approaches, whereas in other analytical approaches, this distinction was only found with increasing age. This shows that person-centered approaches are useful in finding specific groups of youth who would otherwise not be found.

1.3. Influence of Parental Physical Abuse on Adolescents' Peer Status in the Context of Resilience

Children exposed to parental abuse have problems developing healthy peer relationships, leading to low popularity and peer group rejection [35,50]. In 2020, as one of the few researchers who adapted a mixture model for peer status, Yoon examined peer dynamics and peer popularity using a latent class analysis to explore whether the profiles of peer relationships differed based on type of abuse. Her results showed that adolescents who experienced parental physical abused were more likely to be ignored by their peers, compared to other types of parental abuse, whereas popularity did not clearly discern the differences between the latent classes in her study. Furthermore, Wang [34] showed that harsh parenting (including physical abuse) negatively related to peer acceptance.

As research has shown, parental abuse in childhood and adolescence increases the risk of externalizing (e.g., peer aggression) and internalizing (e.g., depression) behaviors. Peer

status, in turn, further influences psychopathological outcomes because peer acceptance can act as a protective factor, and peer rejection may serve as a risk factor for healthy development [51]. In addition, studies have shown that peer rejection–as a fairly stable process–reduces peer trust in girls and perceived peer support in boys [52].

In a study with young children, Anthonysamy and Zimmer-Gembeck [53] found that children with a history of abuse (physical abuse included) were significantly rejected more compared to their non-abused classmates, and their teacher described them as more physically/verbally aggressive, more withdrawn, and less prosocial than their non-abused peers. The study showed that maltreated children's behavior mediated the association between maltreatment and peer status. This indicated that maltreated children showed more negative and less positive behaviors toward their peers, leading to more rejection and less likeability nominations.

Individuals who develop adaptively despite challenging or threatening circumstances are said to be on a resilient pathway [54]. Acceptance from peers is an important developmental task for adolescents and an indicator of healthy development [24]. Peer acceptance not only affects self-esteem [55] but also protects it from the negative effects of limited closeness to parents, suggesting that peer acceptance can be a particularly valuable source of self-esteem when closeness to parents is low [56]. Another putative indicator of adaptive development is popularity, which has been associated with low risk for psychological maladaptive development and high social competence. However, recent studies have shown that positive behaviors did not solely describe popularity, but popularity was also positively associated with aggressive and disruptive behavior and negatively associated with prosocial and academic behavior. On the other hand, acceptance is positively associated with prosocial and academic behavior and not significantly associated with aggressive or disruptive behavior [57].

1.4. Relationships between Internalizing Symptoms and Peer Status

Coyne [58] developed the interactional model based on interpersonal theory, one of the most influential models focusing on peers' interpersonal responses to internalizing symptoms. He assumed that interpersonal behavior of people with internalizing symptoms produces rejection from others. Only a few studies thus far have highlighted the link between internalizing symptoms and peer status. For example, Hubers et al. [59] demonstrated a significant association among popularity, acceptance, and internalizing symptoms in older adolescents. In their review, Prinstein et al. [35] highlighted a reciprocal association between negative social experiences within the peer group and internalizing symptoms. However, Mori [60] showed that the path from peer relationship problems to dissociation had a smaller effect size compared to the path from dissociation to peer relationship problems. Thus, there is an indication that internalizing symptomatology may well affect peer relationships. The following sections highlight the established links between peer status and internalizing symptoms, such as depression, anxiety, and dissociation.

1.4.1. Depression and Peer Status

Few studies in the literature have explored the predictive effect of depression on peer status. In a video-based study, Peterson et al. [61] generated evidence that peer rejection occurred in reaction to depressive symptoms in children grades 3 to 6. Peers rated depressed children as less likeable than nondepressed children. Kennedy et al. [62] found evidence indicating that depression was associated with decreases in peer status, as they reported lower peer acceptance levels for depressed primary school-aged children. In a recent study, Malamut et al. [63] examined the association between depressive symptoms and subsequent negative peer experiences (unpopularity and rejection) among adolescents in a gang context. Peer rejection did not predict depression, but depressive symptoms significantly predicted boys' unpopularity but not that of girls. Thus, it appears that on the one hand, depression can lead to interpersonal problems, such as peer rejection, but also that interpersonal problems often result in depression. This finding was not only

evident but core in Platt et al.'s [64] study, which identified peer rejection as a particularly important source of stress. They demonstrated that existing studies showed a bidirectional relationship between peer rejection and depressive symptoms that could influence the development and maintenance of depression.

1.4.2. Anxiety and Peer Status

Many studies have demonstrated that adolescents who suffered from abuse were at higher risk of exhibiting anxiety symptoms [65–67]. As a further indicator of internalizing symptoms, high levels of anxiety in adolescence have also been linked to poor peer status, such as high levels of peer rejection [68]. Among anxiety disorders, social anxiety is the most common form of internalizing symptoms in adolescence [69,70]. Therefore, it is not surprising that the interaction between anxiety symptoms and avoidance of close peer relationships likely plays a role in aggravating anxiety and difficulties in peer status [71]. For example, Inderbitzen et al. [72] examined whether adolescents with social anxiety were liked or rejected. The results showed that rejected adolescents displayed increased social anxiety compared to those who were rated as liked, average, or controversial. These results are also consistent with findings from de Lijster's [73] systematic review, which indicated that higher levels of social anxiety led to less peer acceptance. Further, De Matos et al.'s [74] study of adolescents found that adolescents who had symptoms of both depression and anxiety showed a lower peer status.

However, some studies report different results. For example, Baartmans et al. [75] showed that children with higher social anxiety perceived that their classmates liked them less, but that their peers were less likely to reject them than children with lower levels of social anxiety.

1.4.3. Dissociation and Peer Status

Dissociation is the absence of the integration of thoughts, feelings, and experiences into the stream of consciousness [76]. In extreme situations, such as during physical abuse experiences, dissociation becomes a survival tool to navigate overwhelming feelings [77]. Farina and Liotti [78] reported that early trauma contributes to the development of dissociation, which in turn can lead to psychopathological vulnerability. In particular, parental physical abuse proved to significantly predict the development of dissociation at the clinical level [18]. In adolescence, dissociation can be associated with emotive–relational and behavioral difficulties, such as peer relationship problems [60,79]. Victimized youths more likely have difficulty forming positive and stable relationships with peers. This can be attributed in part to trauma-related problems that may affect the child's ability to engage successfully in age-appropriate tasks or activities, and trance-like states may be noticeable to other peers and may be judged as strange or uncooperative [80]. In a recent study, Mori [60] found evidence that dissociation predicted peer relationship problems. Thus, dissociation in adolescence likely increases the vulnerability to relationship difficulties. Peer rejection has been linked to dissociative symptoms in children after adverse experiences [81]. However, it is still mostly unknown whether dissociation is related to peer status.

1.5. Sociodemographic Variables and Peer Status

In their meta-analysis, van den Berg, Lansu, and Cillessen [44] showed that the association between peer acceptance and popularity only differed among older adolescents. The correlation was weaker for girls than it was for boys. This may be related to the fact that popular girls tend to be less liked because they incur more costs of likeability for popular status than boys do despite the same behavior. It was assumed that older adolescents already developed an awareness of gender norms for niceness (female norm) and dominance (male norm). Increased awareness of these norms related to how adolescents evaluated their female peers in central positions, and they saw influential and popular females as less likeable than males in the same positions. This indicates that likeability and popularity are different constructs because adolescents who are well liked may not necessarily also be

popular, influential, and powerful [41,42]. In relation to the experience of abuse, studies show that gender in early adolescence does not seem to play a role in the relationship between peer acceptance and popularity [23] or peer acceptance and abuse [82].

Furthermore, research findings show mixed results for the influence of migration background and socioeconomic status on peer status. Alivernini et al. [83] demonstrated that peers accepted youths with immigrant backgrounds and low socioeconomic status less. On the other hand, Kovacev and Shute [84] identified that adolescents with a migration background received high peer acceptance values, especially if they had a positive attitude toward heritage and host cultures. Regarding popularity, Stevens et al.'s [85] study showed that youth with migration backgrounds were more popular compared to their native classmates.

Regarding socioeconomic status, a positive relationship was found to peer status. Bukowski et al. [86] found in their review that all peer-assessed characteristics (e.g., peer acceptance and popularity) were more pronounced among upper-middle-class youth compared to lower-middle-class youth.

1.6. Current Study

Looking at the research to date, we identified important aspects concerning the relationship between parental physical abuse of youth and peer status that have thus far been neglected and were incorporated in the underlying study. The present study conceptualized peer status as profiles based on acceptance and popularity measures, which builds on Coie et al.'s [40] original concept. Following van den Berg and colleagues [37], a person-centered approach was used to understand peer-status profiles in their complexity using likeability and rejection (dimensions of peer acceptance) and popularity as well as unpopularity as separate indicators. Peer rejection alone, and as an indicator of peer acceptance, plays an important role in adolescents' healthy development. Therefore, it is important to consider the individual dimensions (likeability, rejection, popularity, and unpopularity) of peer status without cut-off values to determine, from the perspective of resilience theory, which adolescents who have experienced abuse are on a resilient pathway regarding peer relationships and benefit from positive peer status, and which become more vulnerable because of peer relationships.

Studies show a strong link between parental abuse and internalizing symptoms [18,87,88] as well as an association between internalizing symptoms and poor peer status [35]. This indicates that parental abuse relates to dysregulated behavior in the peer context and therefore relates to position in the peer group. Still, only few studies have examined peer status in conjunction with parental physical abuse and internalizing symptoms, e.g., [87,89]. Internalizing symptoms are mostly considered as outcomes of poor peer relationships, although there is a strong association of youth with abuse experiences and higher internalizations, e.g., [90]. Therefore, internalizations should not be considered solely as an outcome but also as a predictor. Following the interpersonal theories of internalizing symptoms as a reciprocal association between negative social experiences within the peer group and internalizing psychopathology, e.g., [35], various internalizing symptoms were treated as predictors of peer status profile membership.

Thus, to compare adolescents with parental physical abuse experience and adolescents without physical abuse experience in order to elicit peer-status profiles, we investigated the following three exploratory research questions (RQs) and hypotheses (Hs):

Research Question 1 (RQ1). What peer-status profiles can be found for adolescents with and without parental physical abuse experiences?

Hypothesis 1 (H1). *Based on van den Berg et al.'s [37] findings, we hypothesized that at least three profiles would be found: rejected-unpopular, liked-popular, and average.*

Research Question 2 (RQ2). Are there differences in the underlying profiles of peer status between adolescents with and without parental physical abuse experiences?

Hypothesis 2 (H2). *We expected differences between the profiles for the subgroups with and without parental physical abuse experiences, based on the findings that a higher proportion of adolescents who experience parental physical abuse are rejected and less often liked by their peers compared to adolescents who do not experience parental physical abuse, e.g., [53,89].*

Research Question 3 (RQ3). How do different forms of internalizing symptoms (i.e., depression, anxiety, and dissociation) predict the memberships of these underlying peer-status profiles?

Hypothesis 3 (H3). *According to several research findings, e.g., [60,73,91], we hypothesized that different forms of internalizing symptoms (depression, anxiety, and dissociations) would predict membership in adolescent peer-status profiles.*

2. Materials and Methods

2.1. Sample

The data analyzed in this research derive from a cross-sectional sample of a broader study on adolescents' resilience from violence despite experiencing family violence. This study was conducted in autumn 2020. The random sample consisted of 1974 seventh-grade high school students (12–13 years old) from Switzerland, consisting of 1000 (51.2%) assigned females and 952 (48.8%) assigned males, who anonymously completed the online questionnaire in their classroom. We obtained signed consent forms from the students and their parents without an incentive. The ethics committee of the University of Zurich, Switzerland, authorized this project. On the day of the study, the research team members gave a brief oral introduction of the study to participating adolescents of the 140 participating classes, after which the participants completed the questionnaire in about 60 min. The mean age of the total sample was M = 11.76 (SD = 0.65). Of the participating adolescents, 1029 (52.6%) were Swiss citizens and 945 (48%) had a migration background. The main nationalities in Switzerland are 52.6% Swiss, 37.4% other European, and 10% other.

2.2. Measures

2.2.1. Grouping Variable

Parental physical abuse was assessed using five items from the Alabama Parenting Questionnaire [92]. The two dimensions, physical aggression and corporal punishment, were assessed, with a focus on severe parental physical abuse. A five-point Likert scale ranging from 1 = never to 5 = always was used (Cronbach's $\alpha = 0.83$). The scale included items such as, "My parents beat me so badly that I had to see a doctor or rush to the hospital" and "My parents hit me with a belt, a stick, or a hard object when I did something wrong." For the LPA, the scores were dichotomized, 1 = never = 0 and >1 = yes-parental physical abuse experience = 1.

2.2.2. Indicators

Peer status. Peer nomination method was used to assess peer status [45,46]. The participants had a class list in front of them with the first names of their class's participating students and a number for each first name, which was randomly assigned to the students in advance. In the online questionnaire, participants found only the numbers and clicked on the numbers that corresponded to the desired classmates on their class list. The risk of errors was reduced by simply clicking on numbers [93], and the effects of name order [46,94] were reduced by randomizing the numbers for each nomination.

Following Coie et al. [40], who noted that likeability and peer rejection were not opposite ends of the same continuum, and to follow Marks et al.'s [47] recommendations for popularity and unpopularity, we measured the four dimensions separately. For this purpose, the adolescents were asked to nominate anonymously those classmates whom they "like the most" and those whom they "like the least" with the following instruction: "Click on the numbers assigned to your classmates on the class list. Do not click

on your own number." For popularity and unpopularity, the adolescents were asked to nominate the classmates on the list whom they thought were popular and unpopular on separate items with the same instruction. The sum of the respective nominations that each adolescent received from their peers was used to derive individual scores. The scores were standardized within each class. Thus, prior to the LPA, no categorical classification into commonly used status groups (e.g., social preference or social impact) was made, as belonging to a category would preclude the formation of peer-status profiles.

2.2.3. Covariates

Depression and anxiety. Using 24 items from the Hopkins Symptom Checklist [95], depression and anxiety were captured as symptoms (Cronbach's $\alpha = 0.96$). The items were rated on a four-point Likert scale from 1 = not at all to 4 = extremely. Higher scores indicated a higher severity of anxiety and depression symptoms. Due to the participants' young age (12–13 years old), the item "loss of sexual interest or pleasure" was excluded from the original scale version with 25 items. The mean score per student was calculated for the LPA.

Dissociation. Dissociation was measured using a short scale from the existing Dissociation Tension Scale (DSS) acute [96], which is used to assess dissociative symptoms as a disturbance or discontinuity of consciousness [97]. One item each on analgesia (changes in sensory processes), somatoform (sensory and motor disturbances), depersonalization (feelings of unreality in relation to self), and derealization (feelings of unreality in relation to the environment) composed the DSS-acute. Participants rated on a four-point Likert scale with items ranging from 1 = not at all to 4 = very strongly (Cronbach's $\alpha = 0.85$); items included, "my body feels like it does not belong to me" or "people or things around me do not seem real." A mean score for each student was calculated for the LPA.

Assigned sex. Assigned sex was obtained from school class lists in which adolescents were categorized as male = 0 or female = 1.

Socio-economic status. Information on the adolescents' socioeconomic status proves to be difficult because only a few adolescents have knowledge about their parents' professions or even the income. Therefore, Broer et al. [98] recommend several indicators in the form of a composite score. Following Kassis et al. [11], the present study used adolescents' sociocultural status as a composite score for students' socioeconomic background with the dimensions of education- and computer-related possessions, parents' education level, and number of books in the household (Cronbach's $\alpha = 0.71$). A total score was formed from the three scales and divided into the expressions low = 1, medium = 2 and high = 3.

Migration background. The definition of people with a migration background depends on the context and migration policy because different rights and obligations create different contexts. In Switzerland, according to the Federal Statistical Office, the population with a migration background includes: "all foreign nationals, naturalized Swiss citizens, except for those born in Switzerland and whose parents were both born in Switzerland, as well as Swiss citizens at birth whose parents were both born abroad" [99]. Therefore, we conceptualized migration background as follow: If the adolescents or their parents did not have Swiss nationality or if adolescents were not born in Switzerland, they had a migration background (=1). If the above characteristics did not apply, they did not have a migration background (=0).

2.3. Analysis Plan

To answer the first Research Question 1 (RQ1) and test Hypothesis 1 (H1), LPA was used to identify unobserved heterogeneous profiles with four continuous indicators (likeability, rejection, popularity, and unpopularity) in two groups consisting of adolescents with and without parental physical abuse experiences. *t*-tests were conducted in both groups to analyze the differences among the four indicators. LPA identifies groups or types of people who exhibit different profiles of personal and/or environmental characteristics [100]. Compared to variable-centered analyses, LPA allows for a closer look at

profiles and their predictors as well as a distinction between groups that are revealed [101]. Distinct from latent class analysis, LPA includes continuous indicators to identify different groups in empirical data [102]. To determine the number of profiles, an iterative process was chosen in which one to six profile solutions were tested to determine the optimal number of profiles.

A series of LPAs were conducted for the two groups—abuse (experiences of parental physical abuse) and no abuse (no experience of parental physical abuse) to assess the accurate number of profiles for both groups. The appropriate model was chosen based on the following criteria: Bayesian Information Criteria (BIC), Akaike Information Criteria (AIC), the Sample-Adjusted BIC (SABIC), the Bootstrap Likelihood Ratio Test (BLRT), the (adjusted) Lo–Mendell–Rubin Test (LMR and aLMR) posterior classification probabilities, and entropy value. The model better fits the smaller values of AIC, BIC, and SABIC [102,103]. Based on the power of the selection criteria and the different sample sizes for adolescents with parental physical abuse experiences (n = 394) and youth without parental physical abuse experiences (n = 1565), the focus was put on LMR, aLMR, and BIC [104], although all selection criteria were considered. LMR, aLMR, BLRT, and BIC are considered stable criteria for numbers of profiles regardless of sample size, whereas the entropy value and AIC do not seem to be as reliable for decisions of profile numbers [104]. The LMR and BLRT tests' significant p-values indicate that the fit of a model with k-classes improves significantly compared to the previous model with k-1 classes [103]. Classification diagnostics further support the class enumeration process, where the classification probabilities for the most likely latent class membership represent the probability that an individual is part of a specific latent class. Maysn [105] considers values greater than or equal to 0.70 as desirable.

All analyses were conducted in Mplus version 8.4 [106] with maximum likelihood estimation and robust standard errors due to non-normal distributions. Missing data were estimated using the Full Information Maximum Likelihood (FIML) method. Random starts were increased to 1000 and final optimizations to 100 to avoid local solutions [101]. All models were estimated using the default setting of Mplus and no cases were excluded due to the exploratory character of the underlying research questions [100].

In a second step, to determine whether the LPA profiles and parameters (mean values comparison) significantly differed from each other, a series of pairwise Wald tests were conducted for the two groups (abused vs. non-abused adolescents).

To answer the second Research Question 2 (RQ 2) and test Hypothesis 2 (H2), we tested measurement invariance (MI). The separate LPAs for the two groups were compared to evaluate whether the latent profiles' number and nature were the same across the two groups. Non-invariance would mean that the profiles in the abuse and no abuse groups were characterized unequally; therefore, not directly comparable and interpretable [107], which results in further analysis that must be performed separately across groups [108].

To answer the third Research Question 3 (RQ3) and test Hypothesis 3 (H3), a three-step approach for auxiliary variables with the Mplus R3STEP [109] auxiliary command was conducted to predict the profile membership. We examined whether depression and anxiety symptoms, dissociation, assigned sex, socioeconomic status, and migration background were related to a higher probability of adolescents belonging to one specific profile rather than another. This method was corrected for a classification error [109].

3. Results

3.1. Descriptive Statistics

T-tests were conducted (see Table 1) to analyze the four indicators' differences in both groups. We found a small significant effect only for the indicator of rejection; otherwise, no effects on the measures were detected. Despite the homogeneous mean values in three out of four indicators in both groups, we expected that the profiles of the person-centered LPAs would differ in terms of indicators. The prevalence of physical abuse was 20.1%.

Table 1. Descriptive statistics, sample mean levels (and standard deviations) of all observed variables (abuse n = 394, no abuse n = 1565) and effect sizes (Hedges' g).

Variable	Mean (SD)		t	g
	Abuse	No Abuse		
Likeability	1.43 (0.17)	1.44 (0.17)	0.971	-
Rejection	1.15 (0.15)	1.14 (0.14)	−1.98 *	0.07
Popularity	1.14 (0.14)	1.13 (0.13)	−1.30	-
Unpopularity	1.22 (0.15)	1.22 (0.14)	−0.09	-
Depression	2.05 (0.64)	1.81 (0.63)		
Anxiety	2.00 (0.78)	1.66 (0.65)		
Dissociation	1.61 (0.73)	1.31 (0.54)		

* $p < 0.05$.

3.2. Research Question 1: Latent Profiles of Peer Status

Before employing the LPA, bivariate correlations between the peer status variables were checked (see Table 2). To examine the number of peer-status profiles and their characterizations, the optimal number of profiles was selected to determine whether the same number of profiles could be found in each group. We defined two separate LPA models for this purpose. The model fit indices for each latent profile model were analyzed separately for the groups *abuse* and *no abuse* (see Table 3).

Table 2. Bivariate correlations peer status, spearman.

	Likeability	Rejection	Popularity	Unpopularity
Likeability	1	−0.567 **	0.212 **	−0.186 **
Rejection		1	0.028	0.278 **
Popularity			1	−0.194 **
Unpopularity				1

** $p < 0.01$.

Table 3. Model fit indices for latent profile analysis of adolescents with and without parental physical abuse experience, 1–6 profiles.

	Nr. of Profiles	AIC	BIC	ABIC	Entropy	LMR LR Test	ALMR LR Test	Smallest Class %	BLRT	Classification Probabilities
abuse	1	−1472.45	−1440.64	−1466.02						
	2	−1662.20	−1610.50	−1651.75	0.89	0.14	0.14	11%	<0.001	0.99; 0.83
	3	−1760.54	−1688.97	−1746.08	0.89	<0.01	<0.01	8%	<0.001	0.98; 0.87; 0.81
	4	−1825.98	−1734.52	−1807.50	0.80	0.17	0.17	4%	<0.001	0.83; 0.91; 0.90; 0.91
	5	−1870.55	−1759.21	−1848.06	0.84	0.17	0.17	3%	<0.001	0.85; 0.84; 0.93; 0.86; 0.96
	6	−1909.78	−1778.56	−1883.27	0.84	<0.05	<0.05	3%	<0.001	0.88; 0.98; 0.89; 0.95; 0.88; 0.03
no abuse	1	−6561.20	−6518.35	−6543.76						
	2	−7395.26	−7325.64	−7366.93	0.89	<0.001	<0.001	14%	<0.001	0.98; 0.87
	3	−7815.38	−7718.98	−7776.16	0.89	0.01	0.01	8%	<0.001	0.97; 0.87; 0.85
	4	−8025.13	−7901.95	−7975.02	0.84	<0.05	<0.05	7%	<0.001	0.95; 0.89; 0.79; 0.84
	5	−8224.50	−8074.54	−8163.49	0.86	0.11	0.11	1%	<0.001	0.94; 0.82; 0.91; 0.90; 0.83
	6	−8334.10	−8157.36	−8262.20	0.86	0.32	0.32	1%	<0.001	0.82; 0.94; 0.91; 0.94; 0.80; 0.78

AIC = Akaike information criterion; BIC = Bayesian information criterion; ABIC = sample-size adjusted BIC; LMR LR = Vuong–Lo–Mendell–Rubin Likelihood Ratio Test; ALMR LR = Lo–Mendell–Rubin Adjusted LRT Test; BLRT = bootstrap likelihood ratio test; CP = Classification Probabilities for the Most Likely Latent Class Membership.

For the *abuse* group, the AIC, BIC, and SABIC values increased from the one-profile solution to the six-profile solution, indicating the fit was reproduced better with each subsequent profile model. The *abuse* group showed a significant LMR, aLMR, and BLTR test from the two-profile solution to the three-profile solution, but not from the three-profile solution to the four-profile solution. The entropy value decreased considerably from the three-profile solution (0.89) to the four-profile solution (0.80), which supported the rejection

of the four-profile solution. Furthermore, one class proportion in the four-profile solution was only 4% (n = 15) and could therefore reduce the profile's accuracy [100]. Classification probabilities for the most likely latent class membership are satisfactory with values above 0.7. These considerations argued for a three-profile solution as the most parsimonious solution for the *abuse* group. Figure 1 displays a plot with the three-profile model for the subsample with parental physical abuse experiences.

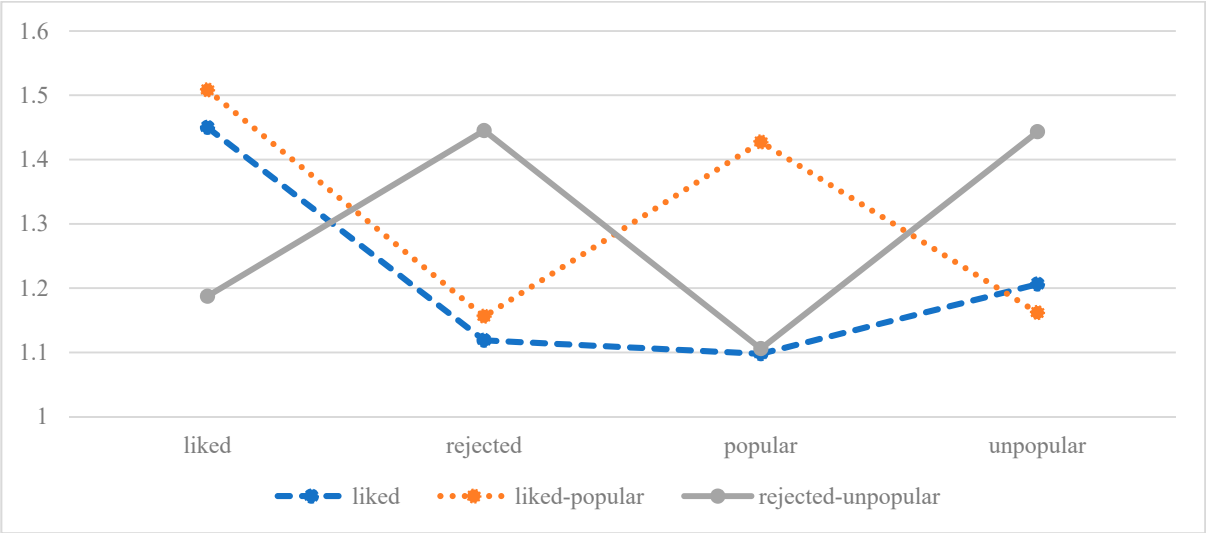

Figure 1. Three profile solution, abuse group.

The first profile in the three-profile solution shows a group of adolescents whose peers liked them, but these adolescents otherwise received low scores. Therefore, this proportionally biggest profile was named *liked* (n = 318, 80.7%). The second profile was named *liked-popular* (n = 45, 11.4%) because it displayed a group of adolescents who were liked in their class and their peers considered popular. The third profile, *rejected-unpopular* (n = 31, 7.8%) comprises adolescents whose classmates rejected them and were nominated as unpopular.

In the *no abuse* group, the p-value of LMR, aLMR, and BLTR tests showed that a four-profile solution was more optimal compared to a five-profile solution LMR and aLMR no longer provided a significant solution. The class proportion of 1% (n = 23) was not sufficient in the five-profile solution and was therefore rejected. Here, values above 0.7 also proved to be satisfactory for classification probabilities for the most likely latent class membership. Based on these considerations, we decided that the four-profile solution indicated the best fit and was the most parsimonious model for the *no abuse* sample (Table 2). Three profiles were named the same in both samples because they had very similar characteristics in relation to the indicators.

Figure 2 shows a plot with the four-profile model for the subsample without parental physical abuse experiences.

The first profile was named *liked* (n = 1071, 68.4%), the second profile was termed *liked-popular* (n = 108, 6.9%), and the third profile displayed *rejected-unpopular* adolescents (n = 72, 4.6%) because the indicators showed similar levels of mean values as in the *abuse* group. The fourth profile was named *average* (n = 314, 20%) because these adolescents had average levels on the indicators liked, rejected, and unpopular and had similar levels on the indicator popular as adolescents in the liked profile.

Figure 2. Four profile solution, no abuse group.

3.3. Research Question 2: Comparison of LPA Profiles

To investigate the differences in the underlying profiles of peer status for adolescents with and without parental physical abuse experiences, we considered measurement invariance. In the current study, measurement invariance was not given and did not need to be tested further because the number of profiles differed between the two groups (three-profile solution for the *abuse* group and four-profile solution for the *no abuse* group). A lack of measurement invariance means that the two groups must be considered independently, and further analyses and interpretation must be performed separately [108].

To determine whether the profiles in the separate models generally differed from each other, we conducted a Wald test. This revealed an overall significance of the *abuse* model χ^2 (8) = 267.14, $p < 0.001$ and the *no abuse* model χ^2 (12) = 1315.33, $p < 0.001$. Thus, the profiles in each model differed from each other. Table 4 presents all pairwise comparisons.

Table 4. Wald Test, means and standard errors of the profiles.

Variable	Sample	1 *Liked* M (*SE*)	2 *Liked-Popular* M (*SE*)	3 *Rejected-Unpopular* M (*SE*)	4 *Average* M (*SE*)
Likeability	abuse	1.450 (0.013) [3]	1.508 (0.029) [3]	1.187 (0.040) [1,2]	-
	no abuse	1.491 (0.008) [2,3,4]	1.569 (0.024) [1,3,4]	1.188 (0.019) [1,2,4]	1.306 (0.010) [1,2,3]
Rejection	abuse	1.119 (0.010) [3]	1.156 (0.024) [3]	1.445 (0.076) [1,2]	-
	no abuse	1.074 (0.004) [3]	1.116 (0.022) [3,4]	1.524 (0.022) [1,2,4]	1.250 (0.016) [2,3]
Popularity	abuse	1.098 (0.008) [2]	1.427 (0.040) [1,3]	1.106 (0.023) [2]	-
	no abuse	1.100 (0.005) [2]	1.449 (0.032) [1,3,4]	1.125 (0.021) [2]	1.097 (0.008) [2]
Unpopularity	abuse	1.206 (0.009) [3]	1.162 (0.025) [3]	1.443 (0.068) [1,2]	-
	no abuse	1.209 (0.004) [2,3,4]	1.117 (0.011) [1,3,4]	1.371 (0.030) [1,2,4]	1.263 (0.011) [1,2,3]

Abuse = parental physical abuse; no abuse = no parental physical abuse; [1,2,3,4] indicate significant Wald Test to the respective profile.

3.3.1. Pairwise Comparison in the No Abuse Model

The mean values of the indicator likeability differed in all three status profiles. The rejection indicator mean level in the *no abuse* model differed significantly between the *rejected-unpopular* profile and the other three profiles. However, there was no significant difference found in the rejection indicator mean level between the *liked* and the other two profiles, while the mean levels differed between the *liked-popular* and the *average* profiles.

For the popularity indicator's mean values, only the *liked-popular* profile differed significantly from the other three profiles, while no difference was found in those other three profiles. The results were entirely different for the unpopularity indicator's mean levels, which differed significantly between all four profiles.

3.3.2. Pairwise Comparison in the Abuse Model

In the *abuse* model, the likeability mean levels of the profiles *liked* and *liked-popular* differed from the mean values of the *rejected-unpopular* profile. However, the likeability indicator's mean level did not differ significantly between the two profiles *liked* and *liked-popular*. The same picture emerged for the rejection indicator's average values.

The popularity indicator's mean levels differed significantly from the *liked-popular* profile to the other profiles but not between the *liked* and *rejected-unpopular* profiles. There was a significant difference between the unpopularity indicator's mean levels between the *rejected-unpopular* profile and the other two profiles but not between the *liked* and the *liked-popular* profiles.

3.4. Research Question 3: Predictors of Latent Profile Membership

To investigate the extent to which different internalizing symptoms predicted peer-status profiles, a multinomial logistic regression was performed using the automatic three-step procedure of Mplus (R3STEP). This allowed including the predictors in both groups separately (see Table 5). This also allowed assessing depression, anxiety, and dissociation as internalizing symptoms as well as gender, socioeconomic status, and migration background as sociodemographic covariates predicting latent profile membership.

Table 5. Multinomial logistic regression of socio-demographic covariates, depression, anxiety, and dissociation to the identified latent profile membership: parameter estimates of both models.

Reference Class		Rejected-Unpopular vs. Liked		Rejected-Unpopular vs. Liked-Popular		Liked vs. Liked-Popular		Average vs. Liked		Average vs. Liked-Popular		Average vs. Rejected-Unpopular	
	Predictor	**Estimate (*SE*)**	***OR***	**Estimate (*SE*)**	***OR***	**Estimate (*SE*)**	***OR***	**Estimate (*SE*)**	***OR***	**Estimate (*SE*)**	***OR***	**Estimate (*SE*)**	***OR***
abuse	Male	0.016 (0.633)	1.016	0.559 (0.778)	1.750	0.544 (0.494)	1.723	-		-		-	
	Migration Background	1.160 (0.661)	3.189	**2.214** * (1.009)	9.152	1.054 (0.774)	2.870	-		-		-	
	High Socio-economic Status	**0.706** * (0.334)	2.025	0.530 (0.486)	1.699	−0.176 (0.383)	0.839	-		-		-	
	Depression	−0.781 (0.507)	0.458	−1.452 (0.824)	0.234	−0.670 (0.713)	0.512	-		-		-	
	Anxiety	1.807 (0.965)	1.807	2.181 (1.157)	8.853	0.373 (0.614)	1.453	-		-		-	
	Dissociation	**−1.002** * (0.448)	0.367	−0.928 (0.628)	0.396	0.075 (0.443)	1.078	-		-		-	
no abuse	Male	**−0.777** * (0.321)	0.460	0.225 (0.414)	1.252	**1.001** *** (0.284)	2.722	**−0.483** ** (0.187)	0.617	0.518 (0.313)	1.679	0.294 (0.366)	1.342
	Migration Background	−0.210 (0.284)	0.811	0.278 (0.371)	1.320	0.487 (0.266)	1.628	−0.133 (0.183)	0.876	0.355 (0.288)	1.426	0.077 (0.324)	1.080
	High Socio-economic Status	−0.216 (0.228)	0.805	−0.489 (0.293)	0.613	−0.272 (0.201)	0.762	−0.117 (0.135)	0.889	−0.390 (0.218)	0.677	0.099 (0.261)	1.104
	Depression	0.080 (0.422)	1.084	−0.138 (0.572)	0.871	−0.218 (0.409)	0.804	−0.141 (0.238)	0.868	−0.359 (0.436)	0.698	−0.222 (0.479)	0.801
	Anxiety	**−0.754** * (0.368)	0.470	**−1.215** * (0.529)	0.297	−0.461 (0.411)	0.631	**0.664** *** (0.245)	1.943	0.203 (0.439)	1.225	**1.418** *** (0.428)	4.131
	Dissociation	0.122 (0.364)	1.130	0.654 (0.495)	1.924	0.532 (0.360)	1.702	−0.206 (0.214)	0.814	0.326 (0.376)	1.385	−0.328 (0.412)	0.720

Estimate = β from R3STEP analysis; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

3.4.1. Internalizing Symptoms Variables

In the *abuse* group, the chances decreased of adolescents being in the *liked* rather than in the *rejected-unpopular* profile with increasing dissociation symptoms. With increasing anxiety, the chances decreased of adolescents in the *no abuse* group being in the *liked* or the *liked-popular* profile rather than being in the *rejected-unpopular* profile. In addition, with increasing anxiety, the chances increased of adolescents being in the *liked* or *rejected-unpopular* profile rather than the *average* profile. No significant differences were found in the *abuse* group regarding depression and anxiety. In the *no abuse* group, no significant differences were found for depression and dissociation.

3.4.2. Sociodemographic Variables

In the *abuse* group, adolescents with higher socioeconomic status in comparison to adolescents with lower socioeconomic status had a higher probability of being in the *liked* profile than in the *rejected-unpopular* profile. Adolescents with a migration background in comparison to native youth had a higher probability of being in the *liked-popular* profile than the *rejected-unpopular* profile. No other significant comparisons were found in the *abuse* group. In the *no abuse* group, females were more likely than males were to be in the *liked* profile and *average* profile than in the *rejected-unpopular* profile. On the other hand, compared to females, males were more likely to be in the *liked-popular* profile than in the *liked* profile. In the *no abuse* group, no significant profile differences were found relating to migration background and socioeconomic status.

4. Discussion

With about a 20% prevalence, the present study confirms the alarming international finding that one in five adolescents in Switzerland experience parental physical abuse [3,5]. The present study aimed to find out whether distinct forms of peer status emerged in adolescents with and without parental physical abuse experience. Using the resilience framework as well as the interactional model, the following research questions were stated: How many peer-status profiles can be found for adolescents with and without parental physical abuse experiences, and how are they characterized? Are there differences in the underlying profiles of peer status between adolescents with and without parental physical abuse experiences? How do different forms of internalizing symptoms (depression, anxiety, and dissociation) predict the memberships of these underlying peer-status profiles?

As a first result, two profiles were found for the two groups of adolescents (with and without abuse experiences). The second hypothesis, which expected that the peer-status profiles of adolescents with and without abuse experiences would differ, was confirmed. Peers indeed perceived differently the four dimensions of perceived peer status.

In the group of adolescents with parental physical abuse experiences, we uncovered three peer-status profiles: *liked*, *liked-popular*, and *rejected-unpopular*. Thus, there were differences in peer-status profiles depending on physical abuse experiences. We uncovered the additional profile *average* in the *no abuse* group. Van den Berg et al. [37] also found four similar clusters for grade 8 youth, namely *liked*, *popular*, *unpopular-disliked*, and *average*. Therefore, a very similar picture emerged in our analysis, except that we found a *liked-popular* group instead of a *popular* group. For grade 7, van den Berg et al. [37] found three clusters, namely *popular-liked*, *unpopular-disliked*, and *average*. A possible explanation for the diverging results could be that the adolescents were still in grade 7, while the *popular* group might appear in grade 8. Furthermore, it may also be because these adolescents had just entered secondary school at the time of data collection and the peer group needs time to form dynamics and establish peer status. Our first hypothesis, which expected at least three profiles to be *rejected-unpopular*, *liked-popular*, and *average*, was thus confirmed only for the group of adolescents without abuse experience. However, it was not confirmed for the group of adolescents with abuse experiences because they did not display an *average* profile.

In particular, peer rejection played an important role for peer status and abuse experiences, both by showing significant differences between the two abuse groups, as the t-test indicated, and by accounting for the profiles that were found within the two groups. Older studies have indicated that adolescents tend to be less simultaneously popular and well liked, which an increased potential for aggression among popular adolescents has explained [41,110]. This was confirmed in our study because for adolescents with and without abuse experiences, popular and liked formed the smallest profile. However, interestingly, this profile was larger among the adolescents with abuse experiences. Thus, the question arises whether *liked-popular* adolescents with abuse experiences represent a substantively different group than *liked-popular* adolescents without abuse experiences. For future research, it would be interesting to explore how the profiles of the two groups differ regarding content.

With respect to adolescents' parental physical abuse experiences, the *rejected-unpopular* profile is particularly important to consider in future research in relation to peer victimization and peer aggression because abused children appear to show increased aggression toward peers [111]. From a psychological perspective and according to resilience theory, peer rejection might be considered a risk factor for adolescents' adaptive development [112]. Therefore, it can be assumed that the adolescents in the *rejected-unpopular* profiles did not undergo resilient development regarding peer relationships. One possible explanation could be, as Martin-Babarro et al. [113] hypothesized, that a lack of a supportive environment in families experiencing abuse might compromise building resilience. To date, research on peer relationships has focused on sociological and educational perspectives, although a resilience theory perspective could potentially provide meaningful information on protective factors for youth who struggle with peer rejection [114].

From a social learning perspective, peer rejection is an elicited environmental response to the child's behavior [115]. Based on this, it would be possible that youths in the *abuse* group were more likely to be conspicuous via aggressive behavior, which increases the chances of peer rejection [53]. The fact that youth who have experienced abuse are more likely to experience peer rejection is reflected in the fact that the *rejected-unpopular* profile was twice as large, relatively speaking, as the *rejected-unpopular* profile without abuse. Based on our findings, peer status cannot be considered generally applicable within a school class, but this status might depend on various factors. Therefore, in addition to physical abuse experiences, it would be interesting to consider other risk and protective factors for the construction of latent peer-status profiles.

However, our profiles differed from van den Berg et al.'s [37] profiles in that we did not find an *average* profile in the *abuse* group, but instead identified a *liked* profile. The *liked* profile contained the largest proportion (80.7%) of adolescents in the *abuse* group and consisted of youths with above-average like levels from their peers, but very few nominations for the other three indicators, and thus, were neither popular nor unpopular. Analogous to van den Berg et al. [37], no status group was found that consisted of popular and rejected adolescents. Older studies that had a significant relationship between popularity and rejection found *popular-rejected* groups, e.g., [41]. One possible explanation could lie in the current study's and that of van den Berg et al.'s [37] person-centered approaches, which seem to differentiate more than variable-centered methods do. Moreover, with increasingly complex survey and evaluation procedures in the sociometric field, identified status groups may change.

As a further finding, the present study derived unique associations between internalizing symptoms and peer status in adolescents with and without parental physical abuse experiences. In the *abuse* group, dissociation as an internalizing symptom significantly increased the likelihood of belonging to the *rejected-unpopular* profile compared to the *popular* profile. This confirms hypothesis 3 because we expected that the development of dissociative problems would often be a consequence of abuse, especially after physical abuse [18]. Abused children are also more likely to exhibit attention deficits and insufficiencies in emotion regulation, which manifest in emotional lability, negativity, and contextually inappropriate expressions of emotions, in turn leading to problems in interpersonal relationships [111,116]. Rejection from peers can in turn lead to increased dissociation because painful peer rejection, although not considered a major trauma, is nonetheless associated with dissociation in children [81]. Therefore, it is not surprising that adolescents with parental physical abuse experiences displaying dissociations are more likely to experience peer rejection and to be seen as unpopular. Considering recent research shows a link between high levels of dissociation and the frequency and severity of self-harming behavior in adolescents [117], prevention policies should focus on youth in the *rejected-unpopular* profile with higher levels of dissociation.

Unexpectedly, depressive symptoms did not predict profile membership in the *abuse* group, although we expected depression to predict membership in the *rejected-unpopular* profile [73]. An explanation might be that depression is not directly related to peer re-

jection [118]. Another possible explanation could be that depression appears to be more prevalent in other forms of exposure to abuse, such as emotional abuse, and thus could show effects related to peer status group membership. For example, Humphreys et al. [119] and Gardner et al. [66] found in their meta-analysis that there was a higher correlation between depression and emotional abuse than there was with physical abuse.

In the *no abuse* group, anxiety as an internalizing symptom played a significant role as a predictor for profile membership in comparison to depression or dissociation, which did not predict profile membership. Adolescents who displayed higher anxiety levels were more likely to be in the *rejected-unpopular* or *liked* group than in the other profiles. Although the literature has associated peer preference with a lower risk of developing internalizing behaviors [35], our person-centered analysis using the four status dimensions shows that this is only partially confirmed. In our case, anxious adolescents without parental physical abuse experiences were more likely to be in either the *rejected-unpopular* or the *liked* profiles. This can possibly be explained by the fact that likeability and rejection are summed up in the peer preference construct, which the loss of nuances of the individual dimensions accompanies. Thus, the results might contribute to the assumption that peer acceptance in particular should be operationalized with two separate dimensions.

On the one hand, this supports findings from previous studies that revealed that rejected adolescents showed anxiety more often than liked, average, or controversial adolescents [72]. On the other hand, adolescents with elevated anxiety levels were also more likely to be in the liked profile, which is in line with the Baartmans et al.'s [75] findings. In that study, anxious children experienced peer rejection less than did children with lower social anxiety levels. Among adolescents who did not experience parental physical abuse, increased anxiety levels were particularly associated with psychological control and harsh parental control [120]. Future research should include information on parenting practices and styles to determine what underlying mechanisms link increased anxiety levels and peer status of adolescents who do and do not experience abuse. It seems like anxiety has more of an effect on popularity than acceptance does, although more in-depth analysis on this would be needed in the future to make accurate statements.

Regarding the sociodemographic predictors, consistent with previous studies, we found no link between gender and peer status in early adolescence in the *abuse* group [23,82]. By contrast, in the group of adolescents who did not experience parental physical abuse, we identified significant gender differences. Female gender was predictive for the membership in the *liked* profile and *average* profile compared to the *rejected-unpopular* profile, whereas male gender predicted membership in the *liked-popular* profile compared to the *liked* profile. These results differ from van den Berg et al.'s [37] findings, which showed that male participants were more likely and overrepresented in the *rejected-unpopular* group in grades 7 and 8. Our results argue for the "backlash effect" [121], which states that there exist higher requirements for niceness that apply to women than to men. According to van den Berg et al. [44], this could result in likeability and popularity correlating less strongly in girls because of gender stereotypes. Gender norms for likeability (associated with niceness) and popularity (associated with dominance and influence) may explain that male adolescents in the present study showed higher odds of being in the *liked-popular* group, and female adolescents had a higher chance of being in the *liked* or *average* group.

Further, adolescents with physical abuse experience and with a migration background had a higher probability of being in the *liked-popular* profile than in the *rejected-unpopular* profile. These results support Kovacev and Shute's [84] and Stevens et al.'s [85] previous findings, which showed that immigrant youth received high peer acceptance scores as well as high popularity scores, especially if they had positive attitudes toward the heritage and the host cultures. Moreover, similar to Bukowski et al. [86], high socioeconomic status significantly predicted profile membership in the *liked* profile compared to the *rejected-unpopular* profile. This finding is partly in line with Alivernini et al. [83], who found that low socioeconomic status predicted lower peer acceptance scores. However, these results must be interpreted with caution, considering that in the present study, socioeconomic

status was operationalized as sociocultural capital without information about the parents' income. Interestingly, migration background and socioeconomic status did not predict profile membership in the *no abuse* group.

4.1. Limitations

The present study generated some important findings and had several important strengths, such as a large sample including adolescents recruited from the general population rather than just a clinical sample. Nevertheless, we need to address a few limitations. First, cross-sectional data were used to examine the profiles presented here, and it was not possible to assess the relative timing of maltreatment and the emergence of the internalizing symptoms. Therefore, to test the profiles' stability as well as to draw causal conclusions, longitudinal data with three waves are also needed to determine how internalizing symptoms actually associate with profile membership and how much of the internalizing symptomatology causes profile membership. Second, abuse often co-occurs with other adverse childhood experiences [122], such as other forms of parental abuse, which were not systematically considered in the present study and whose effects we were unable to separate from parental physical abuse. Therefore, the results need to be interpreted cautiously and cannot be generalized for different forms of parental abuse. Third, compared to many studies, valid peer nominations have been used to obtain sociometric data on peer acceptance and peer popularity [123,124]. This method has significant advantages over self-reports [125], but does not rule out the possibility that considering the combination of sociometric data, self-reports, and teacher data could increase the reliability of peer status and lead to more accurate peer-status profiles. Further, the terminology of popularity is understood differently depending on the cultural contexts [46]. This must be considered when interpreting the results regarding popularity. Fourth, this study's sample was based exclusively on data from Swiss adolescents. In Switzerland, after entering secondary school, adolescents usually spend their school years in the same classes with the same peer groups for at least 3 years. Thus, the peer group is not mixed with other school classes or grades, which may provide only limited insight into the role of peer status in other ethnic, cultural, and educational contexts. Finally, the dichotomization of physical abuse as a grouping variable in the LPA did not fully do justice to the severity of the physical abuse experience because no nuances within the abuse group could be considered.

4.2. Future Research Directions

Positive peer relationships are protective factors regarding parental physical abuse experiences [126]. From the resilience framework perspective, the high percentage of future resilience research should focus on the factors that promote peer acceptance and popularity in classrooms. Peer acceptance and popularity in turn could be considered as protective factors for individuals' self-concepts [127]. Because there is limited person-centered research on these protective factors and peer popularity seems to have differing effects [57], this topic should be expanded in future research. We recommend that researchers replicate our findings in cross-cultural studies. In addition, to gain a more differentiated insight into the youth groups in the peer-status profiles, it would be beneficial for future researchers to closer examine the sociodemographic variables. As Kassis et al. [128] showed, an intracategorical and intersectional approach to gender identity and sexual attraction offers a picture that is much more differentiated of the psychological state of early adolescents than the binary categorization of female and male is. Especially regarding likeability and popularity, a more diverse picture would be interesting, as most research is based on a binary distinction.

5. Conclusions

The present study provided valuable insights into the role of experienced parental physical abuse on adolescents' positions within the peer group membership. Peer status should be involved in school and classroom interventions and should be considered as

a protective and a risk factor in relation to experiences of parental abuse and violence resilience. This could include trauma-informed training for teachers, because youths who have experienced maltreatment are 2.7 times more likely to be diagnosed with a mental illness compared to their non-abused peers [129]. The peer group and peer status, in particular peer rejection, as part of the system in which adolescents are embedded can play a crucial role for adolescents who bear such a burden of traumatic experience and should be further considered in future resilience research. Dissociation as a severe trauma response plays an important role in relation to the position within the peer group. Thus, especially with regard to adolescents who experience physical abuse, a focus should be placed on dissociative symptoms and not only on depression and anxiety as internalized symptoms, which is mainly the case in research. Therefore, students with dissociative symptoms and a low peer status should be closely monitored as an especially vulnerable group of individuals.

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References

1. Artz, S.; Jackson, M.A.; Rossiter, K.R.; Nijdam-Jones, A.; Géczy, I.; Porteous, S. A Comprehensive Review of the Literature on the Impact of Exposure to Intimate Partner Violence on Children and Youth. *UVICSpace* **2014**, *5*, 493–587. [CrossRef]
2. Kassis, W.; Artz, S.; Maurovic, I.; Simões, C. What Doesn't Kill Them Doesn't Make Them Stronger: Questioning Our Current Notions of Resilience. *Child. Abus. Negl.* **2018**, *78*, 71–84. [CrossRef]
3. Enzmann, D.; Kivivuori, J.; Marshall, I.H.; Steketee, M.; Hough, M.; Killias, M. *A Global Perspective on Young People as Offenders and Victims: First Results from the ISRD3 Study*; Springer: Berlin/Heidelberg, Germany, 2018; ISBN 3-319-63233-7.
4. Kapella, O. *Gewalt in der Familie und im Nahen Sozialen Umfeld: Österreichische Prävalenzstudie zur Gewalt an Frauen und Männern*; Österreichisches Institut für Familienforschung an der Universtität Wien: Wien, NY, USA, 2011.
5. Finkelhor, D.; Turner, H.A.; Shattuck, A.; Hamby, S.L. Prevalence of Childhood Exposure to Violence, Crime, and Abuse: Results from the National Survey of Children's Exposure to Violence. *JAMA Pediatr.* **2015**, *169*, 746–754. [CrossRef]
6. Evans, S.E.; Davies, C.; DiLillo, D. Exposure to Domestic Violence: A Meta-Analysis of Child and Adolescent Outcomes. *Aggress. Violent Behav.* **2008**, *13*, 131–140. [CrossRef]
7. Kitzmann, K.M.; Gaylord, N.K.; Holt, A.R.; Kenny, E.D. Child Witnesses to Domestic Violence: A Meta-Analytic Review. *J. Consult. Clin. Psychol.* **2003**, *71*, 339–352. [CrossRef]

8. Lindert, J.; von Ehrenstein, O.S.; Grashow, R.; Gal, G.; Braehler, E.; Weisskopf, M.G. Sexual and Physical Abuse in Childhood Is Associated with Depression and Anxiety over the Life Course: Systematic Review and Meta-Analysis. *Int. J. Public Health* **2014**, *59*, 359–372. [CrossRef] [PubMed]
9. Runyon, M.K.; Deblinger, E.; Steer, R.A. PTSD Symptom Cluster Profiles of Youth Who Have Experienced Sexual or Physical Abuse. *Child. Abus. Negl.* **2014**, *38*, 84–90. [CrossRef] [PubMed]
10. Kassis, W.; Artz, S.; Moldenhauer, S. Laying Down the Family Burden: A Cross-Cultural Analysis of Resilience in the Midst of Family Violence. *Child. Youth Serv.* **2013**, *34*, 37–63. [CrossRef]
11. Tlapek, S.M.; Auslander, W.; Edmond, T.; Gerke, D.; Schrag, R.V.; Threlfall, J. The Moderating Role of Resiliency on the Negative Effects of Childhood Abuse for Adolescent Girls Involved in Child Welfare. *Child. Youth Serv. Rev.* **2017**, *73*, 437–444. [CrossRef]
12. Gerin, M.I.; Hanson, E.; Viding, E.; McCrory, E.J. A Review of Childhood Maltreatment, Latent Vulnerability and the Brain: Implications for Clinical Practice and Prevention. *Adopt. Fostering* **2019**, *43*, 310–328. [CrossRef]
13. Guo, L.; Wang, W.; Li, W.; Zhao, M.; Wu, R.; Lu, C. Childhood Maltreatment Predicts Subsequent Anxiety Symptoms among Chinese Adolescents: The Role of the Tendency of Coping Styles. *Transl. Psychiatry* **2021**, *11*, 1–10. [CrossRef] [PubMed]
14. Mariscal, E.S. Resilience Following Exposure to Intimate Partner Violence and Other Violence: A Comparison of Latino and Non-Latino Youth. *Child. Youth Serv. Rev.* **2020**, *113*, 104975. [CrossRef]
15. Tschoeke, S.; Bichescu-Burian, D.; Steinert, T.; Flammer, E. History of Childhood Trauma and Association with Borderline and Dissociative Features. *J. Nerv. Ment. Dis.* **2021**, *209*, 137–143. [CrossRef] [PubMed]
16. Ungar, M. Modeling Multisystemic Resilience: Connecting Biological, Psychological, Social, and Ecological Adaptation in Contexts of Adversity. In *Multisystemic Resilience*; Oxford University Press: Oxford, UK, 2021; pp. 6–32. [CrossRef]
17. Masten, A.S. Global Perspectives on Resilience in Children and Youth. *Child. Dev.* **2014**, *85*, 6–20. [CrossRef] [PubMed]
18. Cicchetti, D.; Toth, S.L. Child Maltreatment. In *Handbook of Child Psychology and Developmental Science: Socioemotional Processes*, 7th ed.; John Wiley & Sons, Inc.: Hoboken, NJ, USA, 2015; Volume 3, pp. 513–563. ISBN 978-1-118-13679-9.
19. Shin, R.; Daly, B.; Vera, E. The Relationships of Peer Norms, Ethnic Identity, and Peer Support to School Engagement in Urban Youth. *Prof. Sch. Couns.* **2007**, *10*, 2156759X0701000411. [CrossRef]
20. Mikami, A.Y.; Hinshaw, S.P. Resilient Adolescent Adjustment among Girls: Buffers of Childhood Peer Rejection and Attention-Deficit/Hyperactivity Disorder. *J. Abnorm. Child. Psychol.* **2006**, *34*, 823–837. [CrossRef]
21. Cicchetti, D.; Toth, S.L. Child Maltreatment. *Annu. Rev. Clin. Psychol.* **2005**, *1*, 409–438. [CrossRef]
22. Dodge, K.A.; Lansford, J.E.; Burks, V.S.; Bates, J.E.; Pettit, G.S.; Fontaine, R.; Price, J.M. Peer Rejection and Social Information-Processing Factors in the Development of Aggressive Behavior Problems in Children. *Child. Dev.* **2003**, *74*, 374–393. [CrossRef]
23. Bolger, K.E.; Patterson, C.J. Developmental Pathways from Child Maltreatment to Peer Rejection. *Child. Dev.* **2001**, *72*, 549–568. [CrossRef]
24. McCormick, C.M.; Kuo, S.I.-C.; Masten, A.S. Developmental Tasks across the Life Span. In *Handbook of Life-Span Development*; Springer Publishing Company: New York, NY, USA, 2011; pp. 117–139. ISBN 978-0-8261-1079-4.
25. Hartup, W.W. The Company They Keep: Friendships and Their Developmental Significance. *Child. Dev.* **1996**, *67*, 1–13. [CrossRef]
26. Brown, B.B.; Larson, J. Peer Relationships in Adolescence. In *Handbook of Adolescent Psychology*; Lerner, R.M., Steinberg, L., Eds.; John Wiley & Sons, Inc.: Hoboken, NJ, USA, 2009; p. adlpsy002004. ISBN 978-0-470-47919-3.
27. Bukowski, W.M.; Castellanos, M.; Vitaro, F.; Brendgen, M. Socialization and Experiences with Peers. In *Handbook of Socialization: Theory and Research*, 2nd ed.; The Guilford Press: New York, NY, USA, 2015; pp. 228–250. ISBN 978-1-4625-1834-0.
28. Leve, L.; Fisher, P.; DeGarmo, D. Peer Relations at School Entry: Sex Differences in the Outcomes of Foster Care. *Merrill-Palmer Q. (Wayne State University Press)* **2007**, *53*, 557–577. [CrossRef] [PubMed]
29. Lev-Wiesel, R.; Sternberg, R. Victimized at Home Revictimized by Peers: Domestic Child Abuse a Risk Factor for Social Rejection. *Child. Adolesc Soc. Work J.* **2012**, *29*, 203–220. [CrossRef]
30. Mccloskey, L.A.; Stuewig, J. The Quality of Peer Relationships among Children Exposed to Family Violence. *Dev. Psychopathol.* **2001**, *13*, 83–96. [CrossRef] [PubMed]
31. Criss, M.M.; Pettit, G.S.; Bates, J.E.; Dodge, K.A.; Lapp, A.L. Family Adversity, Positive Peer Relationships, and Children's Externalizing Behavior: A Longitudinal Perspective on Risk and Resilience. *Child. Dev.* **2002**, *73*, 1220–1237. [CrossRef]
32. Shen, A.C.-T. Self-Esteem of Young Adults Experiencing Interparental Violence and Child Physical Maltreatment: Parental and Peer Relationships as Mediators. *J. Interpers. Violence* **2009**, *24*, 770–794. [CrossRef]
33. Tung, I.; Noroña, A.N.; Lee, S.S. Childhood Maltreatment Affects Adolescent Sensitivity to Parenting and Close Friendships in Predicting Growth in Externalizing Behavior. *Dev. Psychopathol.* **2019**, *31*, 1237–1253. [CrossRef]
34. Wang, M. Harsh Parenting and Peer Acceptance in Chinese Early Adolescents: Three Child Aggression Subtypes as Mediators and Child Gender as Moderator. *Child. Abus. Negl.* **2017**, *63*, 30–40. [CrossRef]
35. Prinstein, M.J.; Rancourt, D.; Adelman, C.B.; Ahlich, E.; Smith, J.; Guerry, J.D. Peer Status and Psychopathology. *APA PsycNet* **2018**, *20*, 617–636.
36. Prinstein, M.J.; Borelli, J.L.; Cheah, C.S.; Simon, V.A.; Aikins, J.W. Adolescent Girls' Interpersonal Vulnerability to Depressive Symptoms: A Longitudinal Examination of Reassurance-Seeking and Peer Relationships. *J. Abnorm. Psychol.* **2005**, *114*, 676. [CrossRef]
37. van den Berg, Y.H.M.; Burk, W.J.; Cillessen, A.H.N. Identifying Subtypes of Peer Status by Combining Popularity and Preference: A Cohort-Sequential Approach. *J. Early Adolesc.* **2015**, *35*, 1108–1137. [CrossRef]

38. Engels, M.C.; Colpin, H.; Van Leeuwen, K.; Bijttebier, P.; Den Noortgate, W.V.; Claes, S.; Goossens, L.; Verschueren, K. School Engagement Trajectories in Adolescence: The Role of Peer Likeability and Popularity. *J. Sch. Psychol.* **2017**, *64*, 61–75. [CrossRef] [PubMed]
39. Mayeux, L.; Houser, J.J.; Dyches, K.D. Social Acceptance and Popularity: Two Distinct Forms of Peer Status. In *Popularity in the Peer System*; The Guilford Press: New York, NY, USA, 2011; pp. 79–102. ISBN 978-1-60918-066-9.
40. Coie, J.D.; Coppotelli, H.; Dodge, K.A. Dimensions and Types of Social Status: A Cross-Age Perspective. *Dev. Psychol.* **1982**, *18*, 557. [CrossRef]
41. Parkhurst, J.T.; Hopmeyer, A. Sociometric Popularity and Peer-Perceived Popularity: Two Distinct Dimensions of Peer Status. *J. Early Adolesc.* **1998**, *18*, 125–144. [CrossRef]
42. LaFontana, K.M.; Cillessen, A.H.N. The Nature of Children's Stereotypes of Popularity. *Soc. Dev.* **1998**, *7*, 301–320. [CrossRef]
43. Wolters, N.; Knoors, H.; Cillessen, A.H.N.; Verhoeven, L. Behavioral, Personality, and Communicative Predictors of Acceptance and Popularity in Early Adolescence. *J. Early Adolesc.* **2014**, *34*, 585–605. [CrossRef]
44. van den Berg, Y.H.M.; Lansu, T.A.M.; Cillessen, A.H.N. Preference and Popularity as Distinct Forms of Status: A Meta-Analytic Review of 20 Years of Research. *J. Adolesc.* **2020**, *84*, 78–95. [CrossRef]
45. Cillessen, A.; Marks, P.E.L. Conceptualizing and Measuring Popularity. *Pop. Peer Syst.* **2011**, *1*, 25–56.
46. Cillessen, A.H.N.; Marks, P.E.L. Methodological Choices in Peer Nomination Research: Methodological Choices in Peer Nomination Research. *New Dir. Child. Adolesc. Dev.* **2017**, *2017*, 21–44. [CrossRef]
47. Marks, P.E.L.; Babcock, B.; van den Berg, Y.H.M.; Gommans, R.; Cillessen, A.H.N. Adolescent Popularity as a Nonlinear, Two-Dimensional Construct: Convergent Results from Three Large Samples. *J. Early Adolesc.* **2021**, *42*, 115–142. [CrossRef]
48. Cillessen, A.H.N.; Bukowski, W.M. Conceptualizing and Measuring Peer Acceptance and Rejection. *New Dir. Child. Adolesc. Dev.* **2000**, *2000*, 3–10. [CrossRef]
49. Hubbard, J.A.; Smith, M.A.; Rubin, R.M. Use of Latent Profile Analysis to Assess the Validity of a Peer-Rejected Group of Children. *J. Clin. Child. Adolesc. Psychol.* **2013**, *42*, 843–854. [CrossRef] [PubMed]
50. Dodge, K.A.; Pettit, G.S.; Bates, J.E. Effects of Physical Maltreatment on the Development of Peer Relations. *Dev. Psychopathol.* **1994**, *6*, 43–55. [CrossRef]
51. Prinstein, M.J.; La Greca, A.M. Childhood Peer Rejection and Aggression as Predictors of Adolescent Girls' Externalizing and Health Risk Behaviors: A 6-Year Longitudinal Study. *J. Consult. Clin. Psychol.* **2004**, *72*, 103. [CrossRef] [PubMed]
52. Ladd, G.W.; Ettekal, I.; Kochenderfer-Ladd, B.; Rudolph, K.D.; Andrews, R.K. Relations among Chronic Peer Group Rejection, Maladaptive Behavioral Dispositions, and Early Adolescents' Peer Perceptions. *Child. Dev.* **2014**, *85*, 971–988. [CrossRef]
53. Anthonysamy, A.; Zimmer-Gembeck, M.J. Peer Status and Behaviors of Maltreated Children and Their Classmates in the Early Years of School. *Child. Abus. Negl.* **2007**, *31*, 971–991. [CrossRef]
54. Masten, A.S. Ordinary Magic: Resilience Processes in Development. *Am. Psychol.* **2001**, *56*, 227. [CrossRef]
55. Reitz, A.K.; Motti-Stefanidi, F.; Asendorpf, J.B. Me, Us, and Them: Testing Sociometer Theory in a Socially Diverse Real-Life Context. *J. Personal. Soc. Psychol.* **2016**, *110*, 908. [CrossRef]
56. Birkeland, M.S.; Breivik, K.; Wold, B. Peer Acceptance Protects Global Self-Esteem from Negative Effects of Low Closeness to Parents during Adolescence and Early Adulthood. *J. Youth Adolesc.* **2014**, *43*, 70–80. [CrossRef]
57. Ferguson, S.M.; Ryan, A.M. It's Lonely at the Top: Adolescent Students' Peer-Perceived Popularity and Self-Perceived Social Contentment. *J. Youth Adolesc.* **2019**, *48*, 341–358. [CrossRef]
58. Coyne, J.C. Toward an Interactional Description of Depression. *Psychiatry* **1976**, *39*, 28–40. [CrossRef]
59. Hubers, M.D.; Burk, W.J.; Segers, E.; Kleinjan, M.; Scholte, R.H.J.; Cillessen, A.H.N. Personality and Problem Behaviours as Predictors of Adolescents' Social Status: Academic Track and Gender as Moderators. *Educ. Psychol.* **2016**, *36*, 1443–1461. [CrossRef]
60. Mori, A. Does Dissociation Among Adolescents Predict Difficulties? A Panel Study in Japan. *Jpn. Psychol. Res.* **2021**, *63*, 141–151. [CrossRef]
61. Peterson, L.; Mullins, L.L.; Ridley-Johnson, R. Childhood Depression: Peer Reactions to Depression and Life Stress. *J. Abnorm Child. Psychol.* **1985**, *13*, 597–609. [CrossRef] [PubMed]
62. Kennedy, E.; Spence, S.H.; Hensley, R. An Examination of the Relationship between Childhood Depression and Social Competence amongst Primary School Children. *J. Child. Psychol. Psychiatry* **1989**, *30*, 561–573. [CrossRef]
63. Malamut, S.T.; Mali, L.V.; Schwartz, D.; Hopmeyer, A.; Luo, T. Depressive Symptoms as a Predictor of Social Difficulties in a Gang-Impacted Context. *J. Appl. Dev. Psychol.* **2017**, *51*, 4–11. [CrossRef]
64. Platt, B.; Kadosh, K.C.; Lau, J.Y. The Role of Peer Rejection in Adolescent Depression. *Depress. Anxiety* **2013**, *30*, 809–821. [CrossRef]
65. Cougle, J.R.; Timpano, K.R.; Sachs-Ericsson, N.; Keough, M.E.; Riccardi, C.J. Examining the Unique Relationships between Anxiety Disorders and Childhood Physical and Sexual Abuse in the National Comorbidity Survey-Replication. *Psychiatry Res.* **2010**, *177*, 150–155. [CrossRef]
66. Gardner, M.J.; Thomas, H.J.; Erskine, H.E. The Association between Five Forms of Child Maltreatment and Depressive and Anxiety Disorders: A Systematic Review and Meta-Analysis. *Child. Abus. Negl.* **2019**, *96*, 104082. [CrossRef]

67. Moreno-Manso, J.M.; García-Baamonde, M.a.E.; Guerrero-Barona, E.; Godoy-Merino, M.a.J.; Guerrero-Molina, M.; Barbosa-Torres, C. Executive Processes and Emotional and Behavioural Problems in Youths Under Protective Measures. *Front. Psychol.* **2021**, *12*, 716489. [CrossRef]
68. Kingery, J.N.; Erdley, C.A.; Marshall, K.C.; Whitaker, K.G.; Reuter, T.R. Peer Experiences of Anxious and Socially Withdrawn Youth: An Integrative Review of the Developmental and Clinical Literature. *Clin. Child. Fam. Psychol. Rev.* **2010**, *13*, 91–128. [CrossRef]
69. Bukowski, W.M.; Adams, R. Peer Relationships and Psychopathology: Markers, Moderators, Mediators, Mechanisms, and Meanings. *J. Clin. Child. Adolesc. Psychol.* **2005**, *34*, 3–10. [CrossRef] [PubMed]
70. La Greca, A.M.; Harrison, H.M. Adolescent Peer Relations, Friendships, and Romantic Relationships: Do They Predict Social Anxiety and Depression? *J. Clin. Child. Adolesc. Psychol.* **2005**, *34*, 49–61. [CrossRef] [PubMed]
71. Alden, L.E.; Taylor, C.T. Interpersonal Processes in Social Phobia. *Clin. Psychol. Rev.* **2004**, *24*, 857–882. [CrossRef] [PubMed]
72. Inderbitzen, H.M.; Walters, K.S.; Bukowski, A.L. The Role of Social Anxiety in Adolescent Peer Relations: Differences among Sociometric Status Groups and Rejected Subgroups. *J. Clin. Child. Psychol.* **1997**, *26*, 338–348. [CrossRef] [PubMed]
73. de Lijster, J.M.; Dieleman, G.C.; Utens, E.M.; Dierckx, B.; Wierenga, M.; Verhulst, F.C.; Legerstee, J.S. Social and Academic Functioning in Adolescents with Anxiety Disorders: A Systematic Review. *J. Affect. Disord.* **2018**, *230*, 108–117. [CrossRef] [PubMed]
74. De Matos, M.G.; Barrett, P.; Dadds, M.; Shortt, A. Anxiety, Depression, and Peer Relationships during Adolescence: Results from the Portuguese National Health Behaviour in School-Aged Children Survey. *Eur. J. Psychol. Educ.* **2003**, *18*, 3–14. [CrossRef]
75. Baartmans, J.M.D.; Rinck, M.; Hudson, J.L.; Lansu, T.A.M.; van Niekerk, R.E.; Bögels, S.M.; Klein, A.M. Are Socially Anxious Children Really Less Liked, or Do They Only Think So? *Cogn. Ther. Res.* **2019**, *43*, 1043–1050. [CrossRef]
76. Bernstein, E.; Putnam, F.W.; Ross, C.A.; Torem, M.; Coons, P.; Dill, D.; Loewenstein, R.J.; Braun, B.G. Validity of the Dissociative Experiences Scale in Screening for Multiple Personality Disorder: A Multicenter Study. *Am. J. Psychiatry* **1993**, *150*, 1030–1036.
77. Putnam, F.W. *Dissociation in Children and Adolescents: A Developmental Perspective*; Guilford Press: New York, NY, USA, 1997.
78. Farina, B.; Liotti, G. Does a Dissociative Psychopathological Dimension Exist? A Review on Dissociative Processes and Symptoms in Developmental Trauma Spectrum Disorders. *Clin. Neuropsychiatry* **2013**, *10*, 11–18.
79. Tolmunen, T.; Honkalampi, K.; Hintikka, J.; Rissanen, M.-L.; Maaranen, P.; Kylmä, J.; Laukkanen, E. Adolescent Dissociation and Alexithymia Are Distinctive but Overlapping Phenomena. *Psychiatry Res.* **2010**, *176*, 40–44. [CrossRef]
80. D'Andrea, W.; Ford, J.; Stolbach, B.; Spinazzola, J.; van der Kolk, B.A. Understanding Interpersonal Trauma in Children: Why We Need a Developmentally Appropriate Trauma Diagnosis. *Am. J. Orthopsychiatry* **2012**, *82*, 187–200. [CrossRef] [PubMed]
81. Silberg, J. Guidelines for the Evaluation and Treatment of Dissociative Symptoms in Children and Adolescents. *J. Trauma Dissociation* **2004**, *5*, 119–150. [CrossRef]
82. Alto, M.; Handley, E.; Rogosch, F.; Cicchetti, D.; Toth, S. Maternal Relationship Quality and Peer Social Acceptance as Mediators between Child Maltreatment and Adolescent Depressive Symptoms: Gender Differences. *J. Adolesc.* **2018**, *63*, 19–28. [CrossRef] [PubMed]
83. Alivernini, F.; Cavicchiolo, E.; Girelli, L.; Lucidi, F.; Biasi, V.; Leone, L.; Cozzolino, M.; Manganelli, S. Relationships between Sociocultural Factors (Gender, Immigrant and Socioeconomic Background), Peer Relatedness and Positive Affect in Adolescents. *J. Adolesc.* **2019**, *76*, 99–108. [CrossRef]
84. Kovacev, L.; Shute, R. Acculturation and Social Support in Relation to Psychosocial Adjustment of Adolescent Refugees Resettled in Australia. *Int. J. Behav. Dev.* **2004**, *28*, 259–267. [CrossRef]
85. Stevens, G.W.J.M.; Veldkamp, C.; Harakeh, Z.; Laninga-Wijnen, L. Associations between Ethnic Minority Status and Popularity in Adolescence: The Role of Ethnic Classroom Composition and Aggression. *J. Youth Adolesc.* **2020**, *49*, 605–617. [CrossRef]
86. Bukowski, W.M.; Dirks, M.; Persram, R.J.; Wright, L.; Infantino, E. Peer Relations and Socioeconomic Status and Inequality. *New Dir. Child. Adolesc. Dev.* **2020**, *2020*, 27–37. [CrossRef]
87. Yoon, D. Peer-Relationship Patterns and Their Association with Types of Child Abuse and Adolescent Risk Behaviors among Youth at-Risk of Maltreatment. *J. Adolesc.* **2020**, *80*, 125–135. [CrossRef]
88. Yoon, D.; Yoon, S.; Pei, F.; Ploss, A. The Roles of Child Maltreatment Types and Peer Relationships on Behavior Problems in Early Adolescence. *Child. Abus. Negl.* **2021**, *112*, 104921. [CrossRef]
89. Kim, J.; Cicchetti, D. Longitudinal Pathways Linking Child Maltreatment, Emotion Regulation, Peer Relations, and Psychopathology. *J. Child Psychol. Psychiatry* **2010**, *51*, 706–716. [CrossRef]
90. Kassis, W.; Artz, S.; White, J. Understanding Depression in Adolescents: A Dynamic Psychosocial Web of Risk and Protective Factors. *Child. Youth Care Forum* **2017**, *46*, 721–743. [CrossRef]
91. Kochel, K.P.; Ladd, G.W.; Rudolph, K.D. Longitudinal Associations among Youth Depressive Symptoms, Peer Victimization, and Low Peer Acceptance: An Interpersonal Process Perspective. *Child. Dev.* **2012**, *83*, 637–650. [CrossRef] [PubMed]
92. Frick, P. Alabama Parenting Questionnaire. University of Alabama: Author. *Commun. Stud.* **1991**, *48*, 59–75.
93. van den Berg, Y.H.M.; Gommans, R. Computer-Based Methods for Collecting Peer Nomination Data: Utility, Practice, and Empirical Support: Computer-Based Methods for Collecting Peer Nomination Data. *New Dir. Child. Adolesc. Dev.* **2017**, *2017*, 61–73. [CrossRef] [PubMed]
94. Poulin, F.; Dishion, T.J. Methodological Issues in the Use of Peer Sociometric Nominations with Middle School Youth. *Soc. Dev.* **2008**, *17*, 908–921. [CrossRef]

95. Derogatis, L.R. The Hopkins Symptom Checklist (HSCL): A self-report symptom inventory. *Behav. Sci.* **1974**, *1*, 1–15. [CrossRef]
96. Stiglmayr, C.; Schmahl, C.; Bremner, J.D.; Bohus, M.; Ebner-Priemer, U. Development and Psychometric Characteristics of the DSS-4 as a Short Instrument to Assess Dissociative Experience during Neuropsychological Experiments. *Psychopathology* **2009**, *42*, 370–374. [CrossRef]
97. Colizzi, M.; Costa, R.; Todarello, O. Dissociative Symptoms in Individuals with Gender Dysphoria: Is the Elevated Prevalence Real? *Psychiatry Res.* **2015**, *226*, 173–180. [CrossRef]
98. Broer, M.; Bai, Y.; Fonseca, F. A Review of the Literature on Socioeconomic Status and Educational Achievement. *Socioecon. Inequal. Educ. Outcomes* **2019**, *4*, 7–17.
99. Federal Statistical Office Population by Migration Status. Available online: https://www.bfs.admin.ch/bfs/en/home/statistics/population/migration-integration/by-migration-status.html (accessed on 8 April 2022).
100. Spurk, D.; Hirschi, A.; Wang, M.; Valero, D.; Kauffeld, S. Latent Profile Analysis: A Review and "How to" Guide of Its Application within Vocational Behavior Research. *J. Vocat. Behav.* **2020**, *120*, 103445. [CrossRef]
101. Ferguson, S.L.G.; Moore, E.W.; Hull, D.M. Finding Latent Groups in Observed Data: A Primer on Latent Profile Analysis in Mplus for Applied Researchers. *Int. J. Behav. Dev.* **2020**, *44*, 458–468. [CrossRef]
102. Collins, L.M.; Lanza, S.T. *Latent Class and Latent Transition Analysis: With Applications in the Social, Behavioral, and Health Sciences*; John Wiley & Sons: Hoboken, NJ, USA, 2009; Volume 718, ISBN 0-470-22839-3.
103. Nylund, K.L.; Asparouhov, T.; Muthén, B.O. Deciding on the Number of Classes in Latent Class Analysis and Growth Mixture Modeling: A Monte Carlo Simulation Study. *Struct. Equ. Modeling A Multidiscip. J.* **2007**, *14*, 535–569. [CrossRef]
104. Tein, J.-Y.; Coxe, S.; Cham, H. Statistical Power to Detect the Correct Number of Classes in Latent Profile Analysis. *Struct. Equ. Modeling A Multidiscip. J.* **2013**, *20*, 640–657. [CrossRef] [PubMed]
105. Masyn, K.E. Latent Class Analysis and Finite Mixture Modeling. In *The Oxford Handbook of Quantitative Methods: Statistical Analysis*; Oxford Library of Psychology; Oxford University Press: New York, NY, USA, 2013; Volume 2, pp. 551–611. ISBN 978-0-19-993489-8.
106. Muthén, L.K.; Muthén, B.O. *Mplus User's Guide*, 8th ed.; Muthén & Muthén: Los Angeles, CA, USA, 1998; Volume 8.
107. Olivera-Aguilar, M.; Rikoon, S.H. Assessing Measurement Invariance in Multiple-Group Latent Profile Analysis. *Struct. Equ. Modeling A Multidiscip. J.* **2018**, *25*, 439–452. [CrossRef]
108. Morin, A.J.S.; Meyer, J.P.; Creusier, J.; Biétry, F. Multiple-Group Analysis of Similarity in Latent Profile Solutions. *Organ. Res. Methods* **2016**, *19*, 231–254. [CrossRef]
109. Asparouhov, T.; Muthén, B. Auxiliary Variables in Mixture Modeling: Three-Step Approaches Using Mplus. *Struct. Equ. Modeling A Multidiscip. J.* **2014**, *21*, 329–341. [CrossRef]
110. Cillessen, A.H.N.; Mayeux, L. From Censure to Reinforcement: Developmental Changes in the Association between Aggression and Social Status. *Child. Dev.* **2004**, *75*, 147–163. [CrossRef]
111. Cicchetti, D. Socioemotional, Personality, and Biological Development: Illustrations from a Multilevel Developmental Psychopathology Perspective on Child Maltreatment. *Annu. Rev. Psychol.* **2016**, *67*, 187–211. [CrossRef]
112. Chen, D.; Drabick, D.A.; Burgers, D.E. A Developmental Perspective on Peer Rejection, Deviant Peer Affiliation, and Conduct Problems among Youth. *Child. Psychiatry Hum. Dev.* **2015**, *46*, 823–838. [CrossRef]
113. Martín-Babarro, J.; Toldos, M.P.; Paredes-Becerra, L.; Abregu-Crespo, R.; Fernández-Sánchez, J.; Díaz-Caneja, C.M. Association of Different Forms of Child Maltreatment With Peer Victimization in Mexican Children and Adolescents. *Front. Psychol* **2021**, *12*, 662121. [CrossRef]
114. Haddow, S.; Taylor, E.P.; Schwannauer, M. Positive Peer Relationships, Coping and Resilience in Young People in Alternative Care: A Systematic Review. *Child. Youth Serv. Rev.* **2021**, *122*, 105861. [CrossRef]
115. Cicchetti, D. Fractures in the Crystal: Developmental Psychopathology and the Emergence of Self. *Dev. Rev.* **1991**, *11*, 271–287. [CrossRef]
116. Shonk, S.M.; Cicchetti, D. Maltreatment, Competency Deficits, and Risk for Academic and Behavioral Maladjustment. *Dev. Psychol.* **2001**, *37*, 3. [CrossRef] [PubMed]
117. Černis, E.; Chan, C.; Cooper, M. What Is the Relationship between Dissociation and Self-Harming Behaviour in Adolescents? *Clin. Psychol. Psychother.* **2019**, *26*, 328–338. [CrossRef] [PubMed]
118. Sentse, M.; Prinzie, P.; Salmivalli, C. Testing the Direction of Longitudinal Paths between Victimization, Peer Rejection, and Different Types of Internalizing Problems in Adolescence. *J. Abnorm. Child. Psychol.* **2017**, *45*, 1013–1023. [CrossRef]
119. Humphreys, K.L.; LeMoult, J.; Wear, J.G.; Piersiak, H.A.; Lee, A.; Gotlib, I.H. Child Maltreatment and Depression: A Meta-Analysis of Studies Using the Childhood Trauma Questionnaire. *Child. Abus. Negl.* **2020**, *102*, 104361. [CrossRef]
120. Gorostiaga, A.; Aliri, J.; Balluerka, N.; Lameirinhas, J. Parenting Styles and Internalizing Symptoms in Adolescence: A Systematic Literature Review. *Int. J. Environ. Res. Public Health* **2019**, *16*, 3192. [CrossRef]
121. Rudman, L.A.; Glick, P. Prescriptive Gender Stereotypes and Backlash toward Agentic Women. *J. Soc. Issues* **2001**, *57*, 743–762. [CrossRef]
122. Mersky, J.P.; Janczewski, C.E.; Topitzes, J. Rethinking the Measurement of Adversity: Moving toward Second-Generation Research on Adverse Childhood Experiences. *Child. Maltreatment* **2017**, *22*, 58–68. [CrossRef]
123. Bukowski, W.M.; Hoza, B.; Boivin, M. Popularity, Friendship, and Emotional Adjustment during Early Adolescence. *New Dir. Child. Adolesc. Dev.* **1993**, *1993*, 23–37. [CrossRef]

124. de Bruyn, E.H.; Cillessen, A.H.N.; Wissink, I.B. Associations of Peer Acceptance and Perceived Popularity with Bullying and Victimization in Early Adolescence. *J. Early Adolesc.* **2010**, *30*, 543–566. [CrossRef]
125. Bukowski, W.M.; Cillessen, A.H.N.; Velasquez, A.M. Peer Ratings. In *Handbook of Developmental Research Methods*; Laursen, B., Little, T.D., Card, N.A., Eds.; The Guilford Press: New York, NY, USA, 2012; pp. 211–228.
126. Yule, K.; Houston, J.; Grych, J. Resilience in Children Exposed to Violence: A Meta-Analysis of Protective Factors Across Ecological Contexts. *Clin. Child Fam. Psychol. Rev.* **2019**, *22*, 406–431. [CrossRef] [PubMed]
127. Bukowski, W.M.; Raufelder, D. Peers and the Self. In *Handbook of Peer Interactions, Relationships, and Groups*, 2nd ed.; The Guilford Press: New York, NY, USA, 2018; pp. 141–156. ISBN 978-1-4625-2501-0.
128. Kassis, W.; Aksoy, D.; Favre, C.A.; Artz, S.T.-G. Multidimensional and Intersectional Gender Identity and Sexual Attraction Patterns of Adolescents for Quantitative Research. *Front. Psychol.* **2021**, *12*, 4068. [CrossRef] [PubMed]
129. Karatekin, C.; Almy, B.; Mason, S.M.; Borowsky, I.; Barnes, A. Mental and Physical Health Profiles of Maltreated Youth. *Child. Abus. Negl.* **2018**, *84*, 23–33. [CrossRef] [PubMed]

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Thriving despite Parental Physical Abuse in Adolescence: A Two-Wave Latent Transition Analysis on Hedonic and Eudaimonic Violence-Resilience Outcome Indicators

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Abstract: Internationally, about 25% of all children experience physical abuse by their parents. Despite the numerous odds against them, about 30% of adolescents who have experienced even the most serious forms of physical abuse by their parents escape the vicious family violence cycle. In this study, we analyzed longitudinally the data from a sample of N = 1767 seventh-grade high school students in Switzerland on physical abuse by their parents. We did this by conducting an online questionnaire twice within the school year. We found that in our sample, about 30% of the participating adolescents' parents had physically abused them. We considered violence resilience a multi-systemic construct that included the absence of psychopathology on one hand and both forms of well-being (psychological and subjective) on the other. Our latent construct included both feeling good (hedonic indicators, such as high levels of self-esteem and low levels of depression/anxiety and dissociation) and doing well (eudaimonic indicators, such as high levels of self-determination and self-efficacy as well as low levels of aggression toward peers). By applying a person-oriented analytical approach via latent transition analysis with a sub-sample of students who experienced physical abuse (n_{w2} = 523), we identified and compared longitudinally four distinct violence-resilience patterns and their respective trajectories. By applying to the field of resilience, one of the most compelling insights of well-being research (Deci & Ryan, 2001), we identified violence resilience as a complex, multidimensional latent construct that concerns hedonic and eudaimonic well-being and is not solely based on terms of psychopathology.

Keywords: parental physical abuse; adolescents; violence resilience; hedonic factors; eudaimonic factors

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1. Introduction

Research confirms that internationally about 25% of all children experience [1–4] severe forms of physical abuse by their parents. These numbers seem especially high because they involve significant physical abuse, such as kicks and massive blows, and not only the very common but still very problematic slapping of children on the hand or leg [5]. Studies report a prevalence of 19% in Switzerland [5], 20–25% in the European Union ([5–7]), and 28% in the USA [8]. Victimization surveys show that physical victimization of adolescents by parents often goes unreported to the police and young people are less likely than adults to report victimization to the police [9], suggesting that underreporting among young people might be a major policy concern.

Thus far, as the meta-analysis of Stoltenborgh et al. [4] showed, there is no conclusive evidence if the prevalence or incidence of parental abuse is the most appropriate indicator for understanding the respective adolescents' developmental processes and outcomes. This insight holds for several parental abuse forms, including physical abuse [2–10] and

sexual abuse [11,12]. Therefore, arguments exist for both incidence and prevalence. Even if the discussion on the severity of parents' physical abuse forms can be misleading [13], what emerges as important is the difference between slapping on the hand [10] and more force-related parental abuse forms such as kicks, punches, or even strangulations [14]. The importance of including the prevalence of the more severe physical parental abuse forms can be explained by the fact that the burden and the effects of even single episodes of such forms of physical abuse substantially contribute to long-lasting effects on mental health [1,2,4,10].

1.1. The Detrimental Effects of Physical Parental Abuse on Adolescents

Parental abuse, also known as child maltreatment, can manifest in many ways, with parental physical abuse being one type that involves the infliction of non-accidental bodily harm. Other types of child maltreatment exist, such as emotional abuse, neglect, and sexual abuse [15]. The effects of the most severe forms of parents' physical abuse on adolescents' development are widely described as harming their emotional, personal, and social adjustment and growth, all of which is well documented [16–19], among which two symptoms, one externalizing (interpersonal aggression toward peers) and one internalizing (depression/anxiety), have been identified as the most central and indicative symptoms in adolescents with experiences of parental physical abuse [1,8,16,20,21]. A growing body of research supports the link between parental physical abuse and the co-occurrence of depression, anxiety [22], and aggression in adolescence [23–26], and it shows that this co-occurrence can be observed in childhood [25], adolescence, and young adulthood [23,27]. Corroborating data from a meta-analysis of 60 related studies published between 1990 and 2006 also indicate that mental health problems and behavioral problems, such as externalization symptoms in adolescence, are associated with exposure to violence at home [16].

1.2. Conceptualizing Violence-Resilience Outcomes of Adolescents with Experience of Parental Physical Abuse

Conceptualizing and evaluating violence-resilience outcomes of adolescents with experience of physical family abuse is a complex endeavor. Bearing in mind that resilience is a relational term and process within and between various systems, not necessarily of equal weights, and that this process involves responsibilities that individuals and social/societal systems share, a more integrative approach is needed. Masten's [28] suggestion, which we endorse, defines resilience as the ability of a dynamic system, not just of the individual, to adapt successfully to disturbances that jeopardize the system's function, viability, or development.

Interestingly, in recent years, scholars have widely applied the dual-factor model of mental health to resilience research, which currently focuses specifically on factors contributing to resilience [29,30]. Prior to the dual-factor model [31,32], the conception of mental health included only the absence of psychopathological factors. Nevertheless, from the more recent perspective, psychopathology and subjective well-being are not solely opposite poles of a continuum; rather, they need to be integrated into one common construct, the dual-factor model. However, surprisingly, this has not been the case for violence-resilience outcomes, specifically in identifying and defining violence resilience [33]. This gap in the definition of violence resilience prevents the comparison of research findings across studies, finding insights into the prevalence of violence resilience among maltreated children, and informing prevention and intervention practices and policies to foster violence resilience.

Investigations of the adolescents' class membership were often implemented in many studies through the inclusion of gender, migration background, and socio-economic status in the analyzed models as socio-demographic predictors. Given that previous findings [34] have shown that being male, having a migration background [35,36], and having a lower socio-economic status can act as risk factors for mental health, their predictive strength for class membership should be identified. Thus far, only limited research exists on the

effects of socio-demographic predictors on physically abused adolescents [37]. Additionally, the results on these predictors of adolescents' resilience-outcome status have been inconclusive [7,38].

Following these thoughts, we believe it is highly important for violence resilience to be conceptualized as adolescent students *feeling good* (the hedonic dimension), doing well, and functioning positively in the school context (the eudaimonic dimension). In this respect, we go one step further than existing resilience research and understand positive adaptation not only as high levels of subjective well-being, academic competence, or the absence of psychopathology. Rather, we assume that violence resilience means both low levels of psychopathology and higher levels of subjective (hedonic) but also psychological (eudaimonic) well-being. At the same time, the person-centered analysis gives space to adolescents who may not be on one side (non-resilient) or the other (resilient) but are somewhere in between; this can be expressed by the dual-factor model. The aim of the paper is therefore to apply the dual-factor model to violence resilience using latent transition analysis, taking into account both hedonic and eudaimonic indicators and controlling for sociodemographic variables.

In general, resilience is the outcome of achieving positive adjustment despite adversity [39], but its presence requires setting clear and agreed upon criteria that describe positive adjustment and outcomes in the face of a specific risk [40], in our case parental physical abuse. Children of parental physical abuse are typically described as resilient, here called violence resilient, and can be identified by specific resilience outcomes, although no single agreed upon resilience definition exists [28]. Identifying violence-resilience outcomes and recognizing adolescents' resilience after they experience parental physical abuse is a complex endeavor. Even though adolescents experiencing parental abuse commonly show psychopathological symptoms, international research confirms that about one-third of adolescents physically abused by parents do not show psychopathological symptoms, such as depression and aggression toward peers [7,41].

Several studies have focused on the dual-factor model for identifying resilience processes, but fewer have focused on resilience outcomes related to parents' physical abuse through applying person-centered approaches as latent class (LCA) or latent transition analyses (LTA) for identifying groups based on similar response profiles [42–45]. The most shared insights included that four classes/profiles on processes toward adolescents' resilience on mental health could be identified [46,47]: a "flourishing" class with high levels of protective factors and low symptoms, a "vulnerable" group with low protective factors and a middle level of symptoms, a "troubled" group with low protective factors and a high level of symptoms, and "symptomatic but content" group with middle levels of protective factors and high levels of symptoms. In these studies, the "flourishing" and the "troubled" adolescents were most likely to remain in their group while the "symptomatic but content" and the "vulnerable" groups were the least stable classes [45–48].

In many cases, this valuable approach is called "symptomatology-resilience" because it is mainly based on the presence or absence of specific symptoms [49–53]. Despite the bulk of literature on adolescents' positive development regardless of parental physical abuse, a lively debate continues about defining and measuring violence resilience. Most definitions are based on describing specific psychopathological symptoms rather than their components for a positive life in adolescence, which makes it difficult to draw conclusions, make comparisons, and create broad interventions. Researchers have typically conceptualized resilience following maltreatment in one of three ways: (1) as a personality trait, (2) as outcomes related to adaptive functioning, or (3) as socioecological resources [54]. Even though policymakers and/or academics commonly use the term "violence resilience" in connection with adolescents who have experienced parental physical abuse, it is still inconsistently defined. Additionally, because of the dynamic development children undergo during adolescence and the particular changes in their violence-resilience status, resilience sustainability over time is of the utmost importance.

1.3. Applying Learnings from Well-Being Research to Identify Adolescents' Violence-Resilience Components: A New Model Combining Well-Being and Resilience Research

Identifying the internalizing and externalizing symptoms as resilience indicators among adolescents who have experienced parental physical abuse is driven by the evidence-based insight that these very symptoms hinder beneficial development [21,37] and, therefore, hinder the forming of a positive life. In their review of resilience after maltreatment, Yule et al. [55], who conducted a meta-analysis of 118 studies on protective factors involving 101,592 participants, noted that in resilience research, positive adaptation is understood as, among other things, the absence or low presence of psychopathology, the achievement of competencies in important domains such as school, and high levels of subjective well-being. In this study, we consider the insight that the absence of negative outcomes, such as depression and aggression, at time 1 (t1) is not an adequate evidence of adolescents' positive development despite having experienced parental physical abuse and that this resilience state at t2 will be the same.

We see this assumption as a theoretical shortcoming that perpetuates an important beta error, a false negative, and has us retain the null hypothesis when it is actually wrong. Meaning, under these conditions, adolescents are identified incorrectly as violence resilient even if they are not, and we submit that we cannot assume that just because adolescents lack internalizing and externalizing symptoms at one point in time, they are doing well. Therefore, we hypothesize that our beta error-based conclusions and falsely accepted violence-resilience status led to misspecifications of the ongoing need for fostering processes among these adolescents. While rightly criticizing an exclusively psychopathology-oriented view on resilience, too often the mistake is made of underestimating that adolescents' psychopathology in general [56] or for specific social groups [57] (including components of optimal experience and functioning) is indeed a valid and needed point, but as stated here, it is not the only element in identifying adolescent students' violence-resilience outcomes.

To help apply a non-exclusively psychopathology-oriented approach, we adapt one of the most compelling insights of well-being research [58,59] to the field of resilience and identify violence resilience as a complex and multidimensional latent construct that includes feeling good and doing well. Consequently, we suggest that adolescent students' violence-resilience indicators should refer to their present and future lives because these factors relate to their emotional, social, and academic performance, and therefore, they entail more than just general satisfaction with one's life or positive performance in certain areas.

Interestingly, these two core dimensions of well-being (hedonic and eudaimonic) have been operationalized in very different ways. In their review of the research on experienced well-being, Martela and Sheldon [60] identified at least 63 eudaimonic constructs and regarded the satisfaction of psychological needs as the common core connecting the hedonic and eudaimonic dimensions. Therefore, we expect hedonic and eudaimonic aspects of violence resilience will correlate as distinct aspects of resilience.

Deciding on resilience criteria can be very difficult because it can involve numerous indicators. Following Luthar et al. [39], we argue that for adolescents to be resilient, they must excel in multiple adjustment domains. Considering there is no such thing as general resilience but only resilience related to a specific developmental burden [61], these specific resilience-outcome indicators of optimal experience and functioning for adolescent students who have experienced physical abuse by their parents must be explicitly geared to this very specific developmental burden. Therefore, we have to seek domain-specific violence-resilience indicators despite parental physical abuse among early adolescent students and conceptualize the respective hedonic and eudaimonic aspects accordingly. Additionally, as resilience is not only domain specific as related to the content (the particular burden), resilience processes can only be addressed and fostered appropriately via topological specificity. Because of this, we need to keep in mind that for a child and youth care worker dealing with families, a eudaimonic aspect such as "functioning well" in a family is not the same as it is for a school social worker who is aiming to support "functioning well" at school even if the two fields (family and school) are related.

Feeling good, meaning the presence of positive and the absence of negative affect, represents the hedonic aspects of violence resilience among adolescent students, emphasizes the strive for positive experiences, and consists of cognitive and affective components, such as higher levels of self-esteem [62] and lower levels of depression/anxiety [3] and dissociation [63]. The association between self-esteem and violence resilience in adolescence is well documented and has been reported as an assessment of an individual's global worthiness and one of the most decisive determinants of violence resilience in adolescence [3]. High school students with higher levels of self-esteem feel that school challenges threaten them less [64] because they evaluate their own personality via salient attributes, thereby ensuring a positive representation of themselves and asserting their global dignity. Therefore, self-esteem works in adolescence both as an outcome and as a buffer throughout challenging times [65], which is especially important for adolescents who have experienced parental physical abuse. Adolescent students' violence resilience is perceived as not only an experience of pleasant emotions at school but also the absence of or rather low levels of negative affect. Here, "negative affect" refers to addressing negative emotions, such as sadness and fear [66]. Abuse experiences jeopardize the optimal development of affect regulation skills; therefore, it may become more challenging for troubled adolescents to regulate and differentiate affective experiences [15]. Furthermore, parental physical abuse contributes to the development of internalizing symptoms. A large body of research demonstrates that youth with experiences of abuse show increased levels of internalizing symptoms, such as high levels of depression [7,67–69], anxiety [70–72], and dissociation [63,73–75]; therefore, low levels of depression, anxiety, and dissociation are a central emotional hedonic component of violence resilience.

However, adolescent students' violence resilience goes beyond the experience of positive and the absence of negative affect. It also involves a eudaimonic element, which includes promoting positive social skills in early adolescence and positive functioning in their school settings as central to environmental mastery [76]. This understanding of resilience includes three dimensions: mastery at school, indicated by high self-efficacy; fulfilling basic psychological needs; and lack of or low levels of aggression toward peers.

Mastery at school, the first eudaimonic dimension, focuses on perceived self-efficacy [77,78] as a generalized concept of behavioral expectations and is based on being able to handle the demands and challenges that students face in school settings. Andretta and McKay [79] showed that self-efficacy was a key variable in well-being processes. Higher levels of perceived self-efficacy are favorable for setting and achieving goals [47] and support both motivation and very concrete activities at school [80]. Consequently, students with higher levels of self-efficacy tend not just to set higher goals but are also both more efficient and more realistic in planning their actions at school. This is key for adolescents who have experienced parental physical abuse because this kind of mastery helps them regain control over their lives. Jerusalem and Schwarzer [81] referenced general perceived self-efficacy as a core indicator of the ability to cope with life challenges in adolescence, and by extension, with detrimental experiences of familial violence.

The second dimension, fulfilling basic psychological needs, includes positive relationships with others, autonomy, and growth in academic competence as essential parts of positive school performance [82]. Prominently, Deci and Ryan [83] identified autonomy, experiences of competence, and social relatedness as basic psychological needs. The need for competence focuses on reliable instrumentalities leading to specific outcomes, the need for autonomy focuses on students' aspirations to experience the self as the origin of their actions at school, and the need for social relatedness encompasses the universal urge to experience interrelatedness and feel securely connected at school. Fulfilling these basic psychological needs is vital for adolescents who have experienced parental physical abuse because of their very crucial need for effective functioning and psychological health [84].

The third eudaimonic dimension of violence resilience in the context of well-being is low aggression toward peers. Children and adolescents who have experienced parental violence consider aggression an appropriate response and more often make snap judgments

about hostile intentions, and exhibit more aggressive responses compared to those who have not had these experiences [85], which in turn may lead to a higher risk of peers re-victimizing them [86]. Because peer aggression is a highly important consequence of experiences with parental violence, low levels of peer aggression importantly indicate resilient development from a violence-resilience perspective [1,8,16,20,21] because victimization and aggression are both negatively associated with well-being [87].

1.4. Present Study: Violence-Resilience Stability and Change over Time

As noted above, resilience sustainability over time must be better understood and considered regarding this phenomenon's definitions, which makes establishing the stability of violence-resilience pathways over time desirable [88]. The stability of violence-resilience outcomes regarding hedonic and eudaimonic aspects is entirely unknown. We propose that we need to ask what happens after the first "ordinary magic", as Masten [40] describes resilience, is detected at wave 1 among adolescent students with whom we have established the two hedonic and eudaimonic aspects on various extents, and with that, examine how resilience and the corresponding pathway look in wave 2 for adolescents with experiences of parental physical abuse. We need to ask if wave 2 simply shows a continuation of resilience patterns already experienced at wave 1, or if that depends on the different patterns of hedonic and eudaimonic aspects.

The questions that we investigate here address that longitudinal studies on the pathways of resilient adolescents with experiences of parental physical abuse are internationally rare [83,89–92].

Consequently, the development of violence resilience throughout adolescence remains unclear. To address this issue, we examined longitudinally the combined contribution of eudaimonic and hedonic factors in predicting violence-resilience patterns in early adolescence and identified their respective trajectories. Using latent class and latent transition analysis [42,93] as well as person-oriented procedures, we expected to estimate and understand adolescent students' continuity of violence-resilience levels at two time points, specifically whether the transition occurs developmentally forward (e.g., transition to higher resilience levels) or backward (e.g., transition to lower resilience levels or remain at the same level). This methodology allows grouping subjects into distinct classes based on the violence-resilience indicators included in the analysis and then estimating the probability that a particular subject (also a person-oriented method) is a member of that class.

Although identifying adolescent violence-resilience patterns at a given time is an important first step, knowing whether, why, and how these patterns change longitudinally over time is essential in designing possible school-specific prevention and intervention programs. Therefore, understanding the interplay between the introduced hedonic and eudaimonic indicators and the potential changes over time is necessary. Research suggests that low socio-economic status, migration background, and female gender predict violence resilience. Therefore, we assume these factors might influence the membership in different groups that show each pattern of violence resilience and its stability and change after one year at school.

Thus far, we have almost no knowledge convincingly showing how nonpathological violence-resilience outcomes despite parental physical abuse in early adolescence will develop over time and, in particular, on how these patterns change longitudinally over time for different adolescent groups. Thus, we conducted this study to fill these gaps in knowledge through discovering violence-resilience outcome patterns over time.

Because of the study's exploratory character and because the introduced conceptualization of hedonic and eudaimonic indicators for identifying resilience outcomes of adolescents whose parents physically abused them has not been applied thus far, we investigated four exploratory hypotheses. First, we predicted that the introduced three hedonic and three eudaimonic indicators would allow identifying distinct resilience-outcome classes of adolescents whose parents physically abused them. Based on previous findings, we expected to find four resilience-outcome classes as the optimal number of groups for both

time points. Second, following already existing research on mental health [68], we expected to identify a resilient, a non-resilient, a vulnerable, and a symptomatic but content class. Third, considering resilience is a state and not a trait, we expect fluctuations between the to-be-identified resilience-outcome classes at different time points. We expect the resilient and the non-resilient adolescents will most likely remain in their class, while the symptomatic but content and the troubled will be the least stable classes [45,68]. Fourth, we expect socio-demographic predictors, such as gender, migration background, and socio-economic status, will influence the participating adolescents' class membership in the model.

2. Materials and Methods

2.1. Study and Sample

The analyzed data come from a two-waves longitudinal sample (which two survey waves within the next two years will follow) of a broader study on adolescents' violence-resilience pathways despite experiencing parental physical abuse, which was conducted in the early autumn of 2020 (*M_age_wave* 1 = 11.76 (*SD_age_wave* 1 = 0.64)) and early summer 2021 (*M_age_wave* 1 = 12.28 (*SD_age_wave* 1 = 0.56)) with representative convenient samples. Schools were contacted to recruit full classes of seventh-grade high school students from German-speaking Switzerland. Consent forms were obtained from students and their caregivers. No incentives were given. The research ethics committee at the University in Zurich, Switzerland authorized the project. On the day of the study, the research team members gave a short oral introduction about the online survey to the students who were present in the participating 142 classes in 44 high schools and the students completed the questionnaire in about 60 min. For the analysis stage, we drew "abuse" sub-samples of both waves (wave 1 $n = 560$; wave 2 $n = 523$), consisting of adolescents who reported having experienced parental physical abuse at least once in their lifetime.

We ran *t*-tests (see Table 1) to analyze for mean differences on socio-demographic variables and the six applied measures between the two waves, including overall samples for wave 1 (N = 1858) and wave 2 (N = 1764), and as for the specific sub-samples of adolescents having experienced physical parental abuse, we used the sub-samples "abuse", (Wave 1_$n = 560$, Wave 2_$n = 523$). Referring first to the three introduced socio-demographic variables, overall, we identified only small effects (all displayed Cohen's d are far lower than <0.5) between the overall samples and the respective "abuse" sub-samples for both waves. Even when considering this, we detected significantly higher percentages of adolescents with a migration background and a lower socio- economic level in the "abuse" sub-samples compared to those in the overall samples for both waves.

When comparing the levels of the six indicators of the overall samples and the corresponding "abuse" sub-samples, we identified, for both waves, very similar outcomes. Concerning the hedonic indicators, the overall samples for both waves displayed higher self-esteem and lower levels of depression/anxiety and dissociation than in the respective "abuse" sub-samples. The eudaimonic indicators reproduced a similar picture. There were higher levels of self-efficacy and self-determination and lower levels of aggression toward peers for both overall samples in comparison to the "abuse" sub-samples for both waves.

The attrition of the "abuse" sub-samples from wave 1 ($n = 560$) to wave 2 ($n = 523$) of only 6.61% is very low. Between wave 1 and wave 2 participants, no significant differences existed regarding the tested socio-demographic variables to (gender_$t(560) = 0.904$, $p > 0.05$; migration background $t(560) = -1.483$, $p > 0.05$; socio-economic status $t(560) = -0.859$, $p > 0.05$). Due to this, we consider the two samples comparable to the participating students.

Table 1. Wave 1 and wave 2 sample mean levels (and standard deviations) of socio-demographic variables and all observed variables for the LCAs/LTA between the overall samples and the sub-samples of adolescences having experienced physical parental abuse.

		Wave 1			Wave 2		
		Overall Sample N = 1858	**Sub-Sample «Abuse» *n* = 560**	**Cohen's *d***	**Overall Sample N = 1764**	**Sub-Sample «Abuse» *n* = 523**	**Cohen's *d***
Variables	**Range**	***M* (*SD*)**	***M* (*SD*)**		***M* (*SD*)**	***M* (*SD*)**	
Gender	1–2 (1 male; 2 female) % female	1.50 (0.50) 51.3%	1.56 * (0.50) 55.9%	−0.11	1.50 (0.50) 51.3%	1.53 (0.50) 52.6%	-
Migration Background	0–1 (0 no MB, 1 with MB) % with MB	0.32 (0.47) 35.7%	0.44 *** (0.50) 43.8%	−0.25	0.30 (0.46) 33.0%	0.44 *** (0.50) 44.4%	−0.30
Socio-Economic Status	1–3 (1 lowest to 3 highest) % lowest level % middle level % highest level	2.11 (0.55) 21.0% 60.8% 18.2%	2.00 *** (0.56) 25.9% 59.2% 14.8%	0.20	2.13 (0.57) 23.7% 58.8% 17.6%	1.98 *** (0.59) 28.2% 58.0% 13.8%	0.25
Self-Esteem	1–4 [1]	3.08 (0.72)	2.85 *** (0.{Citation})	0.31	3.12 (0.75)	2.80 *** (0.81)	0.43
Depression/Anxiety	1–4 [1]	1.73 (0.60)	1.99 *** (0.69)	−0.42	1.73 (0.66)	2.10 *** (0.77)	−0.54
Dissociation	1–4 [1]	1.32 (0.55)	1.55 *** (0.70)	−0.39	1.32 (0.59)	1.63 *** (0.79)	−0.47
Self-Efficacy	1–4 [1]	2.82 (0.62)	2.71 ** (0.66)	0.17	2.84 (0.69)	2.68 *** (0.69)	0.24
Self-Determination	1–4 [1]	3.07 (0.61)	2.92 *** (0.64)	0.23	3.10 (0.66)	2.89 *** (0.64)	0.32
Aggression Against Peers	1–4 [1]	1.31 (0.39)	1.51 *** (0.50)	−0.46	1.35 (0.39)	1.62 *** (0.57)	−0.59

[1] higher numbers indicate higher levels of the respective indicator; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ between the wave's overall sample and sub-sample.

2.2. Measures

2.2.1. Prevalence of Parental Family Physical Abuse

The single-item indicator on the prevalence of parental physical abuse indicates that adolescents reported having experienced parental physical abuse at least once in their lifetime. Response categories for prevalence of parental physical abuse were dichotomized as no (0) or yes (1).

2.2.2. The Six Latent Class/Latent Transition Indicators

The Three Hedonic Indicators

Self-esteem was assessed according to the Rosenberg Self-Esteem Scale [94] for assessing an individual's global worthiness evaluation. This tool is comprised of a five-item short scale, with higher scores indicating higher self-esteem. The items were rated on a four-point Likert scale ranging from 1 = "not at all" to 4 = "extremely" (Cα_wave 1 = 0.90; Cα_wave 2 = 0.92). Respondents were asked to rate questions such as, "In total, I am confident in myself." For the LCA/LTA we performed a median split (MED_wave 1 = 3.00; MED_wave 2 = 3.00) and dichotomized this as either (0) lower levels or (1) higher levels of self-esteem.

Symptoms of anxiety and depression were assessed through 24 items that were part of the Hopkins Symptom Checklist [95] (e.g., "I feel fear" and "Thoughts of ending my life"). From the original 25-item scale version, one item ("Loss of sexual interest or pleasure") was not included because of the participants' young age of approximately 12–14 years. The items were rated on a four-point Likert scale ranging from 1 = "not at all" to 4 = "extremely," (Cα_wave 1 = 0.96; Cα_wave 2 = 0.96). For the LCA/LTA, we performed a median split (MED_wave 1 = 1.62; MED_wave 2 = 1.65) and dichotomized this as either (0) lower levels or (1) higher levels of symptoms of anxiety and depression.

Dissociation: The items for assessing dissociation as a disruption or discontinuity of consciousness were measured on a four-item short scale (Dissociation Tension Scale Acute) [96]. This scale consisted of one item each of depersonalization, somatoform, derealization, and analgesia. Participants could rate these items on a four-point Likert scale ranging from 1 = "not at all" to 4 = "very much" (Cα_wave 1 = 0.80; Cα_wave 2 = 0.85). For the LCA/LTA, we performed a median split (MED_wave 1 = 1.00; MED_wave 2 = 1.00) and dichotomized this as either (0) lower levels or (1) higher levels of symptoms of dissociation.

The Three Eudaimonic Indicators

Self-efficacy: The General Self-Efficacy Scale is a psychometric scale that Schwarzer and Jerusalem [81] developed. It is designed to assess optimistic self-belief regarding coping with various challenging demands in life (e.g., "I am confident that I could deal efficiently with unexpected events"). The six-item short scale (Cα_wave 1 = 0.88; Cα_wave 2 = 0.90) was measured on a four-point Likert scale (range: 1 = not true to 4 = completely true). For the LCA/LTA, we performed a median split (MED_wave 1 = 2.83; MED_wave 2 = 2.83) and dichotomized this as either (0) lower levels or (1) higher levels of self-efficacy.

Self-determination: Following Deci and Ryan's [82] self-determination theory (SDT) on basic human psychological needs, we measured the three subscales of autonomy, competence, and relatedness on short scales with three items each (e.g., on the subscale autonomy, "I was free to do things in my own way"). The nine-item scale (α_wave 1 = 0.87; α_wave 2 = 0.90) was measured on a four-point Likert scale (range: 1 = not true at all to 4 = completely true). For the LCA/LTA, we performed a median split (MED_wave 1 = 3.00; MED_wave 2 = 3.11), and dichotomized this as either (0) lower levels or (1) higher levels of self-determination.

Aggression toward peers: To assess overt (e.g., threatening to hit classmates or physically hurt them in other ways) and covert aggression (e.g., spreading harmful rumors about classmates) toward peers in the classroom as perpetrators, we applied the German Self-Report Behaviour Aggression-Opposition Scale [97], which consists of nine items. We measured it on a four-point Likert scale: 1 = "never happened," 2 = "once or twice per

month," 3 = "once per week," and 4 = "more than once per week" since the school year started (α_wave 1 = 0.83; α_wave 2 = 0.84). For the LCA/LTA, we performed a median split (MED_wave 1 = 1.2; MED_wave 2 = 1.44), and dichotomized this as either (0) lower levels or (1) higher levels of aggression toward peers.

The Three Covariates

Gender: Students' gender was assessed with three response options (0 = *boys*, 1 = *girls*, and 3 = *other*). As only three students out of 1987 chose "other" we worked without these three cases.

Socio-economic status (SES): Students' SES was used as a proxy for students' socioeconomic background and was merged as a mean score using four indicators (1 lowest to 3 highest SES, Cα = 0.71). Information on parental education was gathered from the two questions: "What is the highest level of school education that your mother has completed?" and "What is the highest level of school education that your father has completed?" (ranging from 1 = *Primary School/ Junior High School*, 2 = *Vocational Education/General High-school Certificate* to 3 = *University Degree/Higher Education*). Additionally, we incorporated the information on the books the adolescents (ranging from 1 = 0–5 books, 2 = 6–30 books to 3 = 31 books on) and family (ranging from 1 = 0–10 books, 2 = 11–100 books to 3 = 101 books on) owned.

Migration background (MB): Not having a migration background meant the student was born in Switzerland and they possessed only the Swiss passport. Having a migration background was operationalized such that one or more of the aforementioned conditions did not apply (0 no MB, 1 with MB).

2.3. Analytic Strategy

This study's aim was three-fold. Firstly, we tested the introduced violence-resilience outcomes conceptualization through using both hedonic and eudaimonic aspects. Secondly, we identified adolescent violence-resilience outcome patterns and knowing how these patterns change over time as an essential step for designing prevention and intervention programs. Thirdly, we tested if the new categorization applied via LCA/LTA reduced the beta error of incorrectly identifying adolescents as violence resilient even if they are not.

To empirically classify the six introduced latent variables (three to hedonic and three to eudaimonic domains) to violence-resilience subgroups based on observations that appeared to be similarly related to hedonic and eudaimonic aspects, we applied LCA and LTA as typological person-oriented approaches [42,93,98]. Unlike variable-centered analyses, LCA/LTA allow for identifying specific persons' latent profiles [48]. Both LCA and LTA include categorical indicators to identify different groups in empirical data [93]. Through an iterative process of choosing the optimal number of profiles between a one-profile solution to six-profile solutions, we determined the optimal solution. We assigned the individuals to the different patterns based on their posterior probabilities for class membership and tested these through the classification stability of the respective violence-resilience patterns of the specific individuals for wave 1 and wave 2.

Missing data were estimated using the full information maximum likelihood method. LCA/LTA analyses were conducted with maximum likelihood estimation, and due to non-normal distributions, with robust standard errors [99]. To avoid local solutions, we increased for all LCAs and LTAs performed the random starts to 1000 and final optimizations to 100 [48].

We conducted consecutive LCA/LTA series to identify the definite number of profiles. We applied different criteria for the model selection. First, the entropy value indicated the certainty in the estimatiFFon with values above 0.7 considered sufficient [100–103]. Second, for the information criteria, we used criterion such as the Akaike information criterion (AIC), Bayesian (Schwarz) information criterion (BIC), and Sample-Adjusted BIC (SABIC), with the smaller values fitting the model better [93,102]. For the LCA, we additionally applied model fit criteria as the Vuong-Lo-Mendell-Rubin Likelihood Ration

test (LMR-LRT), the Lo-Mendell-Rubin Adjusted Likelihood Ratio test (aLMR-LRT) [104], and the Bootstrapped Likelihood Ratio test (BLRT) with significant *p*-values indicating an improvement compared with the previous model with k-1 classes [102]. However, we chose the final model for an LCA/LPA based on a mixture of statistical indicators, extant theoretical considerations, and the rule of deference to more constrained and parsimonious models [102].

Therefore, we conducted this study's statistical analysis in four steps. First, wave 1 versus wave 2 survey differences in the six applied measures (self-esteem, depression/anxiety, dissociation, self-efficacy, self-determination, and aggression toward peers) were examined using paired samples *t*-tests. Second, we identified students' resilience outcome classes through computing separately for wave 1 and for wave 2 LCA using the six classification variables. Additionally, we applied an invariance analysis across time to ensure the reliability for the identified number of resilience outcomes (configural invariance) as well as the same relevance of the resilience-outcome patterns (metric invariance) for both study waves. Third, we ran LTA to indicate significant differences in the longitudinal classification variables on the identified resilience-outcome patterns. Fourth, we included the covariates gender, migration background, and socio-economic level to multinomial logistic regression analyses to predict the identified latent status membership. For the *t*-tests, we used SPSS (Version 24; IBM Corp., New York, USA, 2016), all other analyses conducted were assessed using *M*plus version 8.6 [105].

3. Results

3.1. Analytic Step One: Differences of All Measures between the Two Waves

We ran *t*-tests for paired samples (see Table 2) to analyze for mean differences between the two waves of the six applied measures for our sub-sample (wave 1_*n* = 560, wave 2_*n* = 523). Overall, moderate effects for depression/anxiety, dissociation, and aggression toward peers for all three measures were at significantly higher levels at wave 2, but no effects on the other three measures were displayed.

Table 2. Paired *t*-tests, wave 1 (*n* = 523) and wave 2 (*n* = 560) sub-sample mean levels (and standard deviations) of all six latent class/latent transition indicators.

Indicators	Range	Wave 1 *M (SD)*	Wave 2 *M (SD)*	Cohen's *d*
Self-Esteem	1–4	2.84 (0.80)	2.82 (0.80)	-
Depression/Anxiety	1–4	1.96 (0.67)	2.11 (0.77) ***	0.234
Dissociation	1–4	1.53 (0.68)	1.63 (0.79) **	0.145
Self-Efficacy	1–4	2.73 (0.67)	2.69 (0.71)	-
Self-Determination	1–4	2.94 (0.64)	2.89 (0.69)	-
Aggression Against Peers	1–4	1.49 (0.50)	1.62 (0.57) ***	0.197

** $p < 0.01$; *** $p < 0.001$ between wave 1 and wave 2.

3.2. Analytic Step Two: Identifying Resilience-Outcome Classes via LCA for Both Waves

For each of the two waves, we tested for resilience-outcome patterns via computing two separate LCAs. We applied the introduced six classification variables, three on hedonic and three on eudaimonic aspects, to determine via LCA the optimal number of classes for each wave sharing the same pattern of resilience outcome for each detected class. Based on their response similarity in the measured three hedonic and three eudaimonic indicators for each wave (wave 1_*n* = 560; wave 1_*n* = 523) separately. LCAs for both waves were conducted for a range of two to six latent classes to determine significantly differing resilience-outcome classes for adolescents experiencing parental physical abuse.

When LCA was applied, for the non-nested models and choosing for the models' selection goodness of fit, the sample-adjusted Bayesian information criterion (aBIC) with

a lower value indicated a more appropriate fit, and entropy indicated the estimation's accuracy, with models having sufficient values above 0.7 [93,102]. The final LCA model decision was based on a mixture of statistical indicators, theoretical considerations, and the rule of deference to more parsimonious models [101,106].

Based on the three hedonic indicators (self-esteem, depression/anxiety, and dissociation) and three eudaimonic indicators (self-efficacy, self-determination, and aggression toward peers) we applied a series of LCAs for both waves to group students into empirically distinct resilience-outcome classes for adolescents having experienced parental physical abuse. When parallel analyzing the data for both waves, the aBIC scores dropped between the three and four class solutions for both waves and the still-significant tests (VLMR, aLMR, and the bootstrap likelihood ratio test (BLRT) indicated an improvement, supporting a four over three class solution. Between classes four and five, there was an aBIC rise (wave 1_ΔBIC = 12; wave 2_ΔBIC = 12). For wave 1, the two performed tests (VLMR, aLMR) indicated no improvement between the class four to class five solution, only the BLRT test was significant. For wave 2, all three performed tests (VLMR, aLMR, BLRT) indicated no improvement between the class four to class five solution. Therefore, a four class solution was selected for both waves (see Figure 1).

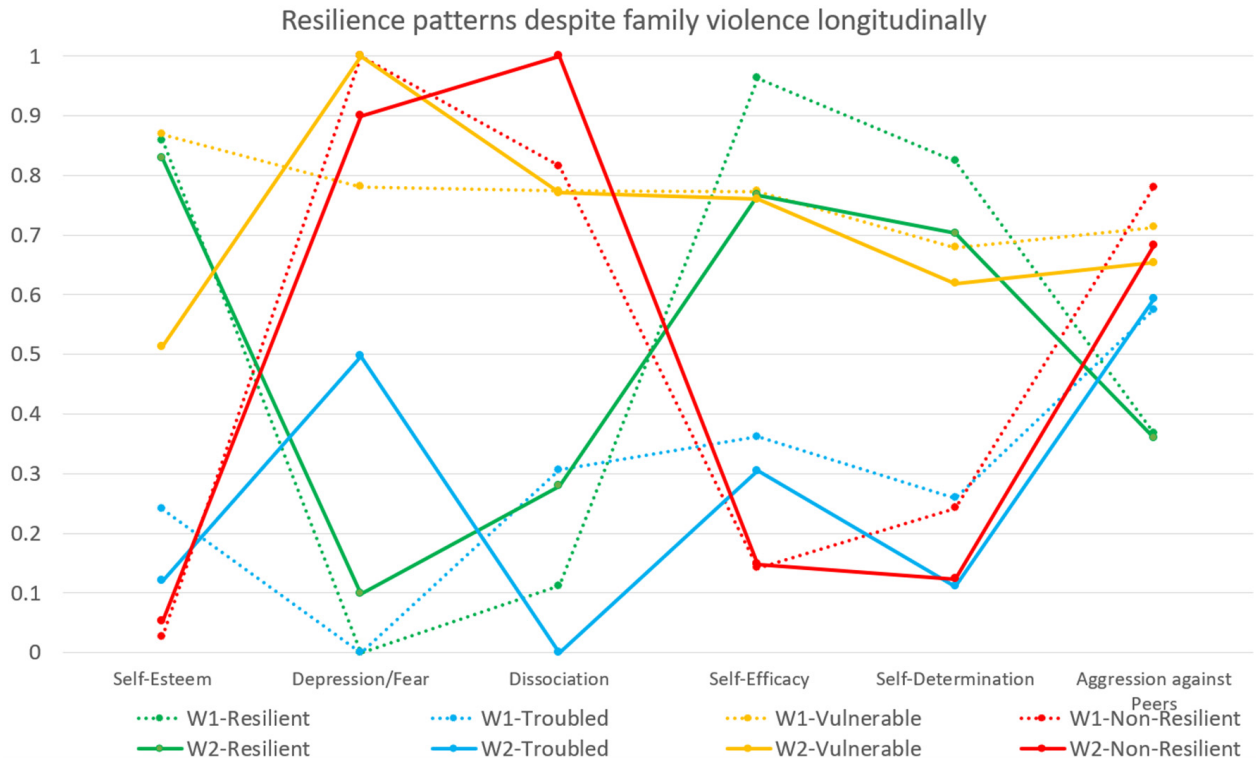

Figure 1. Item response probabilities and violence resilience-outcome patterns for both waves.

Regarding the distribution of all six indicators on the four identified classes for both waves (see Figure 2), we identified vast similarities between the two waves. We detected a class called "resilient" (wave 1 = 20.3%; wave 2 = 18.4%), a class called "troubled" (wave 1 = 20.1%; wave 2 = 22.6%), a class called "vulnerable" (wave 1 = 18.2%; wave 2 = 12.1%), and a class called "non-resilient" (wave 1 = 41.4%; wave 2 = 46.9%) resilience-outcome classes for both waves. The indicators' probabilities (see Figure 2) on the respective levels were highly comparable on the three hedonic and three eudaimonic indicators, supporting the chosen classes solution for both waves.

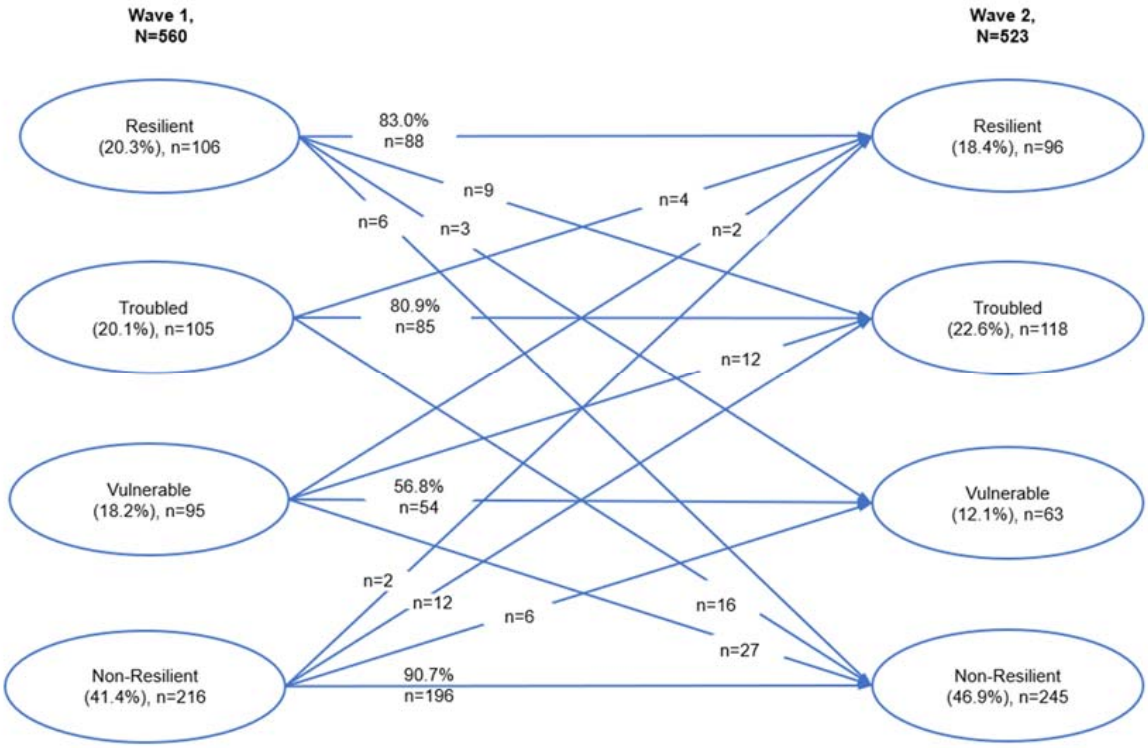

Figure 2. Classes transition over time.

For both waves, we noticed the students' immense resilience outcome differences on hedonic and eudaimonic indicators when comparing the resilience classes (hedonic indicators: high levels of self-esteem and low levels of depression/anxiety and dissociation; and eudaimonic indicators: high levels of both, self-efficacy as for self-determination, and low levels of aggression toward peers) to the non-resilience classes (hedonic indicators: low levels of self-esteem and high levels of depression/anxiety and dissociation; and eudaimonic indicators: low levels of both, self-efficacy as for self-determination, and high levels of aggression toward peers).

In addition, for both waves, we detected a class called "vulnerable" (hedonic indicators: middle levels of self-esteem and high levels of depression/anxiety and dissociation; and higher levels of all three eudaimonic indicators: self-efficacy, self-determination, and aggression toward peers). We called the fourth detected class for both waves "troubled", which had a very distinctive profile on the proliferation of the introduced hedonic indicators (low levels of self-esteem, middle to low levels of depression/anxiety, and low levels of dissociation) and eudaimonic indicators (low levels of both, self-efficacy as for self-determination, and high levels of aggression toward peers). Quite deliberately, we do not call this group "aggressive," even though the students had higher levels of aggression toward peers, because they also had very low levels of self-esteem (hedonic indicator) and self-efficacy and self-determination (both eudaimonic indicators).

Based on the identified four resilience outcome patterns for both waves, we tested for measurement invariance [64] across time in the number of resilience outcome patterns (configural invariance) that could be analyzed for wave 1 and wave 2. We also tested whether the loadings on the respective latent classes were invariant, thus ensuring that the factors' structures, that is, the four patterns, were the same for both waves (metric invariance). When testing for metric measurement invariance, we identified a nonsignificant chi-square difference test (Δchi^2 [24] = 35.71, $p > 0.05$.), thereby establishing the same relevance for the four resilience outcome patterns for both waves. Ensuring metric invariance was the first approach necessary to compare the four resilience outcome patterns over the school year.

To summarize the invariance testing results, we found the same number of resilience outcome patterns and hedonic and eudaimonic dimensions present for adolescents having experienced parental physical abuse across both waves over a one-year period. In terms of content, this indicates the four introduced and empirically analyzed violence-resilience outcome patterns provided an empirically reliable measure on two waves longitudinally.

Having established this structure similarity for both waves, we could then approach the third analysis step on testing stability and change among different patterns of well-being via applying LTA.

3.3. Analytic Step Three: LTA to Indicate Significant Differences in the Longitudinal Classification Variables on the Identified Resilience-Outcome Patterns

In step three, we ran an LTA to indicate significant differences in the longitudinal classification variables on the identified patterns. LTA, the longitudinal extension of LCA, is a statistical tool that fulfills the needs of modeling adolescents' violence-resilience outcome transitions over time [93,102]. After determining separately that the optimal number of classes at each time point was four (see analysis step two), we performed an LTA to estimate the probabilities of violence-resilience outcome pattern changes over time from one latent class to another [93]. This process can estimate the continuity of resilience outcomes at adjacent time points. At this statistical step, change is represented via the probability of transitioning to a latent violence-resilience outcome status at wave 2, given latent status membership at wave 1. In addition, it explores whether the same latent status can be identified in both wave 1 and wave 2 [42,101].

We ran an LTA using the previously mentioned three hedonic and three eudaimonic classification variables (for model fits see Table 4). The LTA was conducted for a range of two to six latent classes to test if the conditional response probabilities had been constrained to be time invariant.

The aBIC dropped between the three and four class solution ($-\Delta 55$) and the corresponding aBIC stability ($-\Delta 0$) from the four to the five class solution indicated a four class solution as the appropriate one. The detected samples for the respective solutions (see Table 3) supported this with the five class and six class solutions having numerous sub-samples with far too few ($<n = 50$) allocated students to the particular sub-samples. Due to the sub-sample sizes and the rule of deference to more constrained models, a four class solution was selected for the longitudinal analyzes via LTA.

Table 3. Latent transition analysis model fit statistics to select longitudinally the number of classes of resilience at school.

Classes	AIC (df)	aBIC	Entropy	Samples
2	6645 (15)	6661	0.80	c1: 339/183; c2: 350/172
3	6500 (26)	6529	0.77	c1: 90/268/164; c2: 58/307/157
4	6432 (39)	6474	0.71	c1: 106/105/95/216; c2: 96/118/63/245
5	6415 (54)	6474	0.78	c1: 93/223/43/69/94; c2: 54/241/67/68/92

AIC = Akaike information criterion; aBIC = adjusted Bayesian information criterion.

Regarding the distribution of the four classes for both waves (see Table 5), we identified only very low changes over time for the "resilient" class (of −1.9% from wave 1 to wave 2) and the "vulnerable" class (of 2.5% from wave 1 to wave 2). We noticed moderate changes, particularly a decrease in the "vulnerable" class of −6.1% from wave 1 to wave 2, and an increase in the "non-resilient" class of 5.5% from wave 1 to wave 2.

Table 4. Latent class analysis model fit statistics to select the number of classes of resilience at school for both waves sequentially.

	Wave 1							Wave 2						
Classes	**AIC (dF)**	**aBIC**	**VLMR**	**aLMR**	**BLRT**	**Entropy**	**Samples**	**AIC (dF)**	**aBIC**	**VLMR**	**aLMR**	**BLRT**	**Entropy**	**Samples**
2	3565 (13)	3580	<0.001	<0.001	<0.001	0.61	241/313	3431 (13)	3445	<0.001	<0.001	<0.001	0.61	187/333
3	3501 (20)	3524	<0.01	<0.01	<0.001	0.71	160/299/95	3398 (20)	3419	<0.05	<0.05	<0.001	0.62	249/169/102
4	3481 (27)	3511	<0.05	<0.05	>0.001	0.74	99/112/68/275	3383 (27)	3413	<0.01	<0.01	<0.001	0.70	91/120/86/223
5	3484 (34)	3523	>0.05	>0.05	>0.05	0.73	43/80/71/87/273	3389 (34)	3425	>0.05	>0.05	>0.05	0.68	16/88/93/236/87
6	3487 (41)	3534	<0.05	<0.05	>0.05	0.81	73/34/31/274/61/81	3398 (41)	3443	>0.05	>0.05	>0.05	0.72	26/8/243/74/76/93

AIC = Akaike information criterion; aBIC = sample-size adjusted Bayesian information criterion; VLMR = Vuong–Lo–Mendell–Rubin Likelihood Ratio Test; aLMR = Lo–Mendell–Rubin Adjusted LRT Test.

Table 5. Estimated longitudinal probabilities of the four resilience patterns by latent transition analysis.

Resilience Pattern	Wave 1	Wave 2	ΔW2-W1
Resilient	20.3%	18.4%	−1.9%
Troubled	20.1%	22.6%	+2.5%
Vulnerable	18.2%	12.1%	−6.1%
Non-Resilient	41.4%	46.9%	+5.5%

Regarding comparing the classes' stability over one school year, a multilayered picture can be identified (see Figure 2). Concerning the stability over time, three ("resilient," "troubled," and "non-resilient") out of four classes showed a remarkable immobility of higher than 80% of the students being reassigned to the same class. In contrast, only 56.8% of the students being assigned at wave 1 to the "vulnerable" class were at the same class at wave 2.

Interestingly, when looking closer at these changes over time from the "vulnerable" class, only a negligible number (n = 2, as 2.1%) moved to the "resilient" class, 12.6% (n = 12) were assigned to the "troubled" class, and almost every third student (n = 27, as 28.9%) transitioned to the "non-resilient" class. In terms of "ordinary magic", as Masten [40] described resilience, regarding only an almost negligible proportion of the participating students, less than 2% (n = 8), transitioned to the "resilient" class: 3.8% (n = 4) of the "troubled", 2.1% (n = 2) of the "vulnerable", and just about 0.9% (n = 2) of the "non-resilient" adolescents.

3.4. Analytic Step Four: Covariates Gender, Migration Background, and Socio-Economic Level Were Included to Multinomial Logistic Regression Analyses to Predict the Identified Latent Status Membership

After identifying the classes for both waves, we applied a multinomial logistic regression. Our analysis included, for both waves, socio-demographical covariates that could plausibly relate to resilience-outcome pattern variations despite experiencing parental physical abuse (see Table 6). Gender, migration background, and SES were included as socio-demographic predictors to the identified latent status membership.

The socio-demographic variables showed for both waves (see Table 6) a very low prediction to the identified LCA patterns. Notably, only gender, but neither migration background nor SES, showed any prediction to the identified resilience-outcome patterns. For both waves, a highly significant number of females was assigned to the resilient group compared to the non-resilient group. For wave 1, compared to the non-resilient group, a highly significant number of females compared to males were in the vulnerable group. Compared to the non-resilient group for both waves, significantly more females than males were in the vulnerable group. Just for wave 2, compared to the resilient group, significantly more males than females were assigned to the vulnerable group. Likewise, just for wave 2, compared to the resilient group, significantly more males than females were assigned to the vulnerable group.

Table 6. Wave 1 and wave 2, multinomial logistic regression of socio-demographic covariates to the identified latent status membership on the four resilience-outcome-patterns.

		Socio-Demographic Factors			
		Wave 1		Wave 2	
Resilience-Outcome-Patterns		**B (SE)**	**OR**	**B (SE)**	**OR**
Reference Pattern «non-resilient» vs. Pattern «resilient»	Intercept	−4.27 (1.04) ***	-	−3.48 (0.85)	-
	Gender (1 male; 2 female)	1.30 *** (0.39)	3.69	1.93 *** (0.34)	6.91
	Migration Background (0 no MB, 1 with MB)	−0.35 (0.43)	-	−0.40 (0.32)	-
	Socio-Economic Status (1 lowest to 3 highest)	0.55 (0.32)	-	0.29 (0.26)	-
Reference Pattern «non-resilient» vs. Pattern «vulnerable»	Intercept	−3.89 *** (0.88)		−1.07 (0.93)	
	Gender (1 male; 2 female)	1.21 *** (0.32)	3.34	0.65 (0.41)	-
	Migration Background (0 no MB, 1 with MB)	0.38 (0.32)	-	−0.36 (0.48)	-
	Socio-Economic Status (1 lowest to 3 highest)	0.58 (0.32)	-	−0.22 (0.40)	-
Reference Pattern «non-resilient» vs. Pattern «troubled»	Intercept	−3.38 *** (0.86)		−2.01 * (0.79)	
	Gender (1 male; 2 female)	1.49 *** (0.33)	4.46	0.87 ** (0.31)	2.39
	Migration Background (0 no MB, 1 with MB)	−0.09 (0.33)	-	−0.33 (0.32)	-
	Socio-Economic Status (1 lowest to 3 highest)	0.08 (0.29)	-	0.05 (0.27)	-
Reference Pattern «resilient» vs. Pattern «vulnerable»	Intercept	0.39 (1.28)		2.40 * (0.97)	
	Gender (1 male; 2 female)	−0.09 (0.47)	-	−1.28 ** (0.44)	0.28
	Migration Background (0 no MB, 1 with MB)	0.74 (0.51)	-	0.04 (0.46)	-
	Socio-Economic Status (1 lowest to 3 highest)	0.03 (0.40)	-	−0.25 (0.37)	-

Table 6. *Cont.*

		Socio-Demographic Factors			
		Wave 1		**Wave 2**	
Resilience-Outcome-Patterns		**B (SE)**	**OR**	**B (SE)**	**OR**
Reference Pattern «resilient» vs. Pattern «troubled»	Intercept	0.89 (1.38)		1.47 (1.01)	
	Gender (1 male; 2 female)	0.19 (0.51)	-	−1.06 * (0.42)	0.35
	Migration Background (0 no MB, 1 with MB)	0.27 (0.56)	-	0.07 (0.38)	-
	Socio-Economic Status (1 lowest to 3 highest)	−0.47 (0.43)	-	0.02 (0.33)	-
Reference Pattern «vulnerable» vs. Pattern «troubled»	Intercept	0.51 (1.08)		0.93 (0.98)	
	Gender (1 male; 2 female)	0.29 (0.41)	-	0.22 (0.44)	-
	Migration Background (0 no MB, 1 with MB)	−0.47 (0.39)	-	0.02 (0.49)	-
	Socio-Economic Status (1 lowest to 3 highest)	−0.50 (0.36)	-	0.27 (0.42)	-

Estimate = β from R3STEP analysis; *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.; OR only displayed when the corresponding comparisons are significant.

4. Discussion

Internationally, about 25% of the adolescents experience physical abuse by their parents, who are their primary caregivers [4]. Exposure to physically abusive parents creates conditions in which maladaptive development in adolescents is highly likely. However, studies consistently report that, contrary to expectations, a proportion of these adolescents are neither showing externalizing nor internalizing behaviors, suggesting that they may be considered "resilient" according to the generally accepted definition. Increasingly, researchers are questioning whether this symptom-focus is perhaps too general, and we too questioned the negative symptoms-oriented understanding of violence-resilience outcomes. Based on this, we asked the following question: How adaptive are youths with experiences of violence when positive outcomes are considered alongside negative outcomes? To answer this question, we drew on findings from well-being research and used not only dimensions of subjective well-being but also psychological well-being as indicators of violence resilience [59]. We identified violence-resilience as a complex and multidimensional latent construct that encompasses feeling good and doing well: In doing so, we used three hedonic and three eudaimonic indicators to identify distinct violence-resilience outcome classes of youth whose parents physically abuse them. Considering that general resilience does not exist, we had to understand first the domain-specific content of violence-resilience. Following theoretical considerations, we introduced self-esteem, depression/anxiety, and dissociation as three hedonic indicators for feeling good despite having experienced parental physical abuse. Additionally, we applied the three eudaimonic indicators self-efficacy, self-determination, and aggression toward peers for positive functioning in adolescence and environmental mastery.

Following the study's exploratory character and the introduced conceptualization of hedonic and eudaimonic indicators for identifying distinct violence-resilience outcomes, we applied a longitudinal analysis via LCAs/LTA. Additionally, considering resilience is not a trait but a fluctuating state at different time points [107], we ran longitudinally analyses for these resilience outcomes. To achieve this goal, we applied LTA as a person-centered approach for identifying homogenous groups based on similar resilience-outcome response patterns [93] despite parental physical abuse.

For both waves, we identified a prevalence of about 30% of the most severe forms of parental physical abuse, showing a higher proliferation than the expected prevalence of about 20–25% [3,5]. We assumed this to be the often-discussed COVID-19 effect with families and their members being under higher individual, social, and financial strains [108–110]. The identified higher levels of depression/anxiety, dissociation, and peer aggression at wave 2 support this conclusion.

Through applying a two-wave longitudinal design and analyzing the data of both waves via LCAs, we detected distinct resilience-outcome patterns following the introduced theoretical line of reasoning and similar studies on the dual-factor model of mental health [111]. We did not only identify a resilient (high levels of feeling good and doing well) and a non-resilient group (low levels of feeling good and doing well) as well as replicated the results of mental health studies [46], but we also identified two very interesting, and thus far, not discussed violence-resilience outcome groups.

First, a class we called "troubled" (see related results on mental health as introduced by Xiong et al. [47]) was made up of adolescents with a very mixed profile on hedonic (low self-esteem, middle to low depression/anxiety, and low dissociation levels) and eudaimonic (low levels of self-efficacy and self-determination but high levels of aggression toward peers) indicators. This group (about every fifth adolescent in our sample was being physically abused), when viewed through the new introduced theoretical consideration, is not only specifically aggressive but is also characterized by very low levels of the hedonic indicators and the two additional eudaimonic indicators self-efficacy and self-determination. These adolescents were "running" very scarce on any additional hedonic and eudaimonic resources, and because of that, they also had very low probabilities on changing to higher resilience-outcome levels. This assumption was empirically validated

through this group's high stability over time and additionally through the result that almost every sixth adolescent of this group transitioned by wave 2 to the non-resilient group.

The second newly introduced group for violence-resilience outcomes is the group we called "vulnerable," replicating Kelly et al.'s [46] and Xiong et al.'s [47] studies, which named this group symptomatic but content. The group is characterized by very heterogeneous profiles of both the hedonic (high levels of self-esteem, as with depression/anxiety and dissociation) and the eudaimonic (high levels of self-efficacy, as with self-determination and aggression toward peers) indicators. This group's adolescents displayed a highly symptomatic profile but initially, and at least just on the data surface, seemed content with this situation. As Diamantopoulou et al. [112] was able to identify, an exaggerated self-esteem can be related to aggressive behavior in adolescence. This phenomenon on the self-esteem paradox has later been described as "defensive egotism" [113] and refers to a compensation model of aggression in adolescence being driven by a defensive personality. Thanks to our two wave longitudinal design and the applied LTA, we identified this group's enormous instability (just about every second adolescent of this group did transition to another class) toward a lower resilience-outcome level, indicating that a characterization as "content" as Kelly et al. [46] and Xiong et al. [47] originally assigned despite the high levels of depression/anxiety, dissociation, and aggression toward peers would be thoroughly unfitting. We highlight the finding on this group, that from wave 1 to wave 2, about every tenth student moved to the "troubled" group and more than every fourth moved to the non-resilient group.

Referring to the stability of the state of the adolescents over time, through our analyses, we confirmed the expected stability of the resilient (83%) and the non-resilient (90.7%) adolescents, while the vulnerable and the troubled classes were the least stable [45,111]. Returning to the resilient group (high levels of feeling good and of doing well), we detected a very high stability over time, indicating an anchored resilience state over the analyzed school year. The highest stability of the identified resilience-outcome groups was detected for the non-resilient adolescents with almost no adolescents moving to other resilience-outcome classes, especially to the resilient group. The "ordinary magic of resilience," as Masten [40,114] describes it, did not seem to apply for them. Referring to violence-resilience in adolescence when having experienced parental physical abuse, any notion of "ordinary magic"-resilience does not seem to exist, thus it almost does not happen, and we suggest that it must be implemented and fostered pointedly.

Connected to the focus on thriving not only surviving parental physical abuse, we incorporated at least two main issues often detected in violence-resilience research. First, the chosen person-centered methods are whole-person approaches and through including further indicators, we supported the aim to understand the specific adolescents' violence-resilience outcomes latent reality behind the symptomatology that manifests on the surface. Through undertaking this and incorporating a general sample, not a clinical sample, we avoided stating "the kids are all right" because they are not experiencing higher levels of internalizing or externalizing effects despite having experienced such massive physical abuses by their primary caregivers (this could also be related to the actual world-political situation when stating that the absence of war is not a sufficient indicator of freedom). Secondly, we established this latent person-oriented approach of hedonic and eudaimonic indicators on violence-resilience as a state not a trait and gained insights on adolescents' fluctuating resilience thriving not only surviving parental physical abuse over time, which is a desideratum [115].

Our results have shown conclusively and for two waves within a school year in early adolescence that neither depression/anxiety, or as it has been mainly called "internalizing symptoms," nor aggression against peers as "externalizing symptoms" could be called empirically sufficient or even content-wise adequate predictors for violence-resilience despite parental physical abuse.

The new categorization that developed from well-being research provided us the opportunity to identify the hedonic and the eudaimonic indicators. Along with the original

indicator, the respective three indicators displayed an enormous variation. This can be seen especially, but certainly not exclusively, in the composition of the "troubled" and "vulnerable" groups, over the four identified resilience-outcome patterns.

Because previous findings have shown that gender, migration background, and SES can act as risk factors, they might be highly influential on resilience-outcome classes [34]. For both waves, the socio-demographic variables showed a very low prediction of the specific LCA class membership. Notably, only gender (and not migration-background nor SES) showed any prediction of the identified resilience-outcome patterns. In particular for both waves, significantly more females were assigned to the resilient group compared to the non-resilient group. Additionally, and again for both waves, compared to the non-resilient group, significantly more females than males were in the vulnerable group. These results are only partly consistent with previous studies showing these covariates' effects [116]. Other international studies identifying SES and familial wealth as not being predictors of parental physical abuse [1,3,7] corroborate our results. We still have to take into consideration that testing gender as binary, as we did, still results in an enormous reduction of the existing gender variations and requires an intersectional approach [117].

It would be both difficult and dangerous to load the violence-resilience's outcome burden on the adolescents' shoulders, even when applying a whole-person approach via the chosen hedonic and eudaimonic indicators. We must acknowledge that the best way to support adolescents' lives in the first place is not to hurt them emotionally, physically, or sexually. The proliferation of massive parental physical abuse tells a different story.

5. Limitations

Dichotomizing data for LCA/LTA always restricts findings. Through applying a median split, participants are divided into two groups, and through that, the standard deviation is reduced artificially [118,119], but a mandatory step to conduct LCAs and LTA implemented. At the same time, in our study, by applying these person-centered methods and developing profiles within individuals, we minimized classification dichotomies as common when using variable-centered methods [120].

The results of the two-wave longitudinal analyses that we performed (gathering data twice within the first high school year) will have to be verified by the following two data waves (waves 3 and 4), each of which will be gathered at the end of grades 8 and 9.

The study focused on how resilience outcomes appeared, but we did not analyze processual factors leading to the four identified resilience outcomes. Because of our data, we only applied a two-waves longitudinal design, and from that, we could not analyze these processes.

In our study, we worked with the physical abuse prevalence rate that the adolescents reported. It is of course a limitation not having additional data from parents or social services, but as Stoltenborgh et al. [4] showed, the prevalence rates from informant studies were lower compared to self-report studies. Additionally, self-report studies of adolescents are considered very accurate [1].

By focusing on parental physical abuse prevalence and not on experienced incidence, we could not consider additional physical abuse characteristics as frequency and duration [13]. One of the most compelling methodological problems on this issue is that incidence reports in early adolescence, even if they appear to be abuse reports that are more accurate at first glance, have to be focused on very recent events. Following Stoltenborgh's [4] and Brown's [109] insights, we assumed that the forms of parental physical abuse that are more severe were of higher importance. For early adolescence, and when having at least three wave longitudinal data on parental physical abuse, it would be desirable to understand the specific contributions of prevalence and incidence data on a more nuanced understanding of the long-lasting effects on adolescents' development [1,4,109].

We dichotomized migration background by information on the countries of origin and birth. Such a formal categorization, which is not a self-identification of the adolescents [121], comes with a loss of information because migrants are very diverse in terms of their

migration generation, legal migrant status depending on the very specific laws of the country, and the status of their countries of origin being possibly connected to prejudices and social strains [122].

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References

1. Gilbert, R.; Widom, C.S.; Browne, K.; Fergusson, D.; Webb, E.; Janson, S. Burden and Consequences of Child Maltreatment in High-Income Countries. *Lancet* **2009**, *373*, 68–81. [CrossRef]
2. Jud, A.; Fegert, J.M.; Finkelhor, D. On the Incidence and Prevalence of Child Maltreatment: A Research Agenda. *Child Adolesc. Psychiatry Ment. Health* **2016**, *10*, 17. [CrossRef] [PubMed]
3. Kassis, W.; Artz, S.; Maurovic, I.; Simões, C. What Doesn't Kill Them Doesn't Make Them Stronger: Questioning Our Current Notions of Resilience. *Child Abus. Negl.* **2018**, *78*, 71–84. [CrossRef] [PubMed]
4. Stoltenborgh, M.; Bakermans-Kranenburg, M.J.; Alink, L.R.A.; van IJzendoorn, M.H. The Prevalence of Child Maltreatment across the Globe: Review of a Series of Meta-Analyses: Prevalence of Child Maltreatment across the Globe. *Child Abus. Rev.* **2015**, *24*, 37–50. [CrossRef]
5. Enzmann, D.; Kivivuori, J.; Marshall, I.H.; Steketee, M.; Hough, M.; Killias, M. *A Global Perspective on Young People as Offenders and Victims: First Results from the ISRD3 Study*; Springer: Berlin/Heidelberg, Germany, 2018; ISBN 3-319-63233-7.
6. Kapella, O. *Gewalt in Der Familie Und Im Nahen Sozialen Umfeld: Österreichische Prävalenzstudie Zur Gewalt an Frauen Und Männern*; Österreichische Institut für Familienforschung (ÖIF) an der Universität Wien: Wien, Austria, 2011.
7. Kassis, W.; Artz, S.; Moldenhauer, S. Laying Down the Family Burden: A Cross-Cultural Analysis of Resilience in the Midst of Family Violence. *Child Youth Serv.* **2013**, *34*, 37–63. [CrossRef]
8. Hussey, J.M.; Chang, J.J.; Kotch, J.B. Child Maltreatment in the United States: Prevalence, Risk Factors, and Adolescent Health Consequences. *Pediatrics* **2006**, *118*, 933–942. [CrossRef]
9. Bosick, S.J.; Rennison, C.M.; Gover, A.R.; Dodge, M. Reporting Violence to the Police: Predictors through the Life Course. *J. Crim. Justice* **2012**, *40*, 441–451. [CrossRef]
10. Witt, A.; Glaesmer, H.; Jud, A.; Plener, P.L.; Brähler, E.; Brown, R.C.; Fegert, J.M. Trends in Child Maltreatment in Germany: Comparison of Two Representative Population-Based Studies. *Child Adolesc. Psychiatry Ment. Health* **2018**, *12*, 24. [CrossRef]
11. Chandan, J.S.; Gokhale, K.M.; Bradbury-Jones, C.; Nirantharakumar, K.; Bandyopadhyay, S.; Taylor, J. Exploration of Trends in the Incidence and Prevalence of Childhood Maltreatment and Domestic Abuse Recording in UK Primary Care: A Retrospective Cohort Study Using 'the Health Improvement Network' Database. *BMJ Open* **2020**, *10*, e036949. [CrossRef]
12. Goldman, J.D.G.; Padayachi, U.K. Some Methodological Problems in Estimating Incidence and Prevalence in Child Sexual Abuse Research. *J. Sex Res.* **2000**, *37*, 305–314. [CrossRef]
13. Clemmons, J.C.; Walsh, K.; DiLillo, D.; Messman-Moore, T.L. Unique and Combined Contributions of Multiple Child Abuse Types and Abuse Severity to Adult Trauma Symptomatology. *Child Maltreat.* **2007**, *12*, 172–181. [CrossRef] [PubMed]
14. Gardner, M.J.; Thomas, H.J.; Erskine, H.E. The Association between Five Forms of Child Maltreatment and Depressive and Anxiety Disorders: A Systematic Review and Meta-Analysis. *Child Abus. Negl.* **2019**, *96*, 104082. [CrossRef]
15. Cicchetti, D.; Toth, S.L. Child Maltreatment. *Annu. Rev. Clin. Psychol.* **2005**, *1*, 409–438. [CrossRef] [PubMed]
16. Evans, S.E.; Davies, C.; DiLillo, D. Exposure to Domestic Violence: A Meta-Analysis of Child and Adolescent Outcomes. *Aggress. Violent Behav.* **2008**, *13*, 131–140. [CrossRef]
17. Kitzmann, K.M.; Gaylord, N.K.; Holt, A.R.; Kenny, E.D. Child Witnesses to Domestic Violence: A Meta-Analytic Review. *J. Consult. Clin. Psychol.* **2003**, *71*, 339–352. [CrossRef] [PubMed]

18. Hildyard, K.L.; Wolfe, D.A. Child Neglect: Developmental Issues and Outcomes. *Child Abus. Negl.* **2002**, *26*, 679–695. [CrossRef]
19. Wright, E.M.; Fagan, A.A.; Pinchevsky, G.M. The Effects of Exposure to Violence and Victimization across Life Domains on Adolescent Substance Use. *Child Abus. Negl.* **2013**, *37*, 899–909. [CrossRef]
20. Margolin, G.; Gordis, E.B. The Effects of Family and Community Violence on Children. *Annu. Rev. Psychol.* **2000**, *51*, 445–479. [CrossRef]
21. Moylan, C.A.; Herrenkohl, T.I.; Sousa, C.; Tajima, E.A.; Herrenkohl, R.C.; Russo, M.J. The Effects of Child Abuse and Exposure to Domestic Violence on Adolescent Internalizing and Externalizing Behavior Problems. *J. Fam. Violence* **2010**, *25*, 53–63. [CrossRef]
22. Briggs-Gowan, M.J.; Carter, A.S.; Clark, R.; Augustyn, M.; McCarthy, K.J.; Ford, J.D. Exposure to Potentially Traumatic Events in Early Childhood: Differential Links to Emergent Psychopathology. *J. Child Psychol. Psychiatry* **2010**, *51*, 1132–1140. [CrossRef]
23. Stormshak, E.A.; Connell, A.M.; Véronneau, M.-H.; Myers, M.W.; Dishion, T.J.; Kavanagh, K.; Caruthers, A.S. An Ecological Approach to Promoting Early Adolescent Mental Health and Social Adaptation: Family-Centered Intervention in Public Middle Schools. *Child Dev.* **2011**, *82*, 209–225. [CrossRef] [PubMed]
24. Danielson, C.K.; Macdonald, A.; Amstadter, A.B.; Hanson, R.; de Arellano, M.A.; Saunders, B.E.; Kilpatrick, D.G. Risky Behaviors and Depression in Conjunction with –or in the Absence of—Lifetime History of PTSD Among Sexually Abused Adolescents. *Child Maltreat* **2010**, *15*, 101. [CrossRef] [PubMed]
25. Leadbeater, B.J.; Hoglund, W.L. The Effects of Peer Victimization and Physical Aggression on Changes in Internalizing from First to Third Grade. *Child Dev.* **2009**, *80*, 843–859. [CrossRef]
26. Zinzow, H.M.; Ruggiero, K.J.; Resnick, H.; Hanson, R.; Smith, D.; Saunders, B.; Kilpatrick, D. Prevalence and Mental Health Correlates of Witnessed Parental and Community Violence in a National Sample of Adolescents. *J. Child Psychol. Psychiatry* **2009**, *50*, 441–450. [CrossRef] [PubMed]
27. Leadbeater, B.; Thompson, K.; Gruppuso, V. Co-Occurring Trajectories of Symptoms of Anxiety, Depression, and Oppositional Defiance From Adolescence to Young Adulthood. *J. Clin. Child Adolesc. Psychol.* **2012**, *41*, 719–730. [CrossRef]
28. Masten, A.S. *Ordinary Magic: Resilience in Development*; Guilford Publications: Guiford, London, 2015; ISBN 1-4625-2371-4.
29. Gentz, S.; Zeng, C.; Ruiz-Casares, M. The Role of Individual-, Family-, and School-Level Resilience in the Subjective Well-Being of Children Exposed to Violence in Namibia. *Child Abus. Negl.* **2021**, *119*, 105087. [CrossRef]
30. Grych, J.; Taylor, E.; Banyard, V.; Hamby, S. Applying the Dual Factor Model of Mental Health to Understanding Protective Factors in Adolescence. *Am. J. Orthopsychiatry* **2020**, *90*, 458–467. [CrossRef] [PubMed]
31. Greenspoon, P.J.; Saklofske, D.H. Toward an Integration of Subjective Well-Being and Psychopathology. *Soc. Indic. Res.* **2001**, *54*, 81–108. [CrossRef]
32. Suldo, S.M.; Shaffer, E.J. Looking Beyond Psychopathology: The Dual-Factor Model of Mental Health in Youth. *Sch. Psychol. Rev.* **2008**, *37*, 52–68. [CrossRef]
33. Yoon, D. Peer-Relationship Patterns and Their Association with Types of Child Abuse and Adolescent Risk Behaviors among Youth at-Risk of Maltreatment. *J. Adolesc.* **2020**, *80*, 125–135. [CrossRef]
34. Bustamante, L.H.U.; Cerqueira, R.O.; Leclerc, E.; Brietzke, E. Stress, Trauma, and Posttraumatic Stress Disorder in Migrants: A Comprehensive Review. *Braz. J. Psychiatry* **2017**, *40*, 220–225. [CrossRef] [PubMed]
35. Makarova, E.; Birman, D. Cultural Transition and Academic Achievement of Students from Ethnic Minority Backgrounds: A Content Analysis of Empirical Research on Acculturation. *Educ. Res.* **2015**, *57*, 305–330. [CrossRef]
36. Makarova, E.; Birman, D. Minority Students' Psychological Adjustment in the School Context: An Integrative Review of Qualitative Research on Acculturation. *Intercult. Educ.* **2016**, *27*, 1–21. [CrossRef]
37. Yoon, M.; Cho, S.; Yoon, D. Child Maltreatment and Depressive Symptomatology among Adolescents in Out-of-Home Care: The Mediating Role of Self-Esteem. *Child. Youth Serv. Rev.* **2019**, *101*, 255–260. [CrossRef]
38. Belhadj Kouider, E.; Koglin, U.; Petermann, F. Emotional and Behavioral Problems in Migrant Children and Adolescents in Europe: A Systematic Review. *Eur. Child Adolesc. Psychiatry* **2014**, *23*, 373–391. [CrossRef] [PubMed]
39. Luthar, S.S.; Cicchetti, D.; Becker, B. The Construct of Resilience: A Critical Evaluation and Guidelines for Future Work. *Child Dev.* **2000**, *71*, 543–562. [CrossRef] [PubMed]
40. Masten, A.S. Ordinary Magic: Resilience Processes in Development. *Am. Psychol.* **2001**, *56*, 227. [CrossRef]
41. Kassis, W.; Artz, S.; Moldenhauser, S.; Géczy, I.; Rossiter, K.R. A Dynamic and Gender Sensitive Understanding of Adolescents' Personal and School Resilience Characteristics despite Family Violence: The Predictive Power of the Family Violence Burden Level. *Int. J. Child Youth Fam. Stud.* **2015**, *6*, 388–420. [CrossRef]
42. Lanza, S.T.; Bray, B.C.; Collins, L.M. An Introduction to Latent Class and Latent Transition Analysis. In *Handbook of Psychology: Research Methods in Psychology*, 2nd ed.; John Wiley & Sons, Inc.: Hoboken, NJ, USA, 2013; Volume 2, pp. 691–716. ISBN 978-0-470-89064-6.
43. Clogg, C.C. Latent Class Models. In *Handbook of Statistical Modeling for the Social and Behavioral Sciences*; Springer: Berlin/Heidelberg, Germany, 1995; pp. 311–359.
44. Hagenaars, J.; McCutcheon, A. *Applied Latent Class Analysis*; Cambridge University Press: Cambridge, UK, 2002.
45. Zhou, S.-J.; Zhang, L.-G.; Wang, L.-L.; Guo, Z.-C.; Wang, J.-Q.; Chen, J.-C.; Liu, M.; Chen, X.; Chen, J.-X. Prevalence and Socio-Demographic Correlates of Psychological Health Problems in Chinese Adolescents during the Outbreak of COVID-19. *Eur. Child Adolesc. Psychiatry* **2020**, *29*, 749–758. [CrossRef]

46. Kelly, Y.; Fitzgerald, A.; Dooley, B. Validation of the Resilience Scale for Adolescents (READ) in Ireland: A Multi-group Analysis. *Int. J. Methods Psychiatr. Res.* **2017**, *26*, e1506. [CrossRef]
47. Xiong, J.; Qin, Y.; Gao, M.; Hai, M. Longitudinal Study of a Dual-Factor Model of Mental Health in Chinese Youth. *Sch. Psychol. Int.* **2017**, *38*, 287–303. [CrossRef]
48. Ferguson, S.L.; Moore, E.W.G.; Hull, D.M. Finding Latent Groups in Observed Data: A Primer on Latent Profile Analysis in Mplus for Applied Researchers. *Int. J. Behav. Dev.* **2020**, *44*, 458–468. [CrossRef]
49. Duggal, S.; Carlson, E.A.; Sroufe, L.A.; Egeland, B. Depressive Symptomatology in Childhood and Adolescence. *Dev. Psychopathol.* **2001**, *13*, 143–164. [CrossRef] [PubMed]
50. Guerra, C.; Farkas, C.; Moncada, L. Depression, Anxiety and PTSD in Sexually Abused Adolescents: Association with Self-Efficacy, Coping and Family Support. *Child Abus. Negl.* **2018**, *76*, 310–320. [CrossRef]
51. Haj-Yahia, M.M.; Sokar, S.; Hassan-Abbas, N.; Malka, M. The Relationship between Exposure to Family Violence in Childhood and Post-Traumatic Stress Symptoms in Young Adulthood: The Mediating Role of Social Support. *Child Abus. Negl.* **2019**, *92*, 126–138. [CrossRef]
52. Martínez-Pampliega, A.; Cormenzana, S.; Corral, S.; Iraurgi, I.; Iraurgi, I.; Sanz, M. Family Structure, Interparental Conflict & Adolescent Symptomatology. *J. Fam. Stud.* **2021**, *27*, 231–246. [CrossRef]
53. Rice, F.; Riglin, L.; Lomax, T.; Souter, E.; Potter, R.; Smith, D.J.; Thapar, A.K.; Thapar, A. Adolescent and Adult Differences in Major Depression Symptom Profiles. *J. Affect. Disord.* **2019**, *243*, 175–181. [CrossRef]
54. Yoon, D.; Yoon, S.; Pei, F.; Ploss, A. The Roles of Child Maltreatment Types and Peer Relationships on Behavior Problems in Early Adolescence. *Child Abus. Negl.* **2021**, *112*, 104921. [CrossRef]
55. Yule, K.; Houston, J.; Grych, J. Resilience in Children Exposed to Violence: A Meta-Analysis of Protective Factors Across Ecological Contexts. *Clin. Child Fam. Psychol. Rev.* **2019**, *22*, 406–431. [CrossRef]
56. McNeilly, E.A.; Peverill, M.; Jung, J.; McLaughlin, K.A. Executive Function as a Mechanism Linking Socioeconomic Status to Internalizing and Externalizing Psychopathology in Children and Adolescents. *J. Adolesc.* **2021**, *89*, 149–160. [CrossRef]
57. Peverill, M.; Dirks, M.A.; Narvaja, T.; Herts, K.L.; Comer, J.S.; McLaughlin, K.A. Socioeconomic Status and Child Psychopathology in the United States: A Meta-Analysis of Population-Based Studies. *Clin. Psychol. Rev.* **2021**, *83*, 101933. [CrossRef] [PubMed]
58. Kassis, W.; Govaris, C.; Chouvati, R.; Sidler, P.; Janousch, C.; Ertanir, B. Identification and Comparison of School Well-Being Patterns of Migrant and Native Lower Secondary-School Students in Greece and Switzerland: A Multigroup Latent Profile Analysis Approach. *Int. J. Educ. Res.* **2021**, *110*, 101863. [CrossRef]
59. Ryan, R.M.; Deci, E.L. On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being. *Annu. Rev. Psychol.* **2001**, *52*, 141–166. [CrossRef] [PubMed]
60. Martela, F.; Sheldon, K.M. Clarifying the Concept of Well-Being: Psychological Need Satisfaction as the Common Core Connecting Eudaimonic and Subjective Well-Being. *Rev. Gen. Psychol.* **2019**, *23*, 458–474. [CrossRef]
61. Masten, A.S. Resilience from a Developmental Systems Perspective. *World Psychiatry* **2019**, *18*, 101. [CrossRef] [PubMed]
62. Yang, Q.; Tian, L.; Huebner, E.S.; Zhu, X. Relations among Academic Achievement, Self-Esteem, and Subjective Well-Being in School among Elementary School Students: A Longitudinal Mediation Model. *Sch. Psychol.* **2019**, *34*, 328–340. [CrossRef]
63. Mariscal, E.S. Resilience Following Exposure to Intimate Partner Violence and Other Violence: A Comparison of Latino and Non-Latino Youth. *Child. Youth Serv. Rev.* **2020**, *113*, 104975. [CrossRef]
64. Pullmann, H.; Allik, J. Relations of Academic and General Self-Esteem to School Achievement. *Personal. Individ. Differ.* **2008**, *45*, 559–564. [CrossRef]
65. Cast, A.D.; Burke, P.J. A Theory of Self-Esteem. *Soc. Forces* **2002**, *80*, 1041–1068. [CrossRef]
66. Vittersø, J. Personality Traits and Subjective Well-Being: Emotional Stability, Not Extraversion, Is Probably the Important Predictor. *Personal. Individ. Differ.* **2001**, *31*, 903–914. [CrossRef]
67. Asgeirsdottir, B.B.; Gudjonsson, G.H.; Sigurdsson, J.F.; Sigfusdottir, I.D. Protective Processes for Depressed Mood and Anger among Sexually Abused Adolescents: The Importance of Self-Esteem. *Personal. Individ. Differ.* **2010**, *49*, 402–407. [CrossRef]
68. Runyon, M.K.; Deblinger, E.; Steer, R.A. PTSD Symptom Cluster Profiles of Youth Who Have Experienced Sexual or Physical Abuse. *Child Abus. Negl.* **2014**, *38*, 84–90. [CrossRef]
69. Tlapek, S.M.; Auslander, W.; Edmond, T.; Gerke, D.; Schrag, R.V.; Threlfall, J. The Moderating Role of Resiliency on the Negative Effects of Childhood Abuse for Adolescent Girls Involved in Child Welfare. *Child. Youth Serv. Rev.* **2017**, *73*, 437–444. [CrossRef]
70. Gerin, M.I.; Hanson, E.; Viding, E.; McCrory, E.J. A Review of Childhood Maltreatment, Latent Vulnerability and the Brain: Implications for Clinical Practice and Prevention. *Adopt. Fostering* **2019**, *43*, 310–328. [CrossRef]
71. Guo, L.; Wang, W.; Li, W.; Zhao, M.; Wu, R.; Lu, C. Childhood Maltreatment Predicts Subsequent Anxiety Symptoms among Chinese Adolescents: The Role of the Tendency of Coping Styles. *Transl. Psychiatry* **2021**, *11*, 340. [CrossRef] [PubMed]
72. Rehan, W.; Antfolk, J.; Johansson, A.; Jern, P.; Santtila, P. Experiences of Severe Childhood Maltreatment, Depression, Anxiety and Alcohol Abuse among Adults in Finland. *PLoS ONE* **2017**, *12*, e0177252. [CrossRef] [PubMed]
73. Farina, B.; Liotti, G. Does a Dissociative Psychopathological Dimension Exist? A Review on Dissociative Processes and Symptoms in Developmental Trauma Spectrum Disorders. *Clin. Neuropsychiatry* **2013**, *10*, 11–18.
74. Allen, J.P.; Porter, M.R.; McFarland, F.C.; Marsh, P.; McElhaney, K.B. The Two Faces of Adolescents' Success With Peers: Adolescent Popularity, Social Adaptation, and Deviant Behavior. *Child Dev.* **2005**, *76*, 747–760. [CrossRef]

75. Tschoeke, S.; Bichescu-Burian, D.; Steinert, T.; Flammer, E. History of Childhood Trauma and Association with Borderline and Dissociative Features. *J. Nerv. Ment. Dis.* **2021**, *209*, 137–143. [CrossRef]
76. Jia, N.; Li, W.; Zhang, L.; Kong, F. Beneficial Effects of Hedonic and Eudaimonic Motivations on Subjective Well-Being in Adolescents: A Two-Wave Cross-Lagged Analysis. *J. Posit. Psychol.* **2021**, 1–7. [CrossRef]
77. Bandura, A. *Self-Efficacy: The Exercise of Control*; W.H. Freeman: New York, NY, USA, 2012; ISBN 0-7167-2626-2.
78. Bandura, A. Self-Efficacy: Toward a Unifying Theory of Behavioral Change. *Psychol. Rev.* **1977**, *84*, 191. [CrossRef] [PubMed]
79. Andretta, J.R.; McKay, M.T. Self-Efficacy and Well-Being in Adolescents: A Comparative Study Using Variable and Person-Centered Analyses. *Child. Youth Serv. Rev.* **2020**, *118*, 105374. [CrossRef]
80. Schwarzer, R.; Jerusalem, M. Generalized Self-Efficacy scale. In *Measures in Health Psychology: A User's Portfolio. Causal and Control Beliefs*; Weinman, J., Wright, S., Johnston, M., Eds.; NFER-NELSON: Windsor, UK, 1995; pp. 35–37.
81. Jerusalem, M.; Schwarzer, R. Self-efficacy as a resource factor in stress appraisal processes. In *Self-Efficacy: Thought Control of Action*; Schwarzer, R., Ed.; Hemisphere: Washington, DC, USA, 1992; pp. 195–213.
82. Deci, E.L.; Ryan, R.M. The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychol. Inq.* **2000**, *11*, 227–268. [CrossRef]
83. Deci, E.L.; Ryan, R.M. Autonomy and Need Satisfaction in Close Relationships: Relationships Motivation Theory. In *Human Motivation and Interpersonal Relationships*; Weinstein, N., Ed.; Springer Science + Business Media: New York, NY, USA, 2014; pp. 53–73. ISBN 978-94-017-8541-9.
84. Ryan, R.M.; Deci, E.L. Intrinsic and Extrinsic Motivation from a Self-Determination Theory Perspective: Definitions, Theory, Practices, and Future Directions. *Contemp. Educ. Psychol.* **2020**, *61*, 101860. [CrossRef]
85. Teisl, M.; Cicchetti, D. Physical Abuse, Cognitive and Emotional Processes, and Aggressive/Disruptive Behavior Problems. *Soc. Dev.* **2008**, *17*, 1–23. [CrossRef]
86. Yodprang, B.; Kuning, M.; McNeil, N. Bullying among Lower Secondary School Students in Pattani Province, Southern Thailand. *Asian Soc. Sci.* **2009**, *5*, 23–30. [CrossRef]
87. Alcantara, S.C.; González-Carrasco, M.; Montserrat, C.; Viñas, F.; Casas, F.; Abreu, D.P. Peer Violence in the School Environment and Its Relationship with Subjective Well-Being and Perceived Social Support Among Children and Adolescents in Northeastern Brazil. *J. Happiness Stud.* **2017**, *18*, 1507–1532. [CrossRef]
88. Vanderbilt-Adriance, E.; Shaw, D.S. Conceptualizing and Re-Evaluating Resilience across Levels of Risk, Time, and Domains of Competence. *Clin. Child Fam. Psychol. Rev.* **2008**, *11*, 30. [CrossRef]
89. Chan, Y.-C.; Yeung, J.W.-K. Children Living with Violence within the Family and Its Sequel: A Meta-Analysis from 1995–2006. *Aggress. Violent Behav.* **2009**, *14*, 313–322. [CrossRef]
90. Holt, S.; Buckley, H.; Whelan, S. The Impact of Exposure to Domestic Violence on Children and Young People: A Review of the Literature. *Child Abus. Negl.* **2008**, *32*, 797–810. [CrossRef]
91. Merrick, M.T.; Ports, K.A.; Ford, D.C.; Afifi, T.O.; Gershoff, E.T.; Grogan-Kaylor, A. Unpacking the Impact of Adverse Childhood Experiences on Adult Mental Health. *Child Abus. Negl.* **2017**, *69*, 10–19. [CrossRef]
92. Yount, K.M.; DiGirolamo, A.M.; Ramakrishnan, U. Impacts of Domestic Violence on Child Growth and Nutrition: A Conceptual Review of the Pathways of Influence. *Soc. Sci. Med.* **2011**, *72*, 1534–1554. [CrossRef] [PubMed]
93. Collins, L.M.; Lanza, S.T. *Latent Class and Latent Transition Analysis: With Applications in the Social, Behavioral, and Health Sciences*; John Wiley & Sons: Hoboken, NJ, USA, 2009; Volume 718, ISBN 0-470-22839-3.
94. Rosenberg, M. *Society and the Adolescent Self-Image*; Princeton University Press: Princeton, NJ, USA, 2015; ISBN 1-4008-7613-3.
95. Derogatis, L.R. The Hopkins Symptom Checklist (HSCL): A Measure of Primary Symptom Dimensions. In *Psychological Measurements in Psychopharmacology*; Pichot, P., Olivier-Martin, R., Eds.; Karger: Basel, Switzerland, 1974. [CrossRef]
96. Stiglmayr, C.; Schmahl, C.; Bremner, J.D.; Bohus, M.; Ebner-Priemer, U. Development and Psychometric Characteristics of the DSS-4 as a Short Instrument to Assess Dissociative Experience during Neuropsychological Experiments. *Psychopathology* **2009**, *42*, 370–374. [CrossRef] [PubMed]
97. Müller, C.; Begert, T.; Huber, C.; Gmünder, L. Die "Freiburger Selbst- Und Peerauskunftsskalen-Schulisches Problemverhalten"—Entwicklungen Und Evaluation Eines Verfahrens Zur Verlaufsmessung von Unterrichtsbezogenen Verhaltensproblemen. *Empir. Sonderpädagogik* **2012**, *4*, 3–21.
98. Lanza, S.T.; Cooper, B.R. Latent Class Analysis for Developmental Research. *Child Dev. Perspect.* **2016**, *10*, 59–64. [CrossRef]
99. Vermunt, J.K.; Magidson, J. Factor Analysis with Categorical Indicators: A Comparison Between Traditional and Latent Class Approaches. In *New Developments in Categorical Data Analysis for the Social and Behavioral Sciences*; Psychology Press: Tilburg, The Netherlands, 2005; p. 41.
100. Celeux, G.; Soromenho, G. An Entropy Criterion for Assessing the Number of Clusters in a Mixture Model. *J. Classif.* **1996**, *13*, 195–212. [CrossRef]
101. Geiser, C. *Data Analysis with Mplus*; Guilford Press: London, UK, 2012; ISBN 978-1-4625-0784-9.
102. Nylund, K.L.; Asparouhov, T.; Muthén, B.O. Deciding on the Number of Classes in Latent Class Analysis and Growth Mixture Modeling: A Monte Carlo Simulation Study. *Struct. Equ. Modeling: A Multidiscip. J.* **2007**, *14*, 535–569. [CrossRef]
103. Nylund-Gibson, K.; Grimm, R.; Quirk, M.; Furlong, M. A Latent Transition Mixture Model Using the Three-Step Specification. *Struct. Equ. Modeling Multidiscip. J.* **2014**, *21*, 439–454. [CrossRef]

104. Lo, Y.; Mendell, N.R.; Rubin, D.B. Testing the Number of Components in a Normal Mixture. *Biometrika* **2001**, *88*, 767–778. [CrossRef]
105. IBM Corp. *IBM SPSS Statistics for Windows, Version 24.0*; IBM Corp: Armonk, NY, USA, 2016.
106. McLachlan, G.J.; Lee, S.X.; Rathnayake, S.I. Finite Mixture Models. *Annu. Rev. Stat. Its Appl.* **2019**, *6*, 355–378. [CrossRef]
107. Stainton, A.; Chisholm, K.; Kaiser, N.; Rosen, M.; Upthegrove, R.; Ruhrmann, S.; Wood, S.J. Resilience as a Multimodal Dynamic Process. *Early Interv. Psychiatry* **2019**, *13*, 725–732. [CrossRef] [PubMed]
108. Augusti, E.-M.; Sætren, S.S.; Hafstad, G.S. Violence and Abuse Experiences and Associated Risk Factors during the COVID-19 Outbreak in a Population-Based Sample of Norwegian Adolescents. *Child Abus. Negl.* **2021**, *118*, 105156. [CrossRef] [PubMed]
109. Brown, S.M.; Doom, J.R.; Lechuga-Peña, S.; Watamura, S.E.; Koppels, T. Stress and Parenting during the Global COVID-19 Pandemic. *Child Abus. Negl.* **2020**, *110*, 104699. [CrossRef] [PubMed]
110. Drotning, K.J.; Doan, L.; Sayer, L.C.; Fish, J.N.; Rinderknecht, R.G. Not All Homes Are Safe: Family Violence Following the Onset of the Covid-19 Pandemic. *J. Fam. Viol.* **2022**, 1–13. [CrossRef]
111. Moore, S.A.; Dowdy, E.; Nylund-Gibson, K.; Furlong, M.J. A Latent Transition Analysis of the Longitudinal Stability of Dual-Factor Mental Health in Adolescence. *J. Sch. Psychol.* **2019**, *73*, 56–73. [CrossRef]
112. Diamantopoulou, S.; Rydell, A.-M.; Henricsson, L. Can Both Low and High Self-Esteem Be Related to Aggression in Children? *Soc. Dev.* **2008**, *17*, 682–698. [CrossRef]
113. Simon, J.B.; Nail, P.R.; Swindle, T.; Bihm, E.M.; Joshi, K. Defensive Egotism and Self-Esteem: A Cross-Cultural Examination of the Dynamics of Bullying in Middle School. *Self Identity* **2017**, *16*, 270–297. [CrossRef]
114. Masten, A.S. Resilience of Children in Disasters: A Multisystem Perspective. *Int. J. Psychol.* **2021**, *56*, 1–11. [CrossRef]
115. Masten, A.S.; Barnes, A.J. Resilience in Children: Developmental Perspectives. *Children* **2018**, *5*, 98. [CrossRef]
116. Glied, S.; Pine, D.S. Consequences and Correlates of Adolescent Depression. *Arch. Pediatrics Adolesc. Med.* **2002**, *156*, 1009–1014. [CrossRef]
117. Kassis, W.; Aksoy, D.; Favre, C.A.; Artz, S. Multidimensional and Intersectional Gender Identity and Sexual Attraction Patterns of Adolescents for Quantitative Research. *Front. Psychol.* **2021**, *12*, 697373. [CrossRef] [PubMed]
118. Iacobucci, D.; Posavac, S.S.; Kardes, F.R.; Schneider, M.J.; Popovich, D.L. Toward a More Nuanced Understanding of the Statistical Properties of a Median Split. *J. Consum. Psychol.* **2015**, *25*, 652–665. [CrossRef]
119. Rucker, D.D.; McShane, B.B.; Preacher, K.J. A Researcher's Guide to Regression, Discretization, and Median Splits of Continuous Variables. *J. Consum. Psychol.* **2015**, *25*, 666–678. [CrossRef]
120. Rivera, P.M.; Fincham, F.D.; Bray, B.C. Latent Classes of Maltreatment: A Systematic Review and Critique. *Child Maltreat.* **2018**, *23*, 3–24. [CrossRef]
121. Horvath, K. Migration Background—Statistical Classification and the Problem of Implicitly Ethnicising Categorisation in Educational Contexts. *Ethnicities* **2019**, *19*, 558–574. [CrossRef]
122. Nauck, B.; Genoni, A. Status Transition in the Educational System and Well-Being of Migrant Adolescents in Cross-National Comparison. *Z. Erzieh.* **2019**, *22*, 47–69. [CrossRef]

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Understanding the Mechanisms through Which Family Risk Affects Adolescent Mental Health: A Model of Multisystemic Resilience in Context

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Abstract: There is substantial evidence that exposure to family adversity significantly and negatively impacts positive adolescent development by placing adolescents at increased risk of experiencing developmental difficulties, including conduct problems. Although the mechanisms responsible for these effects are still largely unknown, a novel line of inquiry in the resilience field conceptualizes positive adaptation, following exposure to atypical adversity, as resulting from complex interactions of systems at multiple ecological levels. The purpose of the present analysis was to apply this multisystemic resilience framework to the study of positive adaptation following exposure to family adversity in a sample of Canadian adolescents (n = 230; mean age 16.16, SD = 1.38) and South African adolescents (n = 421; mean age = 15.97, SD = 1.19) living in economically volatile communities dependent on the oil and gas industry. Cross-sectional survey data were used to investigate the mechanisms through which family adversity exercises its impact on adolescent conduct problems by accounting for their caregiving, peer, and community resources. Results of two moderated mediation analyses showed that family adversity impacts adolescent externalizing mental health negatively, via disrupted caregiving, when other resources are also considered. For the Canadian adolescents, these negative impacts were protectively moderated by peer support, but not moderated by appreciation for community traditions. In contrast, peer support showed no significant protective effect for the South African sample, while a strong appreciation for community traditions was positively and significantly associated with conduct difficulties. Contextual dynamics (e.g., social unrest) provide a plausible explanation for the discrepant results and bring attention to the importance of theorizing resilience in context.

Keywords: conduct problems; externalizing mental health; family adversity; majority world; minority world; moderated mediation; multisystemic resilience; youth

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1. Introduction

Externalizing mental health difficulties affect 5–10% of the world's adolescent population [1,2]. Conduct disorder, which is a commonly reported externalizing difficulty (particularly among boys and younger adolescents) [3], is characterized by repeated violation of the basic rights of others (e.g., aggression to peers/animals) and/or major age-appropriate societal norms or rules [4,5]. It is ubiquitously associated with adolescent exposure to family adversity (i.e., one or more major stressful events within the immediate family context) [6,7]. Often, conduct difficulties preface poor educational outcomes and vulnerability to substance abuse, depression, and suicidality, as well as criminality and incarceration [7–12]. Such consequences have a high personal and societal cost.

Still, not all adolescents who are exposed to family adversity become conduct disordered. Put differently, some show resilience to the negative sequalae associated with

family adversity. Resilience is defined as the capacity of a system (e.g., an adolescent) to maintain positive functioning (e.g., mental health or school engagement) despite exposure to a stressor that has the potential to undermine that system's functioning [13,14]. Given the high personal and societal cost of conduct difficulties, it is imperative to understand the mechanisms that protect adolescents from developing conduct difficulties when they are challenged by family adversity [15]. This article responds to that imperative.

To do so, it draws on survey data generated by adolescents who participated in the Resilient Youth in Stressed Environments (RYSE) study. The RYSE study was specifically interested in the resilience of young people from communities dependent on an energy extraction industry, given this industry's association with multiple risks at multiple system levels [16]. Typically, the energy extraction industry demands long hours from its workers, attracts migrant labour, is characterised by a boom-bust economy, and can pollute the immediate and adjacent physical ecologies [17]. In particular, these risks are believed to negatively impact young people's family and community systems (e.g., by disrupting family relationships, increasing marital conflict, and increasing community conflict over scarce resources) [17,18].

RYSE was framed by a multisystemic understanding of resilience [16,19]. From this perspective, the capacity for positive functioning in the face of significant stress is informed by resources that are distributed across multiple systems and levels, with emphasis on resource-fit within the situational and cultural context [19,20]. Put differently, adolescent resilience requires personal (biological system; psychological system), relational (social system), and/or environmental (institutional system; built/natural ecological system) resources that are contextually congruent. To better understand the contextual congruence of resources that support positive functioning, RYSE purposefully included adolescents from a communities that are dependent on an energy extraction industry in the minority world (Canada (CA)) and majority world (South Africa (SA)). Majority world contexts are countries in which most of the world's population lives; poverty and related resource constraints are pervasive, and enabling services/supports are largely unavailable or inaccessible [21,22]. As explained elsewhere [16], the CA and SA community choices potentiated exploration of the "heterogeneity in the factors and processes associated with resilience in both the Global South and the Global North" (p. 3).

As in much of the resilience literature, studies of the mechanisms that protect adolescents from developing conduct difficulties when they face family adversity foreground young people living in the minority world (e.g., North America, Europe, and Australia). It is unclear whether the mechanisms identified in these studies support adolescent resilience to the negative effects of family adversity in a majority world context. In juxtaposing the mechanisms through which family adversity impacts adolescent mental health in minority and majority world contexts, this article underscores the criticality of contextual factors to risk and resilience [13,19]. It encourages practitioner skepticism of a one-size-fits-all explanation of risk and resilience mechanisms. The resulting insights will be especially valuable to practitioners working with youth exposed to family adversity and typical majority world stressors (e.g., high social unrest), as well as those working with youth exposed to family adversity in contexts of lower social volatility.

1.1. Family Risk, Parenting, and Adolescent Conduct Difficulties

Family adversity can be defined as one or more significantly stressful events within a nuclear family unit, including the death of a parent/caregiver or sibling; severe/chronic parental/caregiver conflict and/or domestic violence; parental divorce; caregiver dysfunctionality (i.e., substance abuse, physical illness, or mental illness); parent/caregiver incarceration; and/or foster home placement [23]. Typically, cumulative family adversity has more pronounced negative effects. A plethora of studies has provided evidence of a dose-response relationship between family adversity and conduct disorders [24–26]. For instance, Bevilacqua et al. [7] investigated the associations between several family adversity events, (i.e., parental separation, depression, substance use, and intimate partner violence)

and adolescent mental health, including behavioral difficulties, in a nationally representative cohort of over 8000 UK adolescents. The authors found a dose-response association between family adversity events and adolescent conduct problems in which a greater number of family adversities was associated with more severe conduct difficulties in study participants. Additionally, poor family caregiving characterized by harsh parenting and corporal punishment showed the strongest association with adolescent conduct problems.

Essentially, family adversity negatively affects adolescent mental health by jeopardizing adolescent access to quality caregiving [27–29]. For instance, maternal psychiatric symptoms can increase vulnerability in adolescents exposed to family adversity due to their effects on specific parenting behaviors, such as those relating to discipline or the expression of affection [30–33]. Specifically, mothers who experience trauma and severe mental health problems are more likely to perform inconsistent and harsh parenting, which is a significant predictor for adolescent conduct problems [7]. In addition, less engaged parents are unlikely to monitor their children's peer associations, possibly allowing friendships with antisocial peers to flourish [34]. In contrast, supportive, quality caregiving matters for adolescent resilience [13]. In fact, the large cross-country network analysis conducted by Höltge et al. [35] showed that supportive caregiving was typically central to the multisystemic network of resources associated with positive adolescent outcomes across diverse contexts.

1.2. Peer Support and Adolescent Resilience to Conduct Difficulties

While adolescents with conduct difficulties may struggle to make friends and sustain friendships [36], supportive relationships with peers—especially prosocial ones—can discourage and/or mitigate conduct disorder [34], including in the context of family adversity [37,38]. For instance, Hopkins et al. [37] investigated the differential influence of several individual, family, community, and cultural resilience-enabling resources in predicting emotional and behavioral difficulties in a sample of 1021 Australian Aboriginal adolescents (12–17 years) exposed to different levels of family risk. The authors identified peer support to be uniquely associated with fewer behavioral difficulties for high family-risk youth with no benefits for youth in contexts of relatively low family risk. Essentially, supportive, prosocial peer relationships protect adolescents against the negative effects of family adversity by providing opportunities for adolescents to connect to prosocial role models (adult and peer); build mutually respectful relationships around shared interests; learn and practice prosocial behavior, emotional regulation, and effective problem solving (all of which are typically absent in families challenged by adversity); and access other resilience-enabling resources [37,39–43].

However, some studies dispute the protective effects of peer support when adolescents live in disadvantaged neighborhoods [44,45]. Typically, this relates to the quality of peer support. Specifically, neighborhood socioeconomic disadvantage is associated with poorer quality peer support (e.g., peers that endorse antisocial values or encourage delinquent/defiant behavior) and/or fewer opportunities to engage in constructive downtime activities with prosocial peers [46], which may have negative effects (albeit small to moderate) on adolescent conduct [47,48].

1.3. Appreciation for Community Traditions and Adolescent Resilience to Conduct Difficulties

Various resilience studies have reported that youth appreciation for their community's traditions is associated with positive adjustment to adversity [13,49]. Community traditions typically have protective value because they facilitate organized activity that supports youth access to prosocial adults and prosocial peers; advances a sense of belonging; encourages a powerful racial/ethnic identify; and/or offers opportunities to learn about cultural heritage [13,50–52]. Similarly, organized community activity that engages youth in prosocial initiatives has the advantage of encouraging youth endorsement of prosocial values [50]. In addition, when community traditions encourage a sense of collective efficacy, young people are less vulnerable to negative or deviant socialization by peers with antisocial values [53]. Unfortunately, community disadvantage (e.g., widespread poverty)

is associated with reduced collective efficacy and related decreased communal effort to informally control antisocial adolescent behavior in public neighborhood spaces [47,54]. Reduced collective efficacy invariably translates into adolescent vulnerability to negative or deviant socialization by peers with antisocial values.

Exposure to adversity may strengthen the association between young people's identification with a collective (e.g., their community and its traditions) and conduct difficulties, particularly if that collective endorses antisocial behaviors [55]. For example, during adolescence, young people go through a process of identity transformation that leaves them vulnerable to identity confusion [56], and the distress stemming from this form of identity uncertainty has been associated with support of extremist views and actions [57]. As antithetical as it may seem, identifying with an antisocial or unconventional collective has nevertheless been associated with resilience among populations of marginalized and disenfranchised youth, including those whose challenges are compounded by family adversity [43,58].

1.4. Family Risk and Adolescent Resilience to Conduct Difficulties

1.4.1. The Canadian Context

It is estimated that more than 60% of CA adolescents experience at least one adverse family event, including parental divorce or separation, exposure to intimate partner violence, parental death, and serious parent mental health illness [59], with one-third of CA adolescents estimated to experience two or more of these events. The literature points to the significant role that some factors play in promoting prosocial behavior in North American adolescents in the context of family adversity, including positive family functioning, peer support, and appreciation for community traditions [23,39,41,60]. Appreciation for community traditions is especially prominent in accounts of resilience among Indigenous Canadian youth [52], while its role as a resilience enabler for racial majority adolescents (White/Caucasian) is unclear. Positive aspects of caregiving (e.g., warmth, consistency, and availability) have been repeatedly linked to positive mental health in North American adolescents exposed to family adversity [29,61–63]. Supportive peer relationships and appreciation for community traditions have also been associated with positive adaptation in many stressful contexts, including family adversity (e.g., [64–67]). For example, in a CA study, Cameranesi et al. [41] investigated the resilience-enabling resources of 13 youth (ages 9–17) who had experienced exposure to intimate partner violence by conducting in-depth face-to-face semi-structured interviews. Using inductive thematic analysis and a constant comparative method, the authors identified adequate family caregiving and peer support among the most relevant resilience-enabling resources reported by these group of CA youth. Similarly, Rousseau et al. [60] investigated the associations between community connection, exposure to adversity, and sympathy for violent radicalization in CA college students by conducting a mixed-method study involving a large online survey of students at eight colleges. The study results showed the existence of complex associations between community connection and youth behavioral difficulties. Although the results suggested that, in youth exposed to adversity, a strong appreciation for community traditions can act as a protective anchorage, they also indicated that connection with violent radical groups may accentuate othering processes and legitimize violence toward the outgroup, thereby increasing youth conduct difficulties.

1.4.2. The South African Context

As in many other majority world contexts, family adversity abounds in SA [68]. Typically, such adversity includes poverty, family violence, severe/chronic parental/caregiver conflict, parental/caregiver incarceration, parental/caregiver mental illness and/or substance abuse, child-caregiver separation, and/or orphanhood. Despite the high incidence of family risk in SA, very few studies have investigated what protects adolescents from challenged families from developing conduct difficulties [51]. Instead, studies have mostly investigated, and confirmed, that family adversity exposure (e.g., exposure to intimate

partner violence) is significantly associated with conduct disorders (especially for boys) and other mental health problems among SA adolescents [69–71].

A notable exception is the study by Casale et al. [72] including 2477 adolescents, and their caregivers (96% isiZulu-speaking), from two resource constrained communities in KwaZulu Natal. More than a third of the adolescents were orphans; at least 40% reported hunger. Greater social support for caregivers, positive parenting practices, and better caregiver mental health were associated with less severe conduct difficulties. Similarly, a study of 616 adolescents (37.9% from single-parent or reconstituted family) in a low-income, violent community in Cape Town showed that maternal, paternal, and/or immediate family support attenuated conduct difficulties [73].

Interestingly, in the Humm et al. [73] study, peer support was significantly and positively associated with conduct disorders. While the association was weak and showed little practical significance, it fits with prior concerns about the intersectionality of neighborhood disadvantage, peer support quality, and conduct disorder [44,45,47,48]. Subsequent SA studies have reported similar non-protective effects of peer support on other adolescent mental health outcomes (e.g., depression) in disadvantaged, insurgent neighborhood contexts [71].

The SA resilience literature associates youth resilience with their engagement in positive family and community traditions that promote connectedness, a powerful personal and collective identity, and access to enabling cultural heritage [51]. While some SA adolescents believe that youth capacity for resilience is intertwined with community/collective capacity for lawfulness and prosocial accountability [74,75], many others endorse collective protest action. Collective protest—typically accompanied by unrest, violence, and destruction of property—is frequently understood as a legitimate response to the chronic and dehumanizing structural constraints that characterize many SA communities [76]. Notwithstanding the sociopolitical value of an insurgent collective identity, its potential to normalize violence and destruction is concerning. In SA communities where violence and gangsterism are the norm, young people report that hopefulness and prosocial behaviors are seldom endorsed by the collective [77]. In contrast, SA young people report positive developmental outcomes when their families and communities represent and encourage a prosocial collective identity [51,78].

1.5. The Present Study

The objective of our investigation was to examine the mechanisms by which family adversity can negatively impact conduct problems in a sample of CA and SA adolescents, and the protective factors that promote their resilience to that impact. To this end, we tested two moderated mediation models involving the same mediation mechanism, but different moderators, to investigate the role that peer support and appreciation for community traditions play in buffering the negative effects of family adversity on conduct problems through family caregiving resources. Based on a multisystemic resilience-in-context framework [19], and current understandings of the mechanisms through which family adversity affects adolescent conduct difficulties [23,37], we propose a mediation model in which family adversity (X) leads to poor caregiving resources (M) that negatively impact adolescent adjustment, as shown by adolescents reporting conduct problems (Y). However, according to our model, when adolescents who experience family adversity have a supportive peer group or appreciate their community's traditions, these act as buffering mechanisms that protect them from experiencing severe conduct difficulties. That is, in our model, the effect of family adversity on adolescent conduct problems through family caregiving is hypothesized to be contingent on the level of support adolescents receive from their peers and the strength of their appreciation for their community's traditions, with a stronger positive effect of family adversity on conduct problems for adolescents with a less supportive peer group and less appreciation for their community's traditions (see Figure 1 for a graphical representation of these effects).

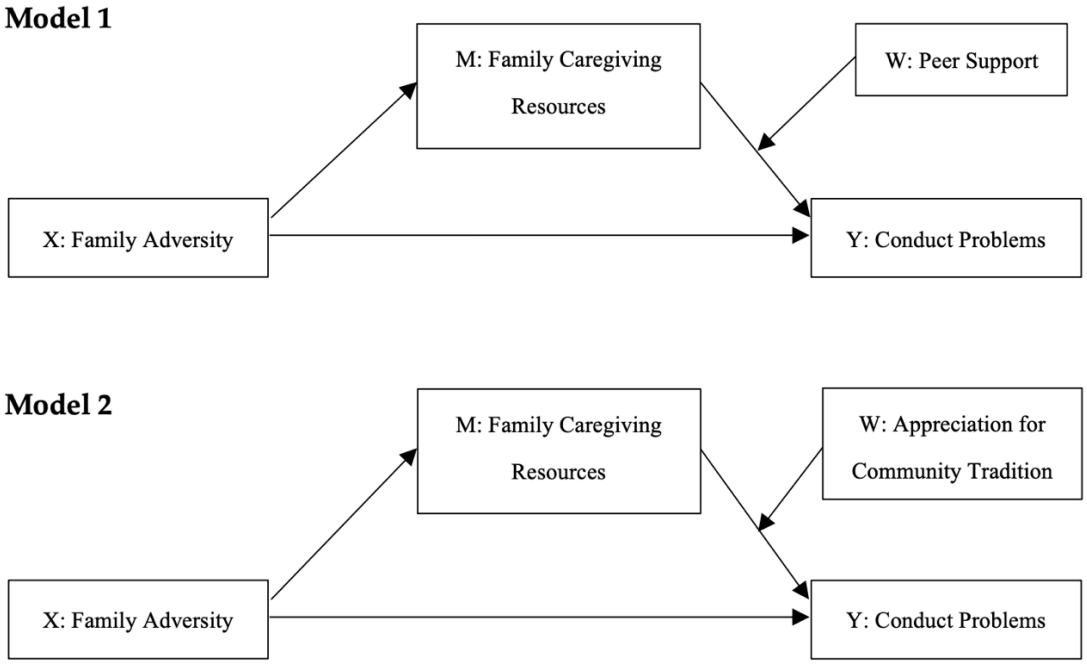

Figure 1. Conceptual models representing the two moderated mediation models tested in the study.

Using conditional process analysis, two moderated mediation models were tested in a sample of CA and SA adolescents with the aim of exploring similarities and differences in the conditional nature of the mechanisms by which family adversity impacts conduct problems in these two groups. Conditional process analysis represents an approach to data analysis that integrates a mediation component with a moderation component into a single moderated mediation model [79]. The use of moderated mediation analysis made it possible to simultaneously investigate the direct and indirect pathways through which family adversity impacts adolescent conduct problems (the mediation component), and whether these pathways are dependent on a third variable (the moderation component). Additionally, the inclusion of adolescents from a minority world context (i.e., CA) and a majority world context (i.e., SA) made it possible to test for the existence of context-dependent moderating effects. Specifically, in both samples of adolescents, the potential role that family caregiving may play in mediating the association between family adversity and conduct problems was investigated, as well as whether peer support and adolescent appreciation for their community's traditions moderate these indirect mechanisms. The following two sets of hypotheses informed these analyses.

H1—Context-independent hypotheses. Given the substantial evidence of the negative impact of family adversity on normative child development [6,7], it was hypothesized that family adversity directly affects adolescent mental health by increasing the severity of the conduct problems experienced by adolescent RYSE participants in CA and SA. That is, in both samples, it was expected that adolescents who are exposed to more family adversities would report more severe conduct difficulties, compared with adolescents who are exposed to a fewer number of family adversities, independently from adolescent family caregiving, peer support, and appreciation for community traditions. Additionally, given the literature linking family adversity to disrupted/poor caregiving [30,33], it was hypothesized that, in both samples, the direct effect of family adversity on adolescent conduct problems is mediated by family caregiving, so that, for both samples, exposure to more family adversities is associated with more severe conduct difficulties because of the poorer caregiving that these adolescents experience within their families (see Figure 1).

Further, it was hypothesized that, for both CA and SA adolescents, the indirect effect of family adversity on adolescent conduct problems through family caregiving is moderated by adolescent appreciation for community traditions. Specifically, it was anticipated that

the indirect effect of family adversity on conduct problems through family caregiving is attenuated in adolescents who have greater appreciation for their community's traditions, compared to their counterparts, who experience the same level of family adversity and family caregiving, but have less appreciation for their community's traditions (see Figure 1 for details).

H2—Context-dependent hypotheses. A context-dependent hypothesis was formulated based on the literature suggesting that peer supports are regularly reported to have a protective effect in the North American context [41,80], while its value is questionable for adolescents living in disadvantaged neighborhoods, such as the RYSE SA community [71,73]. It was hypothesized that the indirect effect of family adversity on adolescent conduct problems through family caregiving is more likely to be moderated by peer support in the CA context than in the SA context. Thus, it was anticipated that, for CA adolescents, who have a more supportive peer group, the indirect effect of family adversity on conduct problems through family caregiving would be attenuated compared to their counterparts, who experience the same level of family adversity and family caregiving but have a less supportive peer group (see Figure 1). These effects were expected to be somewhat attenuated or null in the SA sample.

2. Materials and Methods

2.1. Procedure

The data used for the analysis described in this paper were collected during the RYSE project. RYSE, a 5-year (2017–2022) research study, investigated youth resilience in two communities heavily dependent on the energy extraction industry, and, therefore, susceptible to boom-and-bust economic cycles, family risk, and community risk: Drayton Valley, CA, and Secunda/eMbalenhle, SA [16]. Institutional Review Board (IREB) approval was obtained at the universities representing the affiliations of the two principal investigators in CA (Health Sciences Research Ethics Board, Dalhousie University, #2017-4321) and SA (Faculty of Health Sciences Research Ethics Committee, University of Pretoria, #UP17/05/01).

The moderated mediation analysis described in this paper used data extracted from a cross-sectional survey that was conducted in 2018 by interviewing two purposive samples of youth aged 13–24, one in the CA site (N_{ca} = 500) and one in the SA site (N_{sa} = 600). At the time of the survey, both communities were experiencing an economic downturn in the oil and gas industry and its associated challenges, involving, for example, job insecurity, reduced income, unemployment, family conflicts, and mental health problems. Additionally, as in most disadvantaged SA neighborhoods [76,81], the SA community was typified by structural disadvantage (e.g., inadequate housing and crowded living conditions) and social disorder (e.g., frequent violent protests in response to poor service delivery and local government corruption), with a growing sense that 'protest culture' characterizes this community's culture [82]. Gangsterism, destruction of public property, and looting were common [83].

At both sites, a Local Advisory Committee (LAC), consisting of local youth and adults, was assembled to support the research team in planning and implementing all research activities, including participant recruitment. In collaboration with the LACs, a preliminary survey was developed and pilot tested with a small sample of respondents who were LAC members or had previously participated in RYSE qualitative work (N_{ca} = 6; N_{sa} = 6). The survey was then modified based on the respondents' feedback (i.e., some items were added, while others were deleted). The final full survey contained a variety of items, including self-report measures assessing respondents' multisystemic resilience-enabling resources and mental health, as well as questions assessing respondents' sociodemographic characteristics (see next subsection for details).

Participants were recruited via social media and community-based advertising, classroom presentations, referrals, and snowball sampling (i.e., word of mouth). At both sites, the survey was administered to participants, either in small groups or individually, in a paper-pencil format in schools and community centers by trained local research assistants and members

of the research team. To be included in the survey, participants had to be residents of the respective research communities, between 13 and 24 years of age, and proficient in English. To address literacy issues, the survey items were read aloud to study participants who requested it. Prior to participation, informed consent was obtained by all study participants and by parents/guardians of minors (adolescents younger than 18). CA adolescents received $25 CAD cash for their participation, while SA adolescents a ZAR150 (i.e., about $15 CAD) supermarket voucher. The incentive amounts were advised by the LACs.

2.2. Participants

As the overarching aim of this analysis was to investigate the mechanisms through which family adversity impacts adolescent mental health, the present study subsamples CA and SA adolescent (i.e., 13–18 years) survey respondents. Additionally, only respondents with complete data on all study variables were included in this investigation (N_{ca} = 230; N_{sa} = 421). A description of the two groups of adolescents is provided next.

2.2.1. Canada

The CA sample included a total of 230 adolescents aged 13–18 years (mean age = 16.16, *SD* = 1.38). This group was almost evenly divided between biological sex, including 128 girls (55.7%) and 102 boys (44.3%). Most adolescents self-identified as being White (*n* = 184, 80.0%), while the remaining self-identified as being Indigenous (*n* = 27, 11.6%) and Black or of mixed race/ethnicity (*n* = 19, 8.4%). At the time of completing the survey, most CA adolescents were attending school (*n* = 215, 93.5%) and lived with both parents (*n* = 135, 58.7%) or only one parent (*n* = 65, 28.3%).

2.2.2. South Africa

The SA sample included a total of 421 adolescents aged 14–18 years (mean age = 15.97, *SD* = 1.19). This group included slightly more girls (*n* = 266, 63.2%) than boys (*n* = 155, 36.8%). Most adolescents self-identified as being Black/African (*n* = 328, 77.9%), while the remaining self-identified as being White (*n* = 82, 19.5%) or of mixed race/ethnicity (*n* = 11, 2.6%). At the time of completing the survey, most SA adolescents were attending school (*n* = 412, 97.9%) and lived with both parents (*n* = 188, 44.7%) or only one parent (*n* = 116, 27.5%).

2.3. Measures

2.3.1. Family Adversity

Family adversity was measured in both samples using a 9-item adaptation of the Family Adversity Scale [23]. Respondents were asked to report whether or not (0 = no, 1 = yes), at any time in the past, they had experienced nine family adversities, including living in a foster home, the death of a family member (caregiver or sibling), exposure to severe parental/caregiver conflict or intimate partner violence, parental divorce, and caregiver substance use problems, incarceration, or severe physical/mental health problems. These adverse events represent very common family risk factors that are customarily included in measures of family risk [84], as they have been consistently linked to increased conduct disorders in childhood and adolescence [7]. The original scale contains a 10th item asking respondents to indicate whether they had ever been separated from one or both parents. This item was excluded from the survey because it was anticipated that a large proportion of the study participants may not be living with a parent (e.g., due to parental divorce or traditional African kinship rearing practices). The items were summed to provide an indicator of the degree of family adversity experienced by respondents (scores = 0–9), with higher scores indicating higher family adversity. Reliability for the CA sample was Ω = 0.72 [0.62, 0.77], and for the SA sample, Ω = 0.53 [0.43, 0.61].

2.3.2. Family Caregiving

Relevant items from the 28-item Child and Youth Resilience Measure (CYRM-28 [49]) were used to evaluate the quality of the caregiving adolescent respondents were experi-

encing at the time of completing the RYSE survey. Grounded in a multisystemic resilience framework [19], this measure includes 28 items that ask respondents to rate on a 5-point Likert scale (0 = not at all, 4 = a lot) their individual, relational, and contextual resources. Seven items ask participants to rate the quality of the physical and psychological caregiving they are receiving (e.g., "I feel safe when I am with my family", "My family have usually supported me throughout life", and "My family stands by me during difficult times"). Individual scores on these seven items were summed to generate a single total score providing a measure of respondents' family caregiving, with higher sum scores indicating better caregiving. Reliability for the CA sample was Ω = 0.88 [0.85, 0.91], and for the SA sample, Ω = 0.79 [0.75, 0.82].

2.3.3. Peer Support

Perceived peer support was assessed, asking both CA and SA adolescents to indicate on a 4-point Likert scale (0 = never true, 3 = always true) how much they felt supported by their friends, using the following four items derived from the 4-H Study of Positive Youth Development: "I trust my friends", "I feel my friends are good friends", "My friends care about me" and "My friends are there when I need them" [85]. Responses to the four items were summed to obtain an overall perceived peer support score, with higher scores indicating greater perceived peer support. Reliability for the CA sample was Ω = 0.91 [0.88, 0.93], and for the SA sample, Ω = 0.84 [0.80, 0.87].

2.3.4. Appreciation for Community Traditions

A single-item measure of appreciation for community traditions was extracted from the CYRM-28 [49]. Adolescent participants reported on a 5-point Likert scale (0 = not at all, 4 = a lot) the degree to which they enjoyed their community traditions.

2.3.5. Conduct Problems

To evaluate the conduct problems experienced by the CA and SA adolescents who completed the RYSE questionnaire, an adapted version of the Delinquency Scale [86] was included in the RYSE survey. The measure used in RYSE included 6 items that asked respondents to rate on a 5-point Likert scale (1 = never, 5 = 5 + times) how often they had performed a series of problem behaviours, including stealing something from a store, getting into trouble with the police, hitting or beating up someone, damaging property, carrying a weapon, and bullying someone. The single item scores were summed to obtain an overall conduct problem score, with higher scores indicating more severe conduct problems. Reliability for the CA sample was Ω = 0.81 [0.73, 0.86], and for the SA sample, Ω = 0.67 [0.60, 0.73].

2.3.6. Sociodemographic Characteristics

The age (in years) and biological sex (1 = female, 2 = male) of CA and SA adolescents were assessed using a set of questions on respondents' sociodemographic characteristics that were specifically developed for the purposes of the RYSE project.

2.4. Statistical Analysis

2.4.1. Model Estimation

A series of robust moderated mediation analyses were conducted with ordinary least square path analysis using the PROCESS Macro v4.0 [79] for IBM SPSS v27 [87], to test our research hypotheses regarding the moderated mediation effects included in the conceptual model presented in Figure 1. A moderated mediation analysis is a special case of conditional process analysis involving a regression model that combines a mediation component with a moderation component to investigate the conditional nature of the mechanisms by which an antecedent variable X (i.e., predictor) transmits its effect on a consecutive variable Y (i.e., outcome) through a mediator M, and testing hypotheses about such conditional effects [88].

In both models tested, the predictor was the continuous variable family adversity, which ranged between 0 and 9 and represented the number of family adverse events the CA and SA adolescents experienced before completing the RYSE survey. In both moderated mediation models that were estimated, family adversity was used to predict adolescent conduct problems, which was a continuous variable representing the severity of the behavioral difficulties experienced by the study participants (range = 6–30). In the models, this direct effect was hypothesized to be mediated by a continuous variable, derived from the CRYM-28, indicating the quality of the family caregiving adolescent participants were receiving at the time of completing the RYSE survey (range = 0–28). Additionally, the variables perceived peer support (range = 0–12) and appreciation for community traditions (range = 0–4) were separately included in Model 1 and Model 2, respectively, as potential moderators of the indirect effect of family adversity on adolescent conduct problems through family caregiving. Hence, in the moderated mediation models estimated, it was tested whether family adversity significantly impacts adolescent conduct problems through caregiving, and whether this effect varies by the level of peer support (Model 1) and appreciation for community traditions (Model 2) that adolescents experience. In the models, we also tested whether family adversity exerts a direct (i.e., independent of family caregiving) and nonconditional (i.e., non-moderated) effect on adolescent conduct problems. The covariates age and biological sex were also included in the analysis.

2.4.2. Model Inference

Analytically, the moderated mediation models depicted in Figure 1 were tested by simultaneously estimating two direct effects and one conditional indirect effect [79]. In this model, the *direct effect of X on Y* (i.e., family adversity on adolescent conduct problems) was neither hypothesized to be mediated or moderated, nor was it estimated as such. Similarly, we also estimated the *direct effects of X on M* by testing whether family adversity (X) exerts a direct (i.e., non-mediated) and nonconditional (i.e., non-moderated) effect on family caregiving (Y). However, what is of most interest in this model is *the conditional indirect effect of X on Y* (i.e., family adversity on conduct problems), which was calculated as the product of the direct effect of X on M and the conditional effect of M on Y, conditioned on peer support (W) in Model 1 and collective identity (W) in Model 2. PROCESS uses ordinarily least square path analysis to calculate these effects and provides a test of significance for both the direct effects and the conditional indirect effect.

To account for potential issues with sample size, outliers, normality, and homoscedasticity, a robust regression using bootstrapping (95% confidence intervals with 50,000 bootstrap samples) was applied [79,89]. When using bootstrapping, a bootstrap confidence interval (bCI) that does not include zero indicates that the estimated parameter (i.e., effect) is statistically significant. To make inferences about the significance of the moderated mediation (i.e., to test whether the mediation is moderated at the significance level $\alpha = 0.05$) in the two conditional process models tested here, we used the index of moderated mediation as defined by Hayes [79]. Additionally, in both models, to probe the moderation of the indirect effect, we used 95% bCIs, which provide more accurate estimates than the Johnson-Neyman approach, as they do not make any normality assumption on the distribution of the conditional indirect effect of X on Y [79].

3. Results

3.1. Descriptive Analysis CA and SA Samples

Means, standard deviations, and bivariate correlations were calculated on all study variables. Additionally, a X^2 test and independent samples t-test were performed to test for potential significant differences between the CA and SA sample on all study variables. As can be seen in Table 1, as expected, in both CA and SA samples, family adversity was significantly negatively correlated with family caregiving and peer support, as well as significantly positively correlated with adolescent conduct problems. Additionally, as expected, a significant negative correlation was identified between family caregiving

and conduct problems for both CA and SA adolescents. In both samples, peer support and appreciation for community traditions were significantly positively correlated with family caregiving, but negatively correlated with conduct problems; this correlation was statistically significant only in the CA sample. No multicollinearity issues were identified, as indicated by correlation coefficients that did not exceed 0.52 and values of variance inflation factor (VIF) that did not exceed 1.7. A shown in Table 2, the only significant differences between the CA and SA samples pertained to the peer support, appreciation for community traditions, and conduct problems the two groups of adolescents were experiencing at the time of competing the survey, with the CA adolescents reporting significantly more peer support (t = 3.12, df = 445.102, $p = 0.002$), appreciation for their community's traditions (t = 2.5, df = 512.949, $p = 0.013$), and conduct problems (t = 2.82, df = 346.458, $p = 0.005$) than their SA counterparts.

Table 1. Intercorrelations among study variables disaggregated by country.

Variable	1	2	3	4	5	6	7
1. Sex	-	0.079	−0.082	0.071	−0.045	0.052	0.154 **
2. Age	0.166 **	-	0.144 **	−0.032	−0.075	−0.006	0.151 **
3. Family adversity	−0.059	0.140 **	-	−0.242 **	−0.122 *	−0.188 **	0.307 **
4. Family Caregiving	−0.004	−0.004	−0.151 **	-	0.283 **	0.524 **	−0.206 **
5. Peer support	−0.072	−0.104 *	−0.127 **	0.223 **	-	0.282 **	−0.081
6. Appreciation for Community Traditions	0.090 *	−0.023	0.016	0.321 **	0.204 **	-	−0.201 **
7. Conduct problems	0.313 **	0.054	0.206 **	−0.098 *	−0.217 **	−0.008	-

Note. Correlations above the diagonal relate to the CA sample ($n = 230$). Correlations below the diagonal relate to the SA sample ($n = 421$). No missing data. * $p < 0.05$, ** $p < 0.01$.

Table 2. Results of independent *t*-test examining significant differences between the CA and SA samples.

Variable	Canada		South Africa		*t*	*p*	Cohen's *d*
	M	*SD*	*M*	*SD*			
Age	16.16	1.38	15.97	1.19	1.81	0.070	0.316
Family adversity	2.17	2.05	1.88	1.60	1.88	0.061	0.327
Family Caregiving	21.86	5.86	22.71	4.67	−1.91	0.057	−0.006
Peer support	8.88	2.89	8.16	2.70	3.12	0.002 *	0.422
Appreciation for Community Traditions	2.47	1.21	2.21	1.34	2.5	0.013 *	0.199
Conduct problems	9.43	4.75	8.44	3.22	2.82	0.005 *	0.419

Note. CA sample ($n = 230$). SA sample ($n = 421$). No missing data. * $p < 0.01$.

3.2. Model 1

3.2.1. Canada

The robust full moderated mediation model in which the effect of family adversity on adolescent conduct problems through family caregiving was modeled to be conditional on peer support explained 32.6% of the variance in conduct problems for CA adolescents ($F(6223) = 10.899$, $p < 0.001$). In this model, the index of moderated mediation is significantly different from zero, at the significance level $\alpha = 0.05$, indicating that the mediation tested in the model is indeed moderated, or that the indirect effect of family adversity on adolescent conduct problems through family caregiving is dependent on the level of support the adolescents receive from their peers (coefficient b = −0.065, b*SE* = 0.026, 95% bCI = [−0.117, −0.015]). As can be seen in Table 3, family adversity has a significant negative impact on family caregiving. so that adolescents who experience a greater number of family adversities tend to report less positive family caregiving (b = −1.136, b*SE* = 0.206, 95% bCI = [−1.540, −0.726]). Additionally, as hypothesized, the effect of family caregiving on conduct problems is contingent on peer support, as evidenced by the statistically significant interaction between M and W in the model of Y (b = 0.057, b*SE* = 0.018, 95%

bCI = [0.016, 0.087]). In this model, the conditional indirect effect of family adversity on adolescent conduct problems, through family caregiving (conditioned on peer support), is positive for low to moderate values of peer support and negative for high values of peer support, and significant only for low values of peer support (i.e., below 8), as indicated by the 95% bCI of the indirect effect when peer support is equal to 8 (b = 0.162, b*SE* = 0.076, 95% bCI = [0.025, 0.324]). That is, there is no significant effect of family adversity on conduct problems through family caregiving for moderate and high levels of peer support, while there is a significant positive effect at low levels of peer support below the value of 8, as indicated by the significant region identified using bCIs showed in Figure 2. Thus, in line with the study hypotheses, family adversity significantly increases the likelihood that CA adolescents will experience conduct problems by disrupting the caregiving they receive within their family and this effect is attenuated for adolescents with supportive peers. The direct effect of family adversity on externalizing difficulties quantifies how much two adolescents who differ by one adverse family event are estimated to differ in conduct problems, by holding constant family caregiving and peer support. In this model, as can be seen in Table 3, this direct effect is positive and significant (b = 0.953, b*SE* = 0.196, 95% bCI = [0.565, 1.330]). Therefore, two CA adolescents who differ by one adverse family event, but experience the same family caregiving and peer support, are estimated to differ by 0.919 units in conduct problems, with the adolescent experiencing more family adversity estimated to present significantly more externalizing problems. Hence, in line with the study hypotheses, family adversity significantly increases the likelihood that CA adolescents will experience conduct problems, independently from the support they receive from their family and peers.

Table 3. Model coefficients for Model 1 in Figure 1.

Canada						
	Family Caregiving (M)			Conduct problem (Y)		
	Coeff *b*	b*SE (b)*	95% bCI *(b)*	Coeff *b*	b*SE (b)*	95% bCI (*b*)
Constant	22.788	4.430	[14.067, 31.522] *	17.672	5.253	[5.583, 26.401] *
Family adversity (X)	−1.136	0.206	[−1.540, −0.726] *	0.953	0.196	[0.565, 1.330] *
Family caregiving (M)	-	-		−0.603	0.163	[−0.878, −0.232] *
Peer support (W)	-	-	-	−1.260	0.435	[−1.960, −0.269] *
M x W (interaction)	-	-	-	0.057	0.018	[0.016, 0.087] *
Age (covariate 1)	0.040	0.268	[−0.489, 0.562]	0.035	0.210	[−0.363, 0.452]
Sex (covariate 2)	0.612	0.712	[−0.824, 1.985]	1.380	0.518	[0.396, 2.410] *
		R^2 = 0.164			R^2 = 0.326	
		$F(3226) = 10.708$, $p < 0.001$			$F(6223) = 10.899$, $p < 0.001$	
South Africa						
	Family Caregiving (M)			Conduct problem (Y)		
	Coeff *b*	b*SE (b)*	95% bCI *(b)*	Coeff *b*	b*SE (b)*	95% bCI (*b*)
Constant	22.479	3.125	[16.375, 28.692] *	8.338	2.830	[2.851, 13.891] *
Family adversity (X)	−0.454	0.146	[−0.743, −0.172] *	0.429	0.099	[0.236, 0.628] *
Family caregiving (M)	-	-	-	−0.006	0.077	[−0.156, 0.149]
Peer support (W)	-	-	-	−0.152	0.217	[−0.566, 0.293]
M x W (interaction)	-	-	-	−0.002	0.009	[−0.020, 0.015]
Age (covariate 1)	0.079	0.198	[−0.314, 0.458]	−0.157	0.119	[−0.223, 0.279]
Sex (covariate 2)	−0.134	0.469	[−1.056, 0.782]	2.579	0.337	[1.924, 3.253] *
		R^2 = 0.023			R^2 = 0.224	
		$F(3417) = 3.212$, $p < 0.05$			$F(6414) = 13.892$, $p < 0.001$	

Note. CA sample (*n* = 230). SA sample (*n* = 421). No missing data. * Significant bCI.

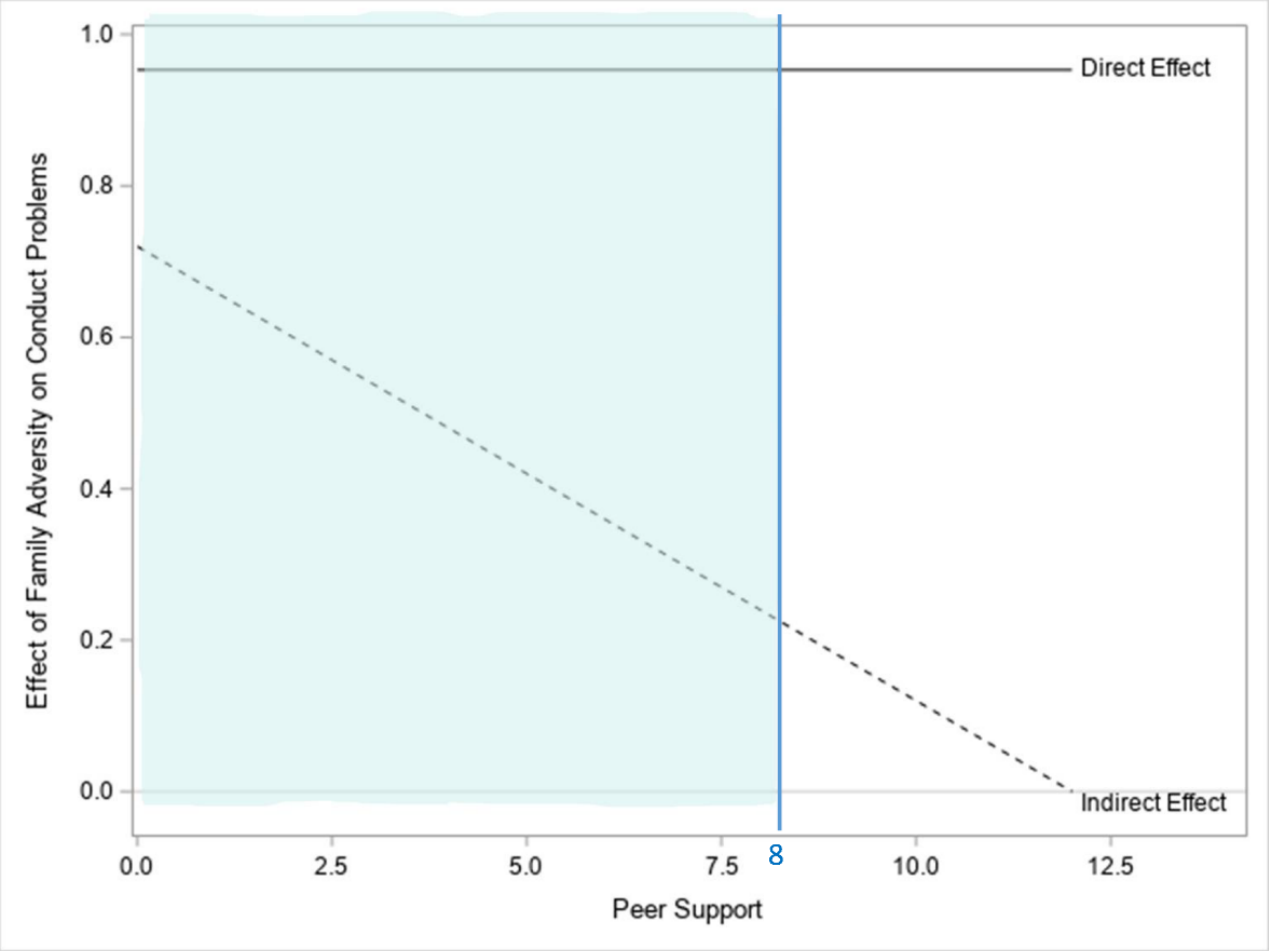

Figure 2. Visual representation of the conditional indirect and the direct effect of family adversity on the conduct problems of CA adolescents, with the indirect effect operating through family caregiving. The blue region to the left of the blue line represents the levels of peer support at which the indirect effect is statistically significant as indicated by bCIs.

Figure 2 displays a visual representation of the conditional indirect and the direct effect of family adversity on adolescent conduct problems, with the indirect effect operating through family caregiving. Additionally, this figure shows the levels of peer support at which this indirect effect is statistically significant by including the region of significance generated using bCIs (i.e., the blue region to the left of the blue line or below values of peer support equal to 8).

3.2.2. South Africa

The robust full moderated mediation model in which the effect of family adversity on adolescent conduct problems through family caregiving was modeled to be conditional on peer support explained 22.4% of the variance in conduct problems for SA adolescents ($F(6414) = 13.893$, $p < 0.001$). For the SA sample, this moderated mediation model was not significant, as indicated by an index of moderated mediation that was not significantly different from zero at the significance level $\alpha = 0.05$ (coefficient $b = 0.000$, b$SE = 0.004$, 95% bCI = (−0.008, 0.009)). Additionally, as can be seen in Table 3, the interaction term in this model is not significant ($b = -0.002$, b$SE = 0.009$, 95% bCI = (−0.020, 0.015)), indicating that, for the SA adolescents, the effect of family adversity on conduct problems through family caregiving resources is not contingent on peer support. The only two significant effects in this model are the direct effect of family adversity on family caregiving ($b = -0.454$, b$SE = 0.146$, 95% bCI = (−0.743, −0.172)), and conduct problems ($b = 0.429$, b$SE = 0.099$,

95% bCI = (0.236, 0.628)). In line with the study hypotheses, these effects indicate that, independent of peer support, family adversity significantly negatively impacts caregiving s, as well as the behavior of SA adolescents.

3.3. Model 2

3.3.1. Canada

The robust full moderated mediation model, in which the effect of family adversity on adolescent conduct problems through family caregiving was modeled to be conditional on appreciation for community traditions, explained 28.3% of the variance in conduct problems for CA adolescents ($F(6223) = 13.893$, $p < 0.001$). Contrary to the study hypotheses, for the CA sample, this moderated mediation model was not significant, as indicated by an index of moderated mediation that was not significantly different from zero at the significance level $\alpha = 0.05$ (coefficient $b = -0.072$, b$SE = 0.067$, 95% bCI = [−0.200, 0.065]). Additionally, as can be seen in the first portion of Table 4, the interaction term in this model is not significant ($b = 0.064$, b$SE = 0.060$, 95% bCI = (−0.054, 0.182)), indicating that, for the CA adolescents, the effect of family adversity on conduct problems through family caregiving resources is not contingent on their appreciation for community traditions. The only two significant effects in this model are the direct effects of family adversity on family caregiving ($b = -1.136$, b$SE = 0.214$, 95% bCI = [−1.557, −0.714]) and conduct problems ($b = 0.943$, b$SE = 0.220$, 95% bCI = [0.509, 1.378]). As hypothesized, these effects indicate that, independent of appreciation for community traditions, family adversity significantly negatively impacts caregiving, as well as the behavior of CA adolescents.

Table 4. Model coefficients for Model 2 in Figure 1.

Canada						
	Family Caregiving (M)			Conduct problem (Y)		
	Coeff *b*	b*SE* (*b*)	95% bCI (*b*)	Coeff *b*	b*SE* (*b*)	95% bCI (*b*)
Constant	22.788	4.525	[13.871, 31.705] *	10.419	5.352	[−0.129, 20.966]
Family adversity (X)	−1.136	0.214	[−1.557, −0.714] *	0.943	0.220	[0.509, 1.378] *
Family caregiving (M)	-	-	-	−0.265	0.166	[−0.593, 0.063]
AfCT (W)	-	-	-	−1.589	1.407	[−4.361, 1.184]
M x W (interaction)	-	-	-	0.064	0.060	[−0.054, 0.182]
Age (covariate 1)	0.040	0.274	[−0.500, 0.581]	0.037	0.227	[−0.410, 0.485]
Sex (covariate 2)	0.612	0.717	[−0.800, 2.024]	1.657	0.510	[0.652, 2.661] *
		$R^2 = 0.164$			$R^2 = 0.283$	
		$F(3226) = 10.708$, $p < 0.001$			$F(6223) = 8.637$, $p < 0.001$	
South Africa						
	Family Caregiving (M)			Conduct problem (Y)		
	Coeff *b*	b*SE* (*b*)	95% bCI (*b*)	Coeff *b*	b*SE* (*b*)	95% bCI (*b*)
Constant	22.479	3.142	[16.303, 28.655] *	4.178	2.061	[0.127, 8.230] *
Family adversity (X)	−0.454	0.148	[−0.744, −0.163] *	0.451	0.105	[0.244, 0.658] *
Family caregiving (M)	-	-	-	0.082	0.043	[−0.002, 0.167]
AfCT (W)	-	-	-	1.320	0.454	[0.426, 2.213] *
M x W (interaction)	-	-	-	−0.063	0.019	[−0.101, −0.024] *
Age (covariate 1)	0.079	0.198	[−0.314, 0.458]	−0.111	0.119	[−0.345, 0.123]
Sex (covariate 2)	−0.134	0.469	[−1.056, 0.782]	2.682	0.346	[2.001, 3.363] *
		$R^2 = 0.023$			$R^2 = 0.217$	
		$F(3417) = 3.212$, $p = 0.02$			$F(6414) = 13.494$, $p < 0.001$	

Note. CA sample ($n = 230$). SA sample ($n = 421$). No missing data. AfCT = Appreciation for Community Traditions. * Significant bCI.

3.3.2. South Africa

The robust full moderated mediation model, in which the effect of family adversity on adolescent conduct problems through family caregiving was modeled to be conditional on appreciation for community traditions, explained 21.7% of the variance in conduct problems for SA adolescents (F(6414) = 13.494, $p < 0.001$). In this model, the index of moderated mediation is significantly different from zero at the significance level $\alpha = 0.05$, indicating that the mediation tested in the model is indeed moderated, or that the indirect effect of family adversity on adolescent conduct problems through family caregiving is dependent on the strength of adolescents' appreciation for their community's traditions (coefficient b = 0.028, bSE = 0.013, 95% bCI = (0.008, 0.057)).

As can be seen in Table 4, the first equation of Model 2 reflects what was found in Model 1: family adversity has a significant negative impact on family caregiving, so that SA adolescents who experience a greater number of family adversities tend to report less positive family caregiving (b = −0.454, bSE = 0.148, 95% bCI = (−0.744, −0.163)). Additionally, as hypothesized, the effect of family caregiving on conduct problems is contingent on appreciation for community traditions, as evidenced by the statistically significant interaction between M and W in the model of Y (b = −0.063, bSE = 0.019, 95% bCI = (−0.101, −0.024)).

Contrary to what was hypothesized, in this model, the conditional indirect effect of family adversity on adolescent conduct problems through family caregiving (conditioned on appreciation for community traditions) is negative for low values of appreciation for community traditions, and positive for moderate and high values of appreciation for community traditions, as well as being significant for high values of collective identity (i.e., at and above 3), as indicated by the 95% bCI of the indirect effect when collective identity is equal to 3 (b = 0.048, bSE = 0.024, 95% bCI = (0.009, 0.104)) and 4 (b = 0.076, bSE = 0.035, 95% bCI = (0.020, 0.157)). That is, there is no significant effect of family adversity on conduct problems through family caregiving for low levels of appreciation for community traditions, while there is a significant positive effect at moderate and high levels of appreciation for community traditions at and above the value of 3, as indicated by the significant region identified using bCIs showed in Figure 3. Thus, in line with the study hypotheses, family adversity significantly increases the likelihood that SA adolescents will experience conduct problems by disrupting the caregiving they receive within their family; however, contrary to what it was expected, this effect is amplified for SA adolescents with a greater appreciation for their community's traditions.

Similar to what was found in Model 1, in this model the direct effect of family adversity on externalizing difficulties is positive and significant (b = 0.451, bSE = 0.105, 95% bCI = [0.244, 0.658]). Therefore, two SA adolescents who differ by one adverse family event, but have the same family caregiving and appreciation for community traditions, are estimated to differ by 0.451 units in conduct problems, with the adolescent experiencing more family adversity estimated to present significantly more behavioral problems. Hence, in line with the study hypotheses, family adversity significantly increases the likelihood that SA adolescents will experience conduct difficulties, independently from the support they receive from their family and their appreciation for community traditions.

Figure 3 displays a visual representation of the conditional indirect and the direct effect of family adversity on adolescent conduct problems, with the indirect effect operating through family caregiving. Additionally, this figure shows the levels of appreciation for community traditions at which this indirect effect is statistically significant, by including the region of significance generated using bCIs (i.e., the blue region to the right of the blue line, or at and above values of collective identity equal to 3).

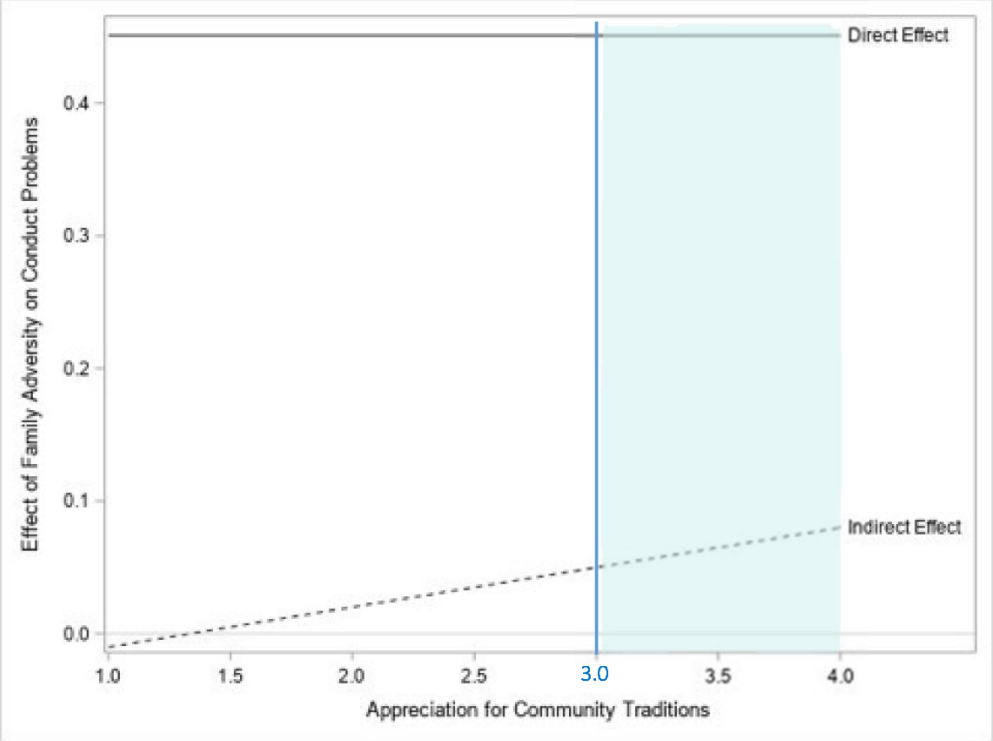

Figure 3. Visual representation of the conditional indirect and the direct effect of family adversity on the conduct problems of SA adolescents, with the indirect effect operating through family caregiving. The blue region to the right of the blue line represents the levels of appreciation for community traditions at which the indirect effect is statistically significant as indicated by bCIs.

4. Discussion

To better understand how family adversity impacts adolescent mental health in a majority and minority world context, two moderated mediation models were tested. The models were applied to survey data generated by adolescent RYSE participants who were purposively sampled from two oil-and-gas industry-dependent communities in CA and SA experiencing economic downturn. The SA community was additionally challenged by regular protests and related violence, as well as gangsterism [83]. Although the nature of the sample limits generalizability (especially to clinical adolescent populations), the results redress the relative inattention to the mental health resilience of majority world adolescents, and direct attention to how contextual dynamics play into risk and resilience.

Three hypotheses (two context independent; one context dependent) informed the moderated mediation analyses. The first context independent hypothesis theorized that being exposed to fewer family adverse events would protect both CA and SA adolescents against conduct problems, because they had access to quality caregiving. Indeed, the results of Model 1 for CA and Model 2 for SA showed that greater exposure to family adversity significantly increased adolescent risk of reporting conduct problems, by significantly decreasing the likelihood of adolescents reporting caregiving resources that promote and protect positive developmental outcomes. These results reinforce the criticality of caregiving resources to the mental health resilience of adolescents in the majority and minority world [15,35,90], including when these adolescents are exposed to family adversity. They also direct attention to the importance of protecting the indirect pathways of adolescent resilience. Put differently, they are a reminder that protecting adolescent mental health will require protecting the health and wellbeing of their caregivers [91]. The SA study by Casale et al. [72] is a case in point: it showed a significant association between caregiver health, caregiver access to social support, and lower levels of adolescent conduct difficulties.

The second hypothesis, which was also context independent, anticipated that the indirect effect of family adversity on adolescent conduct problems through family care-

giving would be moderated by appreciation for community traditions. Specifically, it was anticipated that for CA and SA RYSE participants with a stronger appreciation for community traditions, the indirect effect of family adversity on conduct problems through family caregiving would be attenuated. Certainly, pre-existing resilience studies had reported positive effects when adolescents appreciate their community's traditions [13,49–52,60], albeit not exclusively in the context of family adversity. A strong appreciation for community traditions did not buffer the negative effect of family adversity on CA adolescents' conduct problems through family caregiving. This lack of buffering effect for CA RYSE participants, who mostly self-identified as White, fits with earlier reports of cultural factors (e.g., appreciation of community tradition) being poorly associated with the resilience of visible majority youth in CA [52,92]. In the SA sample, however, a strong appreciation for community traditions increased the indirect effect of family adversity on adolescent conduct problems through family caregiving. In other words, compared to SA RYSE participants who reported less appreciation for community traditions, having a stronger appreciation for community traditions significantly increased the conduct disorder risk of SA adolescents exposed to family adversity. This is, perhaps, not a surprising finding, given the chronic structural constraints that overwhelm the SA RYSE site and the recurring collective response involving violent protest and related lawlessness [83]. Indeed, the SA RYSE site's culture has been described as 'protest culture' [82]. Moreover, protest is a recurring response across similarly constrained communities in SA [76]. In the context of enduring structural violence, a community that champions resistance and repeatedly embraces attitudes and behaviors that violate mainstream societal norms is potentially more powerful than one that tolerates continued marginalization and inequity [43,76]. Still, a strong appreciation for community traditions that endorse insurgent behaviors is unlikely to attenuate conduct difficulties. Mental health advocates who work in similarly angry and disenfranchised communities need to be cautious about promoting adolescent engagement in community traditions as a way of coping with stresses in the family context. Further, this unexpected positive effect of a strong appreciation for community traditions on conduct problems among the SA RYSE participants should be interpreted as a reminder of the social and structural determinants of mental illness, and the imperative of redressing those determinants [93]. Overall, the results suggest that the potential for community traditions to ameliorate conduct disorders in the face of family adversity should be viewed as relative to community dynamics and/or racial/ethnic identity.

The third hypothesis, which was context dependent, theorized that the protective value of peer support to adolescent conduct difficulties in the face of family adversity was more likely to be realized for the CA sample than the SA one. Our skeptical regard for the value of peer support to the SA sample's mental health resilience related to peer support having been positively and significantly associated with adolescent conduct problems and other mental health difficulties when adolescents lived in a disordered or violent SA neighborhood [71,73]. The results, which showed that high peer support protected only the CA sample from the negative indirect impact that family adversity has on their behavior through family caregiving, substantiated this context-dependent hypothesis. Given how neighborhood dynamics play into the protective value of peer support [44–48,54], it is plausible that the absence of significant protective effects for the SA sample was an artefact of the social unrest and disorder that characterized the SA RYSE site [16,83]. While peer support did not influence the impact of family adversity on SA RYSE participants' conduct disorders (as reported in Humm's study [73]), its lack of significant protective effect for the SA sample cautions against one-size-fits-all understandings of what informs adolescent resilience [19,20]. Instead, it points to the salience of situational context; to which resources matter for adolescent mental health resilience to family adversity.

5. Limitations

It is important to acknowledge the hypotheses' relatively narrow focus on caregiving, peer support resources, and appreciation for community traditions, as well as related limitations in understanding how biological, psychological, and ecological systems play into adolescent mental health resilience to family adversity [19]. In addition, while researchers are encouraged not to consider 0.70 as the gold standard for reliability [94], the reliabilities of the family adversity and conduct problems measures were low for SA. Additionally, the RYSE participants were recruited through purposeful sampling, rather than random sampling, and, therefore, they represent a subgroup of adolescents that may not be representative of the general adolescent population in majority and minority world contexts. Further, the data used for this analysis were cross-sectional; therefore, the order of antecedent and consequent variables tested in the estimated models could be questioned.

We used a single item to measure appreciation for community traditions. While a growing body of literature advocates for the acceptability of single-item measures [95–97], it is possible that a multi-item measure of young people's engagement with/appreciation for community traditions would have prompted different insights. Additionally, the survey methodology did not allow insight into what the community traditions were or whether they fomented behaviours associated with conduct disorders.

The moderated mediation effects identified in this analysis should be replicated using longitudinal research designs that recruit large population-based samples of adolescents from majority and minority world contexts, and more comprehensive assessments of family adversity that include, for example, its frequency and impact on adolescent mental health. Additional covariates could also be entered into these analyses. Such future studies should also assess the quality of peer support (i.e., prosocial vs. antisocial peers) and use multiple-item measures to assess other resilience-enablers and their value in context. Ideally, follow-up studies should use mixed methods to better understand resilience-enablers in a given context at a specific point in time.

6. Conclusions

Notwithstanding the limitations, the research hypotheses informing this article can be used to design formal and informal interventions. Taken together, the results refute mono-systemic (e.g., adolescent or family focused) and contextually neutral explanations of adolescent mental health resilience when adolescents have experienced family adversity. Specifically, there is a need to add resources at multiple systemic levels; for example, by targeting the quality of peer supports, caregiving, and the potential for a young person to feel engaged with their community and appreciate their community's traditions. In general, our findings echo previous research, in that there is value to considering the impact of each of these dimensions of an adolescent's life, and that each can significantly ameliorate the effects of family adversity on mental health, provided these resources have contextual protective value [19]. Herein lies the challenge. There is a need to consider the differential impact [98] of various types of resources in a young person's life and whether these resources are relevant. Prevention and intervention programs, targeting adolescent conduct problems, will be most successful if they are context specific and simultaneously address multiple systemic influences at the level of the individual, family, and community. What an adolescent in CA needs to overcome a difficult past will look quite different than a young person in SA, where the community risk factors reflect different social conditions. There, are however, also similarities across countries. Informed by our findings, we suggest that in both majority and minority world contexts adolescent mental health resilience to family adversity can be facilitated by increasing caregiver access to social support [72,91]. In minority world contexts, though, such as CA, encouraging better peer relationships and closer contact with an adolescent's community, through initiatives such as mentoring programs or opportunities for a young person to contribute meaningfully through volunteer or paid activities, may be beneficial. Such benefits, though, are unlikely to be realized for youth in a country such as SA. Therefore, our research provides a cautionary note for

program developers. In contexts where there is social injustice, and peer relationships are likely to lead to resistance to social norms, or where community involvement may manifest as participation in social unrest, those intervening to help young people will need to consider how a protective factor functions, and what resilience-promoting behaviour looks like. Where we see conduct disorder in a more orderly society, such as CA, that same pattern of conduct disorder may be associated with a search by young people to exercise their human rights or seek the means to meet their basic needs in a country such as SA, where public institutions are struggling to meet people's needs. By thinking of resilience multisystemically, there is greater likelihood of identifying the best protective factors that best fit a specific context [43].

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Data Availability Statement: Qualified researchers can obtain the data from the corresponding author (linda.theron@up.ac.za). The data are not publicly available due to privacy concerns imposed by the IRBs that approved the study.

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References

1. Danielson, M.L.; Bitsko, R.H.; Holbrook, J.R.; Charania, S.N.; Claussen, A.H.; McKeown, R.E.; Cuffe, S.P.; Owens, J.S.; Evans, S.W.; Kubicek, L.; et al. Community-based prevalence of externalizing and internalizing disorders among school-aged children and adolescents in four geographically dispersed school districts in the United States. *Child Psychiatry Hum. Dev.* **2021**, *52*, 500–514. [CrossRef] [PubMed]
2. Polanczyk, G.V.; Salum, G.A.; Sugaya, L.S.; Caye, A.; Rohde, L.A. Annual research review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *J. Child Psychol. Psychiatry* **2015**, *56*, 345–365. [CrossRef] [PubMed]
3. Fairchild, G.; Hawes, D.J.; Frick, P.J.; Copeland, W.E.; Odgers, C.L.; Franke, B.; Freitag, C.M.; De Brito, S.A. Conduct disorder. *Nat. Rev. Dis. Primers* **2019**, *5*, 1–25. [CrossRef] [PubMed]
4. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.; American Psychiatric Association: Washington, DC, USA, 2013. [CrossRef]
5. Frick, P.J. Current research on conduct disorder in children and adolescents: State of the science. *S. Afr. J. Psychol.* **2016**, *46*, 160–174. [CrossRef]
6. Dodge, K.A.; Pettit, G.S. A biopsychosocial model of the development of chronic conduct problems in adolescence. *Dev. Psychol.* **2003**, *39*, 349. [CrossRef]
7. Bevilacqua, L.; Kelly, Y.; Heilmann, A.; Priest, N.; Lacey, R.E. Adverse childhood experiences and trajectories of internalizing, externalizing, and prosocial behaviors from childhood to adolescence. *Child Abus. Negl.* **2021**, *112*, 104890. [CrossRef]
8. Burkey, M.D.; Hosein, M.; Morton, I.; Purgato, M.; Adi, A.; Kurzrok, M.; Kohrt, B.A.; Tol, W.A. Psychosocial interventions for disruptive behaviour problems in children in low- and middle-income countries: A systematic review and meta-analysis. *J. Child Psychol. Psychiatry* **2018**, *59*, 982–993. [CrossRef]

9. Evans, E.A.; Goffa, S.L.; Upchurchb, D.M.; Grellac, C.E. Childhood adversity and mental health comorbidity in men and women with opioid use disorder. *Addict. Behave.* **2020**, *102*, 106149. [CrossRef]
10. Guarnaccia, C.; De Vita, E.; Sortino, L.; Giannone, F. Links between adverse childhood experiences, psychopathological symptoms and recidivism risk in juvenile delinquents. *Eur. J. Criminol.* **2020**. [CrossRef]
11. Samek, D.R.; Hicks, B.M. Externalizing disorders and environmental risk: Mechanisms of gene-environment interplay and strategies for intervention. *Clin. Pract.* **2014**, *11*, 537–547. [CrossRef]
12. Levenson, J.S.; Socia, K.M. Adverse childhood experiences and arrest patterns in a sample of sex offenders. *J. Interpers. Violence* **2016**, *31*, 1883–1911. [CrossRef] [PubMed]
13. Masten, A.S. *Ordinary Magic: Resilience in Development*; The Guilford Press: New York, NY, USA, 2014.
14. Ungar, M. Designing resilience research: Using multiple methods to investigate risk exposure, promotive and protective processes, and contextually relevant outcomes for children and youth. *Child Abus. Negl.* **2019**, *96*, 104098. [CrossRef] [PubMed]
15. Labella, M.H.; Masten, A.S. Family influences on the development of aggression and violence. *Curr. Opin. Psyc.* **2018**, *19*, 11–16. [CrossRef]
16. Ungar, M.; Theron, L.; Murphy, K.; Jefferies, P. Researching multisystemic resilience: A sample methodology. *Front. Psychol.* **2021**, *11*, 607994. [CrossRef] [PubMed]
17. Cox, R.S.; Irwin, P.; Scannell, L.; Ungar, M.; Bennett, T.D. Children and youth's biopsychosocial wellbeing in the context of energy resource activities. *Environ. Res.* **2017**, *158*, 499–507. [CrossRef] [PubMed]
18. Höltge, J.; Theron, L.; Jefferies, P.; Ungar, M. Family resilience in a resource-cursed community dependent on the oil and gas industry. *Fam. Process* **2021**, *60*, 1453–1469. [CrossRef] [PubMed]
19. Ungar, M.; Theron, L. Resilience and mental health: How multisystemic processes contribute to positive outcomes. *Lancet Psychiatry* **2020**, *7*, 441–448. [CrossRef]
20. Masten, A.S.; Lucke, C.M.; Nelson, K.M.; Stallworthy, I.C. Resilience in development and psychopathology: Multisystem perspectives. *Annu. Rev. Clin. Psychol.* **2021**, *17*, 521–549. [CrossRef]
21. Madrid Akpovo, S.; Nganga, L.; Acharya, D. Minority-world preservice teachers' understanding of contextually appropriate practice while working in majority-world early childhood contexts. *J. Res. Child Ed.* **2018**, *32*, 202–218. [CrossRef]
22. World Health Organization [WHO]. Access to Mental Health and Psychosocial Support Services Remains Unequal for Children and Adolescents in Africa, alert UNICEF & WHO. 2021. Available online: https://www.afro.who.int/news/access-mental-health-and-psychosocial-support-services-remains-unequal-children-and (accessed on 21 March 2022).
23. Labella, M.H.; Narayan, A.J.; McCormick, C.M.; Desjardins, C.D.; Masten, A.S. Risk and adversity, parenting quality, and children's socio-emotional adjustment in families experiencing homelessness. *Child Dev.* **2019**, *90*, 227–244. [CrossRef]
24. Scully, C.; McLaughlin, J.; Fitzgerald, A. The relationship between adverse childhood experiences, family functioning, and mental health problems among children and adolescents: A systematic review. *J. Fam. Ther.* **2020**, *42*, 291–316. [CrossRef]
25. Appleyard, K.; Egeland, B.; van Dulmen, M.H.; Alan Sroufe, L. When more is not better: The role of cumulative risk in child behavior outcomes. *J. Child Psychol. Psychiatry* **2005**, *46*, 235–245. [CrossRef] [PubMed]
26. Baglivio, M.T.; Epps, N.; Swartz, K.; Huq, M.S.; Sheer, A.; Hardt, N.S. The prevalence of adverse childhood experiences (ACE) in the lives of juvenile offenders. *J. Juv. Justice* **2014**, *3*, 1–23.
27. Conger, R.D.; Donnellan, M.B. An interactionist perspective on the socioeconomic context of human development. *Annu. Rev. Psychol.* **2007**, *10*, 175–199. [CrossRef]
28. Shuey, E.A.; Leventhal, T. Neighborhoods and parenting. In *Handbook of Parenting*, 3rd ed.; Bornstein, M.H., Ed.; Routledge: London, UK, 2019; Volume 2, pp. 371–399.
29. Simons, L.G.; Wickrama, K.A.S.; Lee, T.K.; Landers-Potts, M.; Cutrona, C.; Conger, R.D. Testing family stress and family investment explanations for conduct problems among African American adolescents. *J. Marriage Fam.* **2016**, *78*, 498–515. [CrossRef]
30. Grogan-Kaylor, A.; Galano, M.M.; Stein, S.F.; Clark, H.M.; Graham-Bermann, S.A. Latent profiles of parenting among women exposed to intimate partner violence. *Soc. Work. Res.* **2020**, *44*, 33–46. [CrossRef]
31. Miller-Graff, L.E.; Cater, Å.K.; Howell, K.H.; Graham-Bermann, S.A. Parent–child warmth as a potential mediator of childhood exposure to intimate partner violence and positive adulthood functioning. *Anxiety Stress Coping* **2016**, *29*, 259–273. [CrossRef]
32. Nwabuzor Ogbonnaya, I.; Keeney, A.J.; Villodas, M.T. The role of co-occurring intimate partner violence, alcohol use, drug use, and depressive symptoms on disciplinary practices of mothers involved with child welfare. *Child Abus. Negl.* **2019**, *90*, 76–87. [CrossRef]
33. Rosser-Limiñana, A.; Suriá-Martínez, R.; Pérez, M.A.M. Children exposed to intimate partner violence: Association among battered mothers' parenting competences and children's behavior. *Int. J. Environ. Res. Public Health* **2020**, *17*, 1134. [CrossRef]
34. Yockey, R.A.; King, K.A.; Vidourek, R.A. Family factors and parental correlates to adolescent conduct disorder. *J. Fam. Stud.* **2021**, *27*, 356–365. [CrossRef]
35. Höltge, J.; Theron, L.; Cowden, R.G.; Govender, K.; Maximo, S.I.; Carranza, J.S.; Kapoor, B.; Tomar, A.; van Rensburg, A.; Lu, S.; et al. A cross-country network analysis of adolescent resilience. *J. Adolesc. Health* **2021**, *68*, 580–588. [CrossRef] [PubMed]
36. Ackermann, K.; Martinelli, A.; Bernhard, A.; Freitag, C.M.; Büttner, G.; Schwenck, C. Friendship quality in youth with and without disruptive behavior disorders: The role of empathy, aggression, and callousness. *Child Psychiatry Hum. Dev.* **2019**, *50*, 776–788. [CrossRef] [PubMed]

37. Hopkins, K.D.; Taylor, C.L.; Zubrick, S.R. Psychosocial resilience and vulnerability in Western Australian Aboriginal youth. *Child Abus. Negl.* **2017**, *78*, 85–95. [CrossRef] [PubMed]
38. Henggeler, S.W.; Sheidow, A.J. Conduct disorder and delinquency. *J. Marital. Fam. Ther.* **2003**, *29*, 505–522. [CrossRef] [PubMed]
39. Fritz, J.; de Graaff, A.; Caisley, H.; van Harmelen, A.-L.; Wilkinson, P.O. A systematic review of amenable resilience factors that moderate and/or mediate the relationship between childhood adversity and mental health in young people. *Front. Psychol.* **2018**, *9*, 230. [CrossRef]
40. Criss, M.M.; Pettit, G.S.; Bates, J.E.; Dodge, K.A.; Lapp, A.L. Family adversity, positive peer relationships, and children's externalizing behavior: A longitudinal perspective on risk and resilience. *Child Dev.* **2002**, *73*, 1220–1237. [CrossRef]
41. Cameranesi, M.; Ripat, J.; Piotrowski, C.C. "I wouldn't be here without them": Resilience in youth exposed to intimate partner violence. *Adv. Res. Sci.* **2021**, *2*, 19–35. [CrossRef]
42. Flores, E.; Cicchetti, D.; Rogosch, F.A. Predictors of resilience in maltreated and nonmaltreated Latino children. *Dev. Psychopatol.* **2005**, *41*, 338–351. [CrossRef]
43. Bottrell, D. Dealing with disadvantage resilience and the social capital of young people's networks. *Youth Soc.* **2009**, *40*, 476–501. [CrossRef]
44. Sanders, J.; Munford, R.; Boden, J. Culture and context: The differential impact of culture, risks and resources on resilience among vulnerable adolescents. *Child Youth Serv. Rev.* **2017**, *79*, 517–526. [CrossRef]
45. Sanders, J.; Munford, R.; Liebenberg, L.; Ungar, M. Peer paradox: The tensions that peer relationships raise for vulnerable youth. *Child Fam. Soc. Work* **2017**, *22*, 3–14. [CrossRef]
46. Wikström, P.-O.H.; Treiber, K. Social disadvantage and crime: A criminological puzzle. *Am. Behav. Sci.* **2016**, *60*, 1232–1259. [CrossRef] [PubMed]
47. Rankin, B.H.; Quane, J.M. Social contexts and urban adolescent outcomes: The interrelated effects of neighborhoods, families, and peers on African-American youth. *Soc. Probl.* **2002**, *49*, 79–100. [CrossRef]
48. Sellström, E.; Bremberg, S. The significance of neighbourhood context to child and adolescent health and well-being: A systematic review of multilevel studies. *Scand. J. Public Health* **2006**, *34*, 544–554. [CrossRef]
49. Ungar, M.; Liebenberg, L. Assessing resilience across cultures using mixed methods: Construction of the child and youth resilience measure. *J. Mix. Method. Res.* **2011**, *5*, 126–149. [CrossRef]
50. Zimmerman, M.A.; Stoddard, S.A.; Eisman, A.B.; Caldwell, C.H.; Aiyer, S.M.; Miller, A. Adolescent resilience: Promotive factors that inform prevention. *Child Dev. Perspect.* **2013**, *7*, 215–220. [CrossRef]
51. Van Breda, A.D.; Theron, L.C. A critical review of South African child and youth resilience studies, 2009–2017. *Child Youth Serv. Rev.* **2018**, *91*, 237–247. [CrossRef]
52. Rowhani, M.; Hatala, A.R. A systematic review of resilience research among Indigenous youth in contemporary Canadian contexts. *Int. J. Health Well. Soc.* **2017**, *7*, 45–58. [CrossRef]
53. Akers, R.L. *Criminological Theories: Introduction, Evaluation, and Application*, 3rd ed.; Roxbury: Los Angeles, CA, USA, 2000.
54. Tompsett, C.J.; Veits, G.M.; Amrhein, K.E. Peer delinquency and where adolescents spend time with peers: Mediation and moderation of home neighborhood effects on self-reported delinquency. *J. Community Psychol.* **2016**, *44*, 263–270. [CrossRef]
55. Doosje, B.; Loseman, A.; Bos, K. Determinants of radicalization of Islamic youth in the Netherlands: Personal uncertainty, perceived injustice, and perceived group threat. *J. Soc. Issues* **2013**, *69*, 586–604. [CrossRef]
56. Dejean, F.; Manaï, B.; Kapo, L.T. *Students Faced with Religious Radicalization Leading to Violence: The More You Know, the More You Prevent*; Collège de Maisonneuve: Institut de Recherche sur L'intégration Professionnelle des Immigrants: Montreal, PQ, Canada, 2016.
57. Hogg, M.A. From uncertainty to extremism: Social categorization and identity processes. *Curr. Dir. Psychol. Sci.* **2014**, *23*, 338–342. [CrossRef]
58. Brooks, C.M.; Daschuk, M.D.; Poudrier, J.; Almond, N. First Nations youth redefine resilience: Listening to artistic productions of 'Thug Life'and hip-hop. *J. Youth Stud.* **2015**, *18*, 706–725. [CrossRef]
59. Joshi, D.; Raina, P.; Tonmyr, L.; MacMillan, H.L.; Gonzalez, A. Prevalence of adverse childhood experiences among individuals aged 45 to 85 years: A cross-sectional analysis of the Canadian Longitudinal Study on Aging. *CMAJ Open* **2021**, *9*, E158–E166. [CrossRef] [PubMed]
60. Rousseau, C.; Oulhote, Y.; Lecompte, V.; Mekki-Berrada, A.; Hassan, G.; El Hage, H. Collective identity, social adversity and college student sympathy for violent radicalization. *Transcult. Psychiatry* **2021**, *58*, 654–668. [CrossRef] [PubMed]
61. Graham-Bermann, S.A.; Gruber, G.; Howell, K.H.; Girz, L. Factors discriminating among profiles of resilience and psychopathology in children exposed to intimate partner violence (IPV). *Child Abus. Negl.* **2009**, *33*, 648–660. [CrossRef]
62. Sianko, N.; Hedge, J.M.; McDonell, J.R. Differential adjustment among rural adolescents exposed to family violence. *J. Interpers. Violence* **2019**, *34*, 712–740. [CrossRef]
63. Reising, M.M.; Watson, K.H.; Hardcastle, E.J.; Merchant, M.J.; Roberts, L.; Forehand, R.; Compas, B.E. Parental depression and economic disadvantage: The role of parenting in associations with internalizing and externalizing symptoms in children and adolescents. *J. Child Fam. Stud.* **2012**, *22*, 334–343. [CrossRef]
64. Bolger, K.E.; Patterson, C.J. Sequelae of child maltreatment: Vulnerability and resilience. In *Resilience and Vulnerability: Adaptation in the Context of Childhood Adversities*; Luthar, S.S., Ed.; Cambridge University Press: New York, NY, USA, 2003.
65. Campo, M. *Children's Exposure to Domestic and Family Violence*; Child Family Community Australia (CFCA), Australian Institute of Family Studies: Melbourne, Australia, 2015.

66. Thompson, R.A.; Flood, M.F.; Goodvin, R. Social support and developmental psychopathology. In *Developmental Psychopathology: Risk, Disorder, and Adaptation*; Cicchetti, D., Cohen, D.J., Eds.; John Wiley & Sons: Hoboken, NJ, USA, 2006; Volume 3.
67. Wekerle, C.; Waechter, R.; Chung, R. Contexts of vulnerability and resilience: Childhood maltreatment, cognitive functioning and close relationships. In *The Social Ecology of Resilience*; Ungar, M., Ed.; Springer: New York, NY, USA.
68. Hall, K.; Richter, L.; Mokomane, Z.; Lake, L. (Eds.) *South African Child Gauge 2018*; Children's Institute, University of Cape Town: Cape Town, South Africa, 2018.
69. Das-Munshi, J.; Lund, C.; Mathews, C.; Clark, C.; Rothon, C.; Stansfeld, S. Mental health inequalities in adolescents growing up in post-apartheid South Africa: Cross-sectional survey, SHaW study. *PLoS ONE* **2016**, *11*, e0154478.
70. du Plessis, B.; Kaminer, D.; Hardy, A.; Benjamin, A. The contribution of different forms of violence exposure to internalizing and externalizing symptoms among young South African adolescents. *Child Abus. Negl.* **2015**, *45*, 80–89. [CrossRef]
71. North, A.; Donenberg, G.; Vermaak, R.; Kendall, A.; Mackesy-Amiti, M.E.; Simbayi, L.; Kagee, A.; Mthembu, J.; Ward, C.L.; Emerson, E.; et al. Pathways from witnessing community violence to mental health problems among South African adolescents. *S. Afr. Med. J.* **2020**, *110*, 145–153.
72. Casale, M.; Cluver, L.; Crankshaw, T.; Kuo, C.; Lachman, J.M.; Wild, L.G. Direct and indirect effects of caregiver social support on adolescent psychological outcomes in two South African AIDS-affected communities. *Am. J. Community Psychol.* **2015**, *55*, 336–346. [CrossRef] [PubMed]
73. Humm, A.; Kaminer, D.; Hardy, A. Social support, violence exposure and mental health among young South African adolescents. *J. Child Adolesc. Ment. Health* **2018**, *30*, 41–50. [CrossRef]
74. Mosavel, M.; Ahmed, R.; Ports, K.A.; Simon, C. South African, urban youth narratives: Resilience within community. *Int. J. Adolesc. Youth* **2015**, *20*, 245–255. [CrossRef] [PubMed]
75. Scorgie, F.; Baron, D.; Stadler, J.; Venables, E.; Brahmbhatt, H.; Mmari, K.; Delany-Moretlwe, S. From fear to resilience: Adolescents' experiences of violence in inner-city Johannesburg, South Africa. *BMC Public Health* **2017**, *17*, 51–64. [CrossRef] [PubMed]
76. Canham, H. Theorising community rage for decolonial action. *S. Afr. J. Psychol.* **2018**, *48*, 319–330. [CrossRef]
77. Hendricks, G.; Savahl, S.; Mathews, K.; Raats, C.; Jaffer, L.; Matzdorff, A.; Dekel, B.; Larke, C.; Magodyo, T.; Van Gesselleen, M.; et al. Influences on life aspirations among adolescents in a low income community in Cape Town. South Africa. *J. Psychol. Afr.* **2015**, *25*, 320–326. [CrossRef]
78. Madhavan, S.; Crowell, J. Who would you like to be like? Family, village, and national role models among black youth in rural South Africa. *J. Adolesc. Res.* **2014**, *29*, 716–737. [CrossRef]
79. Hayes, A.F. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*, 2nd ed.; The Guilford Press: New York, NY, USA, 2018.
80. Mitic, M.; Woodcock, K.A.; Amering, M.; Krammer, I.; Stiehl, K.A.M.; Zehetmayer, S.; Schrank, B. Toward an integrated model of supportive peer relationships in early adolescence: A systematic review and exploratory meta-analysis. *Front. Psychol.* **2021**, *12*, 589403. [CrossRef]
81. Fransman, T.; Yu, D. Multidimensional poverty in South Africa in 2001–16. *Dev. S. Afr.* **2019**, *36*, 50–79. [CrossRef]
82. Theron, L.; Rothmann, S.; Höltge, J.; Ungar, M. Differential adaptation to adversity: A latent profile analysis of youth engagement with resilience-enabling cultural resources and mental health outcomes in a stressed Canadian and South African community. *J. Cross-Cult. Psychol.* **2022**. [CrossRef]
83. Mathebula, S. Protesters Burn Down Mpumalanga Mall. *Citizen*. 2018. Available online: https://www.citizen.co.za/news/south-africa/1963615/protesters-burn-down-mpumalanga-mall/ (accessed on 21 March 2022).
84. Bethell, C.D.; Carle, A.; Hudziak, J.; Gombojav, N.; Powers, K.; Wade, R.; Braveman, P. Methods to assess adverse childhood experiences of children and families: Toward approaches to promote child well-being in policy and practice. *Acad. Pediatr.* **2017**, *17*, S51–S69. [CrossRef] [PubMed]
85. Lerner, R.M.; Lerner, J.V.; Almerigi, J.B.; Theokas, C.; Phelps, E.; Gestsdottir, S.; Naudeau, S.; Jelicic, H.; Alberts, A.; Ma, L.; et al. Positive youth development, participation in community youth development programs, and community contributions of fifth-grade adolescents: Findings from the first wave of the 4-H study of positive youth development. *J. Early Adolesc.* **2005**, *25*, 17–71. [CrossRef]
86. Geldhof, G.J.; Bowers, E.P.; Boyd, M.J.; Mueller, M.K.; Napolitano, C.M.; Schmid, K.L.; Lerner, J.V.; Lerner, R.M. The creation and validation of short and very short measures of PYD. *J. Res. Adolesc.* **2014**, *24*, 163–176. [CrossRef]
87. IBM Corporation Released. *IBM SPSS Statistics for Windows*, Version 27.0; IBM Corporation: Armonk, NY, USA, 2020.
88. Igartua, J.-J.; Hayes, A.F. Mediation, moderation, and conditional process analysis: Concepts, computations, and some common confusions. *Span. J. Psychol.* **2021**, *24*, e49. [CrossRef]
89. Field, A. *Discovering Statistics Using IBM SPSS Statistics*, 5th ed.; Sage: Thousand Oaks, CA, USA, 2017.
90. Masten, A.S.; Palmer, A.R. Parenting to promote resilience in children. In *Handbook of Parenting*, 3rd ed.; Bornstein, M.H., Ed.; Routledge: London, UK, 2019; Volume 5, pp. 156–188.
91. Luthar, S.S.; Ebbert, A.M.; Kumar, N.L. Risk and resilience during COVID-19: A new study in the Zigler paradigm of developmental science. *Dev. Psychopathol.* **2021**, *33*, 565–580. [CrossRef]
92. Russell, P.; Liebenberg, L.; Ungar, M. White out: The invisibility of white North American culture and resilience processes. In *Youth Resilience and Culture*; Theron, L., Liebenberg, L., Ungar, M., Eds.; Springer: Dordrecht, The Netherlands, 2015; pp. 131–141.

93. Lund, C.; Brooke-Sumner, C.; Baingana, F.; Baron, E.C.; Breuer, E.; Chandra, P.; Haushofer, J.; Herrman, H.; Jordans, M.; Kieling, C.; et al. Social determinants of mental disorders and the Sustainable Development Goals: A systematic review of reviews. *Lancet Psychiatry* **2018**, *5*, 357–369. [CrossRef]
94. Lance, C.E.; Butts, M.M.; Michels, L.C. The sources of four commonly reported cutoff criteria: What did they really say? *Org. Res. Meth.* **2006**, *9*, 202–220. [CrossRef]
95. Ahmad, F.; Jhajj, A.K.; Stewart, D.E.; Burghardt, M.; Bierman, A.S. Single item measures of self-rated mental health: A scoping review. *BMC Health Serv. Res.* **2014**, *14*, 398. [CrossRef]
96. Ang, L.; Eisend, M. Single versus multiple measurement of attitudes: A meta-analysis of advertising studies validates the single-item measure approach. *J. Advert. Res.* **2018**, *58*, 218–227. [CrossRef]
97. Allen, M.S.; Iliescu, D.; Greiff, S. Single item measures in psychological science: A call to action. *Eur. J. Psychol. Assess.* **2022**, *38*, 1–5. [CrossRef]
98. Ungar, M. The differential impact of social services on young people's resilience. *Child Abus. Negl.* **2018**, *78*, 4–13. [CrossRef] [PubMed]

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Sources and Types of Social Supports and Their Association with Mental Health Symptoms and Life Satisfaction among Young Adults with a History of Out-of-Home Care

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Abstract: Young adults with a history of out-of-home care report poorer mental health and life satisfaction compared to non-care-experienced peers. Social support is a known protective factor for mental health. There is limited evidence, however, on the relationship between sources (e.g., family members) and types (e.g., information) of social support and mental health symptoms and life satisfaction in this population. Reporting cross-sectional survey data from 215 young adults aged 18–22 years with a history of out-of-home care, the current study conducted descriptive, bivariate, and linear regression analysis to examine the different sources and types of support young adults receive and their relation to mental health symptoms and life satisfaction. Participants had high levels of support from family members, friends, and other adults. Most participants had informational support, but less than half had consistent material support. Regression analyses demonstrated that having enough informational and material support were associated with fewer mental health symptoms. Having family support and material support were associated with greater life satisfaction. Further longitudinal research is needed to understand the trajectory between social supports and mental health functioning and life satisfaction.

Keywords: adolescent; young adult; foster care; social support; relationships; mental health; wellbeing; life satisfaction

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1. Introduction

The mental health and life satisfaction of young adults with a history of out-of-home care is a public health priority. Rates of mental illness are high for adolescents in foster care (>50%), with diagnoses of major depression and other mood disorders being the most prevalent [1]. Systematic reviews have reported that children in out-of-home care present with higher levels of psychopathology when compared to a community of matched samples [2]. A UK longitudinal study found that individuals had excess mortality in adulthood up to 42 years after reporting foster care and/or residential care status in the national census [3]. This increased risk was attributed to non-natural causes of self-harm, accidents, and other mental health and behavioral factors. Children and young people who have foster care experience have also reported lower rates of subjective wellbeing than those who have never been removed from their homes of origin [4].

Evidence exploring trajectories of symptoms of poor mental health and life satisfaction indicate that key risk factors often originate with early exposure to maltreatment [5–7], which is frequently the reported reason for care entry. The impact of the care experience, especially the type of care placement, in mitigating or increasing mental health problems is

not yet fully understood [8]. Development of mental health problems in childhood and adolescence can continue into later life [9], although there is also evidence of stabilization in positive behavioral adjustment [10]. Mental health problems are also associated with a range of other adverse outcomes, notably lower levels of educational attainment and engagement [11,12].

Social support is a well-established protective factor for mental health and life satisfaction; adolescents and young adults with high levels of perceived social support tend to have lower levels of mental illness (specifically depression and anxiety) than their peers [13,14]. Social support can be understood as the perceived or received assistance that an individual has from other people [15]. It is a multi-dimensional construct that can encompass different types of assistance [16,17]. This can include informational, instructional, emotional, instrumental, and advocacy [18], although research often focuses on informational (e.g., advice), material (e.g., tangible), and emotional (e.g., esteem, affection and belonging) supports [19].

Young adults in out-of-home care tend to experience a paucity of all types of support [20,21]. Evidence from the California Youth Transitions to Adulthood Study (CalYOUTH) indicated that among 19-year-old individuals in foster care, 40% stated that they did not have enough people to turn to for emotional support, nearly half did not have enough people to provide material support, and more than 30% did not have enough people to give them advice and guidance [22].

Where available, support may be derived from a range of sources. In the general population, support from family members is often described as important for positive mental health [18,23]. Similar evidence has been reported for individuals with out-of-home care experience [24]. Equally, research with care leavers indicates that a lack of family support adversely affects life satisfaction [25]. Analysis of the National Survey on Child and Adolescent Well-Being II (NSCAW), a nationally representative longitudinal survey of children and families who have been investigated by Child Protective Services in the United States, found that having current contact with birth mothers and fathers was associated with fewer mental health symptoms [26]. However, minimal research has explored the types of support offered by family members. A recent systematic review recognizes that few studies have identified the types of support provided by birth parents, and the benefits that may emerge from the range of support offered [27].

Other family members may also be important to young adults with a history of care. Recent research has found that having positive relationships with foster parents is associated with higher levels of life satisfaction [28]. Despite more limited research evidence, there are also potentially important considerations regarding the impact of sibling relationships and supports. Sibling co-placement, and having the opportunity to sustain a relationship, is reported to be a protective factor for a range of mental health and wellbeing outcomes [29]. Meanwhile, sibling separation and a lack of a supportive relationship are considered to impede development and negatively impact mental health [29].

Although family members may be an important source of support, youth who have been in out-of-home care are less likely than their same-aged peers in the general population to receive support from their biological parents [30]. Qualitative research has suggested that children and adolescents in foster care can find it challenging to maintain positive relationships with their birth families [31–33]. As such, they often draw upon a wide range of other social supports, such as peers, teachers, and social care professionals [19,22,34–37]. These relationships are also found to be largely protective of mental health and life satisfaction. One qualitative study conducted with youth with histories of foster care involvement explored the role of natural adult mentors in supporting mental health during their transition to adulthood, recognizing the importance of consistent, mutual, and empathetic relationships that offer emotional, informational, and material support [19]. However, there has been limited consideration of how these other sources of support compare to family support in terms of being a protective factor for mental health and life satisfaction.

While there is an emerging evidence base on the association between different social supports, mental health, and life satisfaction for young adults with a history of out-of-home

care, several gaps need to be addressed. First, there are few studies that report both the range of sources (e.g., family or other adult) and types (e.g., informational or material) of social supports. Second, the relative contribution of different sources and types of social support in protecting mental health and life satisfaction is not clear, and there is a need to further understand how different forms of assistance are associated with outcomes over and above other forms of social supports.

Research Questions

The current study explores the sources and types of social support among young adults (ages 18–22 years) with a history of out-of-home care. The study further examines the extent to which these social supports are associated with mental health symptoms and life satisfaction.

Specifically, this exploratory study addresses the following research questions:

1. Who and what are the sources and types of social support for young adults with a history of out-of-home care?
2. What are the bivariate relationships between different sources/types of social supports and current mental health symptoms and life satisfaction?
3. Are certain sources or types of social support associated with fewer mental health symptoms and life satisfaction over and above other sources/types of social support and relevant control variables?

2. Materials and Methods

The present study reports cross-sectional analysis of data from the longitudinal Fostering Healthy Futures (FHF) study, which was conducted in the United States.

2.1. Study Participants

The study includes data from eight cohorts of youth enrolled in the FHF intervention between 2002 and 2009. Participants were eligible for the study if they met the following inclusion criteria at baseline: (1) aged 9–11 years old; (2) had been placed in out-of-home care in the previous year by a participating county child welfare department; and (3) were living in out-of-home care at the time of the baseline interview.

For the current study, 243 young adults from the original FHF study who were between ages 18 to 22 years old were recruited to complete a long-term follow-up survey. The survey was completed an average of 9.4 years after the participants' baseline survey. Of the 243 individuals recruited, 215 (88.5%) were located and consented to be interviewed. 7 participants declined the interview, 8 aged out of eligibility, and 13 could not be located or recruited.

About half (47.9%) of study participants identified as female. Participants' mean age was 19.5 years old (SD = 0.94). For race and ethnicity, 54.0% self-identified as Latinx/Hispanic, 48.8% as White, 28.8% as American Indian, and 27.4% as Black. Participants had the option to identify more than one racial/ethnic category. More than a third (35.8%) of the participants were currently living in their own place; 18.1% were living with one or more biological parents; 15.8% were living in a relative's home; 15.8% were living in the home of another adult (i.e., adoptive parent, family friend, and significant other's parent); and the remainder were unhoused or living in a shelter, group home, treatment facility, college dorm, or prison.

2.2. Procedures

The protocol was approved by the Institutional Review Board and participants provided written consent for their participation. Most interviews took place in a face-to-face interview format (or by telephone when participants lived too far) and interview questions were read aloud by graduate student research assistants. Participants were compensated US $100 for completing an interview.

2.3. Measures

2.3.1. Social Support (Independent Variables)

Questions from the Jim Casey Youth Opportunities Initiative survey were used to assess current sources and types of social support.

Sources of social support: Three questions were asked about the presence/absence of three groups of supportive persons (adult family members, good friends, and other adults) in their lives. Example: 'Is there an adult in your family (not a spouse or significant other) that you will always be able to turn to for support (for example, to help you with a problem, to listen when you're upset)?' Each of the three questions had a binary response option of yes = 1 or no = 0. When participants responded "yes" to family support, follow-up questions included: Which one adult family member do you turn to most often?; How often do you see or communicate with this adult family member?; and How much can you count on this adult family member to provide you with the support you need? When participants responded "yes" to friend support, follow-up questions included: How many friends do you have that you can count on for support?; and How much can you count on these friends to provide you with the support you need? When participants responded "yes" to other adult support, follow-up questions included: Which one adult other than a family member do you turn to most often?; How often do you see or communicate with this person?; and How much can you count on this person to provide you with the support you need?

Types of social support: Two questions were used to assess the types of support available to participants: When you need someone to give you good advice about a crisis are there . . . ?; and When you need someone to loan you money in an emergency, are there . . . ? These two types of supports were classified as informational and material support, respectively. Each of the two questions had three response options of: enough people you can count on; too few people you can count on; and no one you can count on. The three response options were dichotomized into a composite variable of enough people you can count on = 1 vs. too few people or no one = 0.

2.3.2. Mental Health Symptoms and Life Satisfaction (Dependent Variables)

Mental health symptoms: The K6 Scale was used to assess mental health symptoms. It is a six-item measure of serious mental illness and was developed with support from the U.S. Government's National Center for Health Statistics for use in the redesigned U.S. National Health Interview Study [38]. The scale was designed to be sensitive to nonspecific distress to maximize the ability to discriminate cases of serious mental illness from non-cases. The K6 demonstrated high internal consistency and reliability across different demographic groups (Cronbach's α in current study = 0.86). Each of the six items (e.g., During the past 30 days, about how often did you feel nervous? How often did you feel so depressed that nothing could cheer you up?) are rated by the respondent on a five-point scale from None of the time = 0 to All of the time = 4. A mean score was calculated, resulting in participant scores that ranged from 0–3.33 (M = 1.03, SD = 0.87). This measure was not administered to the first 22 participants in the study and therefore n = 193 in analyses using this variable.

Life satisfaction: Life satisfaction was assessed with one item from the project-modified Delighted-Terrible Scale [39]: 'And last, a very general question, how do you feel about your life as a whole?' The question had a 1–5 scale response option, with 1 = mostly unhappy and 5 = mostly happy (M = 4.33, SD = 0.98).

2.3.3. Control Variables

Gender: Since source, type, and amount of support may differ by gender, this variable (operationalized as female = 0; and male = 1) was included in analyses [40].

Living history: Participants provided information regarding their living situation that included whether they had ever reunified with their birth parents (45.2%), lived with kin (87.9%), lived in non-relative foster care (75.8%), lived in a congregate care setting (52.6%), been adopted (27.2%), and/or emancipated from care (26.5%). All living history variables

were independently coded (not experienced = 0 or experienced = 1), so participants could endorse multiple living experiences.

Mental health diagnosis: Participants were asked 'Have you ever received a mental health diagnosis?' The question had a binary response option of no = 0 or yes = 1. About a third (31.8%) reported having a mental health diagnosis at some point in their lives.

2.4. Analysis

The analytic strategy included three steps. First, descriptive analyses were conducted to summarize the characteristics of study participants and the source and types of social supports they received. Second, bivariate analyses (i.e., independent samples *t*-test) were performed to examine the unadjusted associations between independent variables (i.e., sources/types of social support), dependent variables (i.e., mental health symptoms and life satisfaction), and control variables. Finally, separate multiple linear regression analyses were conducted for mental health symptoms and life satisfaction. All independent and control variables that were significant in the bivariate analyses were simultaneously entered into the regression model to examine the adjusted associations between each independent variable and dependent variable while controlling for one another (i.e., a forward-selection model building approach).

Notably, although a data-driven criterion was used to build the final regression models, all variables in the current study were selected for inclusion based on a previous research or the researchers' professional and lived experience with child welfare-involved populations. A sensitivity analysis was also performed to assess the robustness of our results to different data-driven model building strategies; this involved repeating our regression analyses using a backward selection model building approach, which produced the same pattern of statistically significant and non-significant associations (not included but available from the first author upon request). An alpha level of $p < 0.05$ was used to determine statistical significance, with $p < 0.10$ indicating a statistical trend; statistical trends were given consideration because of the limited research in this subject domain and our related concerns about Type 2 errors. *p*-values were used in a descriptive manner. Analysis was conducted in SPSS Version 25.

3. Results

3.1. Sources and Types of Social Supports

Descriptive statistics for participants' sources of support, frequency of communication, and reliability of support are presented in Table 1. For family support, almost all of the participants reported having an adult family member that they could turn to for support. When asked which one family member they turn to most often, a third selected a birth parent and a third selected an extended family member. The remaining options, reported in order of frequency, were: adult siblings; adoptive family; foster family; legal guardian; and other. A quarter of participants lived with the named family member, a third communicated with the family member every day, and a fifth communicated with them two to five times per week. Almost two-thirds of participants reported that they could "always" count on this family member to provide the support needed, with an additional third of participants reporting that they could count on this family member most of the time.

For friendship-based support, three-quarters of participants said that they had good friends whom they could turn to for support. Almost three quarters had one to four friends, while a fifth selected having five to nine friends. Almost half of participants stated that they could always count on their friends, while two-fifths selected being able to count on them most of the time. For other adult support, over half of participants stated they had a non-family adult to turn to for support when they needed it. When asked which adult they relied on, a quarter reported being able to rely on a family friend/neighbor and a fifth selected a work colleague. The remaining options, reported in order of frequency, were: teacher/coach; non-relative mentor; adult from faith-based community; caseworker; staff person from residential facility or group home; lawyer; and other. A third of participants

stated they communicated with this adult almost every day, a third had contact two to five times per week, and a third reported being in touch once a month to once a week. In total, half of participants said they could always count on this non-family adult, while a third said they could count on them most of the time.

Table 1. Description of Source and Types of Social Supports (*n* = 215).

	Number (*n*)	Percentage (%)
Family Support		
Availability of Familial Adults		
Yes	189/214	88.3
Birth parent	65/188	34.6
Extended family member	65/188	34.6
Adult sibling	27/188	14.4
Adoptive family member	21/188	11.2
Foster family member	5/188	2.7
Legal guardian	2/188	1.1
Other	3/188	1.6
Frequency of Communication with Familial Support		
Lives with family member	51/188	27.1
Almost everyday	62/188	33.0
Less than 2–5 times per week	41/188	21.8
Once per month to once per week	30/188	16.0
Once per year to every few months	3/188	1.6
Less than once per year	1/188	0.5
Reliability of Support		
Always	113/188	60.1
Most of the time	55/188	29.3
Sometimes	18/188	9.6
Not very often	2/188	1.1
Friend Support		
Availability of Friends		
Yes	163/215	75.8
Number of good friends		
1–4 friends	117/163	71.8
5–9 friends	34/163	20.8
10+ friends	12/163	7.3
Reliability of Support		
Always	75/163	46.0
Most of the time	68/163	41.7
Sometimes	17/163	10.4
Not very often	3/163	1.8
Other Adult Support		
Availability of Other Adults		
Yes	117/215	54.4
Source of Other Adult Support		
Family friend/neighbor	31/117	26.5
Work colleague	25/117	21.4
Teacher/coach	17/117	14.5
Non-relative mentor	8/117	6.8
Adult from faith-based community	5/117	4.3
Caseworker	3/117	2.6
Staff from residential home	3/117	2.6
Lawyer	1/117	0.9
Other	24/117	20.5
Frequency of Communication with Adult Support		
Almost everyday	35/117	29.9
Less than 2–5 times per week	25/117	21.4
Once per month to once per week	39/117	33.3
Once per year to every few months	15/117	12.8
Less than once per year	3/117	2.6
Reliability of Support		
Always	60/117	51.3
Most of the time	40/117	34.2
Sometimes	16/117	13.7
Not very often	1/117	0.9
Types of Support		
Informational (i.e., Advice)		
Enough people	156/215	72.6
Too few people/No one	59/215	27.4
Material (i.e., Money)		
Enough people	103/215	47.9
Too few people/No one	112/215	52.1

Participants indicated the availability of informational support (e.g., someone to give good advice about a crisis) and material support (e.g., someone to loan money in an emergency) (Table 1). Almost three-quarters of participants stated they had enough people

to count on for informational support. Less than half of participants selected having enough people for material support.

3.2. Bivariate Associations between Source and Type of Social Support, Mental Health Symptoms and Life Satisfaction

T-tests were used to explore the unadjusted associations between different sources and types of social support, mental health symptoms, and life satisfaction. Participants who had adult family members to turn for advice and support had fewer mental health symptoms ($t = -3.9$; $p < 0.001$) and higher life satisfaction ($t = 2.9$; $p < 0.01$). Having good friends was associated with fewer mental health symptoms ($t = -2.5$; $p = 0.01$), but not life satisfaction. Having another adult to turn to for advice and support was not related to mental health symptoms, but there was a trend towards it being related to higher life satisfaction ($t = 1.7$, $p = 0.09$).

Those who reported having enough people for informational support (namely those who provide good advice) had fewer mental health symptoms ($t = -5.6$, $p < 0.001$) and higher life satisfaction ($t = 3.1$, $p = 0.002$). Similarly, participants who reported having enough material support (i.e., people available to loan them money), had fewer mental health symptoms ($t = -5.6$, $p < 0.001$) and higher life satisfaction ($t = 4.7$, $p < 0.001$). In terms of the control variables, males had higher life satisfaction than females ($t = 2.7$, $p = 0.007$). Having a mental health diagnosis was related to more mental health symptoms ($t = -3.1$, $p = 0.002$) and lower quality of life ($t = -3.6$, $p < 0.001$). Experiencing non-relative foster care, adoption, congregate care, or living with kin were all unrelated to the dependent variables and were therefore not included as covariates in the multiple regression models.

3.3. Multiple Regression Models for Mental Health Symptoms and Life Satisfaction

Regression analyses were used to determine whether each source/type of social support was associated with mental health symptoms and life satisfaction over and above other support and control variables in the model (see Table 2). In the mental health symptoms model ($n = 190$), significant variables included: having enough people to give informational support ($b = -0.40$, $p = 0.008$); having enough people to give material support ($b = -0.33$, $p = 0.013$); and having a mental health diagnosis ($b = 0.31$, $p = 0.014$). Specifically, having enough informational and material support was associated with fewer mental health symptoms, whereas having a mental health diagnosis was associated with more mental health symptoms. There was a statistical trend ($p = 0.08$) for having a family member to turn to for support, which was associated with fewer mental health symptoms. The following variables were unrelated to mental health symptoms: having friends for support, having other adults for support, gender, and a history of emancipation or reunification.

Table 2. Linear Multiple Regression Analysis of Mental Health Symptoms and Life Satisfaction.

	Mental Health Symptoms			Life Satisfaction		
	b	***SE***	***p*-Value**	***b***	***SE***	***p*-Value**
Source of Support						
Familial Adults	−0.366 †	0.205	0.076	0.647 **	0.220	0.004
Friends	−0.147	0.139	0.292	0.010	0.153	0.949
Other Adults	0.074	0.116	0.521	0.138	0.127	0.276
Type of Support						
Informational (i.e., Advice)	−0.399 **	0.148	0.008	0.013	0.163	0.935
Material (i.e., Money)	−0.334 *	0.133	0.013	0.361 *	0.147	0.015
Control Variables						
Gender	−0.119	0.118	0.316	0.315 *	0.130	0.016
Emancipation	0.046	0.141	0.745	0.144	0.155	0.353
Reunified	0.119	0.120	0.326	−0.016	0.133	0.903
Mental Health Diagnosis	0.308 *	0.124	0.014	−0.365 **	0.136	0.008
Model Fit						
Adjusted R^2 Value		0.211			0.175	

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$.

In the life satisfaction model (n = 197), significant variables included: having a family member to turn to for support (b = 0.65, p = 0.004); having enough people for material support (b = 0.361, p = 0.015); having a mental health diagnosis (b = −0.37, p = 0.008); and gender (b = 0.32, p = 0.016). Specifically, having enough informational and material support was associated with higher life satisfaction, whereas having a mental health diagnosis was associated with lower life satisfaction. Males had higher life satisfaction than females. The following variables were unrelated to life satisfaction: having enough people to give informational support; having friends for support; having other adults for support; and a history of emancipation or reunification.

4. Discussion

4.1. Results

The present study examined the different sources and types of social supports available to young adults in out-of-home care. It further explored the extent to which these supports are associated with mental health symptoms and life satisfaction. Participants reported having a high number of social supports available to them, which included family members, good friends, and other adults. The majority of participants maintained that they could almost always or always count on family members and friends. This high prevalence of support availability runs counter to much of the existing evidence-base, which indicates that this population experiences a paucity of supports [20–22]. However, it does resonate with findings from other studies, which suggest that care-experienced young people derive support from a range of different sources [19,22,34–37].

A central finding from the study, and as reported in the wider evidence-base, is the protective role of family members for mental health and life satisfaction [24–26,41]. The availability of support from an adult family member was associated with fewer mental health symptoms and higher life satisfaction. Moreover, this support was related to life satisfaction over and above other types and sources of support. Notably, when identifying the specific family member, they are most likely to turn to for support, a third of participants cited a birth parent. Given the complexity of relationships that individuals in care can have with their biological parents [31–33], and the fact that they are less likely to receive parental support than peers in the general population [30], it is important to recognize the potential need for biological families to be integrated into young adults' supportive social networks. However, there are risks of integration that need to be carefully attended to, such as the potential for trauma rearousal [42,43].

Non-family relationships were also considered vital to mental health and life satisfaction. Having good friends for support was associated with fewer mental health symptoms. Having a non-family adult support person was non-significantly associated with greater life satisfaction, although this association did not hold for mental health. Key adult support figures cited by participants included family/friends and neighbors, work colleagues, and teachers.

Despite the indication that participants had sources of support that could be counted on, these sources were not necessarily dependable for all types of support. While almost three quarters of participants maintained that they had access to informational support, less than half felt they had enough people to count on for material support. This finding aligns with results from the California Youth Transitions to Adulthood Study (CalYOUTH), which indicated that informational support was the most readily available type of support, but that material support was less frequent [22]. The present study similarly reports a lack of material support, with almost half of young adults not having enough people to offer this type of assistance. Both types of support were significantly associated with mental health symptoms and life satisfaction over and above other variables. This indicates a potential issue around young adults with out-of-home care experience not having access to the full range of supports that are required for positive mental health and life satisfaction.

4.2. Strengths and Limitations

The study has a number of key strengths. First, most prior research in this area has examined the role of social support among care-leavers who have emancipated from foster care. The current study's sample consists of young adults with a range of living histories and current living situations. Second, the study addresses a key evidence gap; it considers both sources and types of social supports, which most research to date does not address simultaneously. Third, through the regression models, the study was able to control for potential confounding variables (e.g., gender, mental health diagnosis, and living history), in the attempt to isolate the association of social supports and the outcomes of interest.

There are also a number of limitations that should be considered when interpreting the results. First, this is a cross-sectional study. As such, the temporal ordering of social supports, mental health symptoms, and life satisfaction is not known. Therefore, it is not possible to infer if the sources and types of social support are a cause of any observed relationships with mental health and life satisfaction. Second, while the study benefitted from a high response rate, the sample size prevented further consideration of sources and types of support by gender, race, ethnicity, living situation history, and other sub-groups. It was also not possible to explore how support types differed by support source, and how this was associated with mental health symptoms and life satisfaction. Third, while the study considered both informational and material support, it did not consider additional types of support explored in the extant evidence-base, such as emotional support. Fourth, the study was reliant on self-report measurement, which may be subject to recall and reporting bias. Fifth, the measurement of several key constructs was based on a single item.

4.3. Future Directions

The findings from this study provide a number of useful directions for research, policy, and practice. In terms of research, the field would benefit from additional longitudinal studies devoted to the health and wellbeing of adolescents and young adults with child welfare experience. To date there is a wealth of longitudinal datasets that explore risk and protective factors for mental health and life satisfaction in this population around the world [44–48]. However, for the large part they have not reported analysis of the relationships between/among sources and types of social supports and mental health status. Such analyses could shed light on the importance of certain types of support in the lives of young adults, particularly during the transition from care to independent adulthood. Further, there have been some strong early qualitative studies investigating social support for youth transitioning from care [49]. It would be beneficial to conduct additional qualitative research with this population to specifically investigate when different sources and types of social supports are most useful across different developmental stages, and how these supports may be related to mental health symptomatology and management.

At the policy level, there is a range of legislation and directives internationally that can continue to foreground and prioritize high quality social supports. In the United States, the Family First Prevention Services Act (FFPSA) was enacted in 2018 to keep youth with their families/communities of origin and out of the foster care system by increasing access to community psychiatric health and substance abuse services. Meanwhile, in the UK, the Children and Social Work Act stipulates a relationship-based approach to social work that fosters positive relationships, particularly between social workers and children [50]. Research evaluating the extent to which these policies have impacted perceived social support in child welfare-involved youth would be valuable.

In terms of future social care practice in relation to young people, it is important to provide opportunities to develop and sustain positive social relationships. In the USA, the Fostering Connections to Success and Increasing Adoptions Act (Fostering Connections) passed in 2008 includes a state requirement relating to social support: child welfare administrators must identify "relatives" (either biological or social) who can serve as supports when youth are removed from their homes. Equally, guidance by the UK National Institute for Health and Care Excellence (NICE) recommends that organizations, practitioners, and

foster carers work to ensure that children and young people in care and leaving care have nurturing relationships in order to reach their potential [51].

There are a number of interventions in this area, including those that support young people's fostering of positive connections with a range of individuals [52–54]. Furthermore, there is a need for research, policy, and practice to understand how to best provide continuity in social networks, potentially through support for placement stability and reunification so that young adults can remain connected to their communities of origin [51].

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Informed Consent Statement: Informed consent was obtained from all participants involved in the study.

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References

1. Courtney, M.E.; Charles, P. *Mental Health and Substance Use Problems and Service Utilization by Transition-Age Foster Youth: Early Findings from CalYOUTH*; Chapin Hall at the University of Chicago: Chicago, IL, USA, 2015.
2. Dubois-Comtois, K.; Bussières, E.-L.; Cyr, C.; St-Onge, J.; Baudry, C.; Milot, T.; Labbé, A.-P. Are children and adolescents in foster care at greater risk of mental health problems than their counterparts? A *meta*-analysis. *Child. Youth Serv. Rev.* **2021**, *127*, 106100. [CrossRef]
3. Murray, E.T.; Lacey, R.; Maughan, B.; Sacker, A. Association of childhood out-of-home care status with all-cause mortality up to 42-years later: Office of National Statistics Longitudinal Study. *BMC Public Health* **2020**, *20*, 735. [CrossRef] [PubMed]
4. Long, S.J.; Evans, R.E.; Fletcher, A.; Hewitt, G.; Murphy, S.; Young, H.; Moore, G.F. Comparison of substance use, subjective well-being and interpersonal relationships among young people in foster care and private households: A cross sectional analysis of the School Health Research Network survey in Wales. *BMJ Open* **2017**, *7*, e014198. [CrossRef] [PubMed]
5. McGuire, A.; Cho, B.; Huffhines, L.; Gusler, S.; Brown, S.; Jackson, Y. The relation between dimensions of maltreatment, placement instability, and mental health among youth in foster care. *Child Abus. Negl.* **2018**, *86*, 10–21. [CrossRef]
6. Tanaka, M.; Wekerle, C.; Schmuck, M.L.; Paglia-Boak, A. The linkages among childhood maltreatment, adolescent mental health, and self-compassion in child welfare adolescents. *Child Abus. Negl.* **2011**, *35*, 887–898. [CrossRef]

7. Tarren-Sweeney, M. Retrospective and concurrent predictors of the mental health of children in care. *Child. Youth Serv. Rev.* **2008**, *30*, 1–25. [CrossRef]
8. Baldwin, H.; Biehal, N.; Cusworth, L.; Wade, J.; Allgar, V.; Vostanis, P. Disentangling the effect of out-of-home care on child mental health. *Child Abus. Negl.* **2019**, *88*, 189–200. [CrossRef]
9. Seker, S.; Boonmann, C.; Gerger, H.; Jäggi, L.; d'Huart, D.; Schmeck, K.; Schmid, M. Mental disorders among adults formerly in out-of-home care: A systematic review and meta-analysis of longitudinal studies. *Eur. Child Adolesc. Psychiatry* **2021**. [CrossRef] [PubMed]
10. Proctor, L.J.; Skriner, L.C.; Roesch, S.; Litrownik, A.J. Trajectories of Behavioral Adjustment Following Early Placement in Foster Care: Predicting Stability and Change Over 8 Years. *J. Am. Acad. Child Adolesc. Psychiatry* **2010**, *49*, 464–473. [CrossRef]
11. O'Higgins, A.; Sebba, J.; Gardner, F. What are the factors associated with educational achievement for children in kinship or foster care: A systematic review. *Child. Youth Serv. Rev.* **2017**, *79*, 198–220. [CrossRef]
12. Tessier, N.G.; O'Higgins, A.; Flynn, R.J. Neglect, educational success, and young people in out-of-home care: Cross-sectional and longitudinal analyses. *Child Abus. Negl.* **2018**, *75*, 115–129. [CrossRef] [PubMed]
13. Rueger, S.Y.; Malecki, C.K.; Pyun, Y.; Aycock, C.; Coyle, S. A meta-analytic review of the association between perceived social support and depression in childhood and adolescence. *Psychol. Bull.* **2016**, *142*, 1017–1067. [CrossRef] [PubMed]
14. Scardera, S.; Perret, L.C.; Ouellet-Morin, I.; Gariépy, G.; Juster, R.-P.; Boivin, M.; Turecki, G.; Tremblay, R.E.; Côté, S.; Geoffroy, M.-C. Association of social support during adolescence with depression, anxiety, and suicidal ideation in young adults. *JAMA Netw. Open* **2020**, *3*, e2027491. [CrossRef] [PubMed]
15. Thoits, P.A. Mechanisms Linking Social Ties and Support to Physical and Mental Health. *J. Health Soc. Behav.* **2011**, *52*, 145–161. [CrossRef]
16. Malecki, C.K.; Demaray, M.K. What type of support do they need? Investigating student adjustment as related to emotional, informational, appraisal, and instrumental support. *Sch. Psychol. Q.* **2003**, *18*, 231. [CrossRef]
17. Morelli, S.A.; Lee, I.A.; Arnn, M.E.; Zaki, J. Emotional and instrumental support provision interact to predict well-being. *Emotion* **2015**, *15*, 484. [CrossRef]
18. Hoagwood, K.E.; Cavaleri, M.A.; Serene Olin, S.; Burns, B.J.; Slaton, E.; Gruttadaro, D.; Hughes, R. Family Support in Children's Mental Health: A Review and Synthesis. *Clin. Child Fam. Psychol. Rev.* **2010**, *13*, 1–45. [CrossRef]
19. Munson, M.R.; Brown, S.; Spencer, R.; Edguer, M.; Tracy, E. Supportive Relationships Among Former System Youth With Mental Health Challenges. *J. Adolesc. Res.* **2014**, *30*, 501–529. [CrossRef]
20. Sapiro, B.; Ward, A. Marginalized Youth, Mental Health, and Connection with Others: A Review of the Literature. *Child Adolesc. Soc. Work J.* **2020**, *37*, 343–357. [CrossRef]
21. Jones, L.P. The Role of Social Support in the Transition From Foster Care to Emerging Adulthood. *J. Fam. Soc. Work* **2014**, *17*, 81–96. [CrossRef]
22. Okpych, N.J.; Park, K.; Feng, H.; Torres-García, A.; Courtney, M.E. *Memo from CalYOUTH: Differences in Social Support at Age 19 by Extended Foster Care Status and Placement Type*; Chapin Hall at the University of Chicago: Chicago, IL, USA, 2018.
23. Moore, G.F.; Cox, R.; Evans, R.E.; Hallingberg, B.; Hawkins, J.; Littlecott, H.J.; Long, S.J.; Murphy, S. School, Peer and Family Relationships and Adolescent Substance Use, Subjective Wellbeing and Mental Health Symptoms in Wales: A Cross Sectional Study. *Child Indic. Res.* **2018**, *11*, 1951–1965. [CrossRef] [PubMed]
24. Hassall, A.; Janse van Rensburg, E.; Trew, S.; Hawes, D.J.; Pasalich, D.S. Does Kinship vs. Foster Care Better Promote Connectedness? A Systematic Review and Meta-Analysis. *Clin. Child Fam. Psychol. Rev.* **2021**, *24*, 813–832. [CrossRef] [PubMed]
25. Refaeli, T.; Benbenishty, R.; Zeira, A. Predictors of life satisfaction among care leavers: A mixed-method longitudinal study. *Child. Youth Serv. Rev.* **2019**, *99*, 146–155. [CrossRef]
26. McWey, L.M.; Cui, M. More contact with biological parents predicts shorter length of time in out of home care and mental health of youth in the child welfare system. *Child. Youth Serv. Rev.* **2021**, *128*, 106164. [CrossRef]
27. Havlicek, J. Systematic review of birth parent–foster youth relationships before and after aging out of foster care. *Child. Youth Serv. Rev.* **2021**, *120*, 105643. [CrossRef]
28. Mabille, G.; Skoglund, J.; Thørnblad, R.; Holtan, A. Placement stability and satisfaction with foster home as predictors of life satisfaction for young adults raised in foster care. *Child Fam. Soc. Work* **2021**, *27*, 267–277. [CrossRef]
29. McCormick, A. Siblings in Foster Care: An Overview of Research, Policy, and Practice. *J. Public Child Welf.* **2010**, *4*, 198–218. [CrossRef]
30. Farruggia, S.P.; Greenberger, E.; Chen, C.; Heckhausen, J. Perceived Social Environment and Adolescents' Well-Being and Adjustment: Comparing a Foster Care Sample With a Matched Sample. *J. Youth Adolesc.* **2006**, *35*, 330. [CrossRef]
31. Evans, R.E. Survival, signaling, and security: Foster carers' and residential carers' accounts of self-harming practices among children and young people in care. *Qual. Health Res.* **2018**, *28*, 939–949. [CrossRef]
32. Salas Martínez, M.D.; Fuentes, M.J.; Bernedo, I.M.; García-Martín, M.A. Contact visits between foster children and their birth family: The views of foster children, foster parents and social workers. *Child Fam. Soc. Work* **2016**, *21*, 473–483. [CrossRef]
33. Samuels, G.M.; Pryce, J.M. "What doesn't kill you makes you stronger": Survivalist self-reliance as resilience and risk among young adults aging out of foster care. *Child. Youth Serv. Rev.* **2008**, *30*, 1198–1210. [CrossRef]
34. McGuire, A.; Gabrielli, J.; Hambrick, E.; Abel, M.R.; Guler, J.; Jackson, Y. Academic functioning of youth in foster care: The influence of unique sources of social support. *Child. Youth Serv. Rev.* **2021**, *121*, 105867. [CrossRef] [PubMed]

35. Curry, S.R.; Abrams, L.S. Housing and Social Support for Youth Aging Out of Foster Care: State of the Research Literature and Directions for Future Inquiry. *Child Adolesc. Soc. Work J.* **2015**, *32*, 143–153. [CrossRef]
36. Katz, C.C.; Geiger, J.M. We Need That Person That Doesn't Give up on Us. *Child Welf.* **2020**, *97*, 145–164.
37. Piel, M.H.; Geiger, J.M.; Julien-Chinn, F.J.; Lietz, C.A. An ecological systems approach to understanding social support in foster family resilience. *Child Fam. Soc. Work* **2017**, *22*, 1034–1043. [CrossRef]
38. Kessler, R.C.; Barker, P.R.; Colpe, L.J.; Epstein, J.F.; Gfroerer, J.C.; Hiripi, E.; Howes, M.J.; Normand, S.-L.T.; Manderscheid, R.W.; Walters, E.E.; et al. Screening for Serious Mental Illness in the General Population. *Arch. Gen. Psychiatry* **2003**, *60*, 184–189. [CrossRef]
39. Andrews, F.M.; Withey, S.B. Developing measures of perceived life quality: Results from several national surveys. In *Citation Classics from Social Indicators Research*; Springer: Berlin/Heidelberg, Germany, 2005; pp. 75–100.
40. Pouwelse, M.; Bolman, C.; Lodewijkx, H.; Spaa, M. Gender differences and social support: Mediators or moderators between peer victimization and depressive feelings? *Psychol. Sch.* **2011**, *48*, 800–814. [CrossRef]
41. McWey, L.M.; Acock, A.; Porter, B. The Impact of Continued Contact with Biological Parents upon the Mental Health of Children in Foster Care. *Child Youth Serv. Rev.* **2010**, *32*, 1338–1345. [CrossRef]
42. MacDonald, M. Supporting face-to-face birth family contact after adoption from care: Learning for trauma-sensitive practice. *Br. J. Soc. Work* **2021**, *51*, 1060–1079. [CrossRef]
43. Collings, S.; Wright, A.C. Two families joined by a child: The role of direct contact in fostering relationships between birth and carer families in permanent care. *J. Fam. Stud.* **2020**, 1–17. [CrossRef]
44. Daly, F.; Gilligan, R. *Lives in Foster Care: The Educational and Social Support Experiences of Young People Aged 13 to 14 Years in Long Term Foster Care*; University of Dublin Trinity College: Dublin, Ireland, 2005.
45. Dinisman, T.; Zeira, A.; Sulimani-Aidan, Y.; Benbenishty, R. The subjective well-being of young people aging out of care. *Child. Youth Serv. Rev.* **2013**, *35*, 1705–1711. [CrossRef]
46. Gradaílle, R.; Montserrat, C.; Ballester, L. Transition to adulthood from foster care in Spain: A biographical approach. *Child. Youth Serv. Rev.* **2018**, *89*, 54–61. [CrossRef]
47. Liu, M.; Sun, F.; Zhang, S.; Tan, S.; Anderson, S.; Guo, J. Youth leaving institutional care in China: Stress, coping mechanisms, problematic behaviors, and social support. *Child Adolesc. Soc. Work J.* **2020**, *39*, 59–69. [CrossRef]
48. Okpych, N.; Courtney, M. Longitudinal analyses of educational outcomes for youth transitioning out of care in the US: Trends and influential factors. *Oxf. Rev. Educ.* **2019**, *45*, 461–480. [CrossRef]
49. Blakeslee, J.E.; Best, J.I. Understanding support network capacity during the transition from foster care: Youth-identified barriers, facilitators, and enhancement strategies. *Child. Youth Serv. Rev.* **2019**, *96*, 220–230. [CrossRef] [PubMed]
50. HM Government. Children and Social Work Act 2017. Available online: https://www.legislation.gov.uk/ukpga/2017/16/contents/enacted. (accessed on 4 February 2022).
51. NICE. Looked-Afer Children and Young People. NICE Guideline [NG205]. Available online: www.nice.org.uk/guidance/ng205 (accessed on 4 February 2022).
52. Spencer, R.; Drew Alison, L.; Gowdy, G.; Horn John, P. "A positive guiding hand": A qualitative examination of youth-initiated mentoring and the promotion of interdependence among foster care youth. *Child. Youth Serv. Rev.* **2018**, *93*, 41–50. [CrossRef]
53. Izzo, C.V.; Smith, E.G.; Sellers, D.E.; Holden, M.J.; Nunno, M.A. Improving relationship quality in group care settings: The impact of implementing the CARE model. *Child. Youth Serv. Rev.* **2020**, *109*, 104623. [CrossRef]
54. Izzo, C.V.; Smith, E.G.; Holden, M.J.; Norton, C.I.; Nunno, M.A.; Sellers, D.E. Intervening at the Setting Level to Prevent Behavioral Incidents in Residential Child Care: Efficacy of the CARE Program Model. *Prev. Sci. Off. J. Soc. Prev. Res.* **2016**, *17*, 554–564. [CrossRef]

children

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Article

Individual and Contextual Risk and Protective Factors for Suicidal Thoughts and Behaviors among Black Adolescents with Arrest Histories

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Abstract: Black adolescents in the United States have experienced an increase in suicidal thoughts and behaviors (STBs). Since Black adolescents are overrepresented in the youth punishment system, more research is needed to investigate correlates of STBs for this population. The purpose of this paper is to explore and establish correlates of individual, family, and community risk and protective factors and their relationship to lifetime STBs in a national sample of Black youth with arrest histories. Guided by an intersectional eco-behavioral lens, we investigated individual, family and contextual risk and protective factors for STBs among a national sample of justice-involved Black youth aged 12–17 with a history of arrest (n = 513). We used logistic regression models to test risk and protective factors for STBs. Among the sample, 9.78% endorsed suicidal ideation, and 7.17% endorsed a previous suicide attempt. Further, gender (female) and depression severity were risk factors for STBs, while positive parenting and religiosity were protective factors for STBs. School engagement was associated with lower levels of suicidal ideation. The findings suggest suicide prevention and intervention efforts should identify developmentally salient risk and protective factors to reduce mental health burden associated with STBs and concurrent alleged law-breaking activity of Black youth.

Keywords: Black youth; suicide; positive parenting; arrests

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1. Introduction

Suicide continues to be a significant public health issue and is the second leading reason for death of adolescents and young adults in the United States [1]. A more recent trend includes the increasing rate of suicidal behaviors among Black American youth [2]. In addition, suicide has sweeping consequences, impacting parents, caregivers, family members and friends of those who attempt suicide or die by suicide [3]. The recent deaths of Black young adults, including public figures such as Chelsie Kryst, former Miss America winner, "Walking Dead" actor Moses Moseley, and Ian Alexander Jr. (son of Academy Award-winning actress Regina King) all died by suicide within weeks of each other [4]. This rise in suicide deaths among young Black people has been described as a first-time occurrence in history [4], and national trends indicate that although rates of suicidal ideations and plans are decreasing, rates of suicide attempts are increasing among Black adolescents [5–7]. Consequently, more research is needed to identify risk and protective factors and other correlates of STBs among Black youth and young adults [8]. Accordingly, the Congressional Black Caucus (CBC) established the Emergency Taskforce on Black Youth Suicide and Mental Health and called for research to identify risk and protective factors for STBs among Black youth in 2019 [9,10]. Moreover, the issue of suicide among Black

youth, including males, overrepresented in the youth punishment system (stereotypical terms such as "juvenile offenders" and "juvenile justice system" promote stigma, and some use terms like "hypercriminalization" to describe the manner by which boys have been stigmatized and labeled as deviant and criminal, so they have been deliberately changed to "youth" and "youth punishment system" throughout this paper [11–15]), including youth with criminal activity histories, is of even greater concern.

There are racial and ethnic differences in the immediate risk factors for suicide. Lee and Wong [16] conducted a study with data from the National Death Reporting System (NVDRS), and their findings suggest that white youth were more likely to have a mental health diagnosis and treatment before suicide compared to other racial and ethnic groups. They noted Black youth were less likely than other racial and ethnic groups to have had a prior suicide attempt before their death, and to have had prior suicide ideation when they were compared to white youth. Further, Black youth were more likely to have a recent difficulty with law enforcement, which contributed to their death compared to Native American youth. The concern becomes greater when the overrepresentation of Black youth in the punishment system is considered even as arrest rates for young people are at their lowest in 40 years, especially for boys [17]. Despite the presence of national estimates of suicidal behavior (e.g., ideation, attempt and death by suicide) among youth in the punishment system, it is imperative to focus on the role of STBs among this population. The purpose of this paper is to explore and establish correlates of individual, family, and community constructs and their relationship to lifetime suicidal thoughts and behaviors in a national sample of Black youth with histories of involvement in the youth punishment system.

1.1. Theoretical Framework—Intersectionality and Bio-Ecological Model

The context of suicide and its impact on developmental outcomes in the lives of Black adolescents is becoming a common phenomenon. Intersectionality theory focuses on how the experiences of marginalized people exist in multiple forms of interlocking aspects of social oppressions and the toll they exert on people of color. The stress of trauma creates cumulative disadvantage linked to barriers such as racism, sexism, and other forms of oppression. Black adolescents, especially girls and young women, experience multiple oppressions that reinforce each other creating new categories of suffering [18–20]. Their experiences are instead embedded within these identities that exist within multiple environments with varying positions of influence. We use intersectionality as an organizing framework to highlight the intersecting identities and the cumulative effect that impact the health and mental health of Black adolescents [21,22]. As a result, it is important to take an intersectional approach regarding suicide and its impact on both Black girls and boys involved with the youth punishment system [23]. We also used a bio-ecological model to frame this study to investigate suicide among Black youth [24] characterized by distinct and intersecting risk and protective factors that contribute to their suicide risk [25]. Specifically, we were interested in risk and protective factors at the individual level (depression severity, substance use), the family level (the role of parenting), and the community level (the role of school engagement, activities). This model is needed to inform both intervention and prevention efforts to halt the spiking rates of Black youth suicide.

1.2. Depression, Substance Misuse and Suicidal Behavior

STBs are more common among youth in the punishment system versus those in the general population [26], which is linked to risk factors that are common among this population [26]. Scholars have noted that more than two-thirds of youth in detention facilities have one or more mental and/or substance use disorders [27]. Similarly, youth on probation (in the community with adjudicated cases by a judge) who reported STBs were more likely to do so if they also reported mental health and substance misuse issues [28]. In studies of pre-adjudicated youth in the community (pre-adjudication occurs before a judge reviews and settles a delinquency case), the prevalence of suicide attempts in

the past month ranged between 1.4% to 2.9% [29–31], while lifetime attempts ranged from 9.9% to 13.2% [30–32]. Other studies have noted variation in factors associated with suicide for this population. Teplin et al. [27] noted that ACEs are also risk factors for suicidality among youth with a history of arrest [33–36]. One study with adolescents sent to the Florida Department of Juvenile Justice noted that reports of aggression and impulsivity explained the reason why multiple adverse childhood experiences (ACEs) that have been defined as the merging of "epidemiologic and neurobiological evidence of the effects of childhood trauma" (e.g., physical or sexual abuse, neglect, exposure to or witnessing violence, and parental or other family member who has been incarcerated) were associated with an increased risk for suicide attempts [37]. Further, depression and delinquency tend to be common and co-occurring symptoms among adolescents [38]. Although this co-occurrence predicts poorer mental health outcomes [39], it is uncertain if it also predicts worse delinquency outcomes. Moreover, empirical work highlights the severity of psychological distress of youth involved with the punishment system, but less is known about Black youth in the community and the influence of individual and contextual risk and protective factors and STBs.

1.3. Protective Factors for Suicidal Thoughts and Behavior

Scholars have identified religiosity as a protective factor for suicide, especially for adults and Black people [40,41]. Specifically, religiosity is a multifaceted concept like external activities (i.e., attending church services) and internal resources (i.e., spiritual or religious beliefs, coping and praying) [41,42]. High involvement in religious activities and spiritual well-being are both protective factors that may be particularly pertinent for Black youth and young adults, given that adolescence has been identified as a sensitive period for spiritual development [43–47]. Few studies explore how religion and spirituality relate to delinquency among Black youth, and even fewer studies explore the relationship to delinquency among these youth, and even fewer explore the correlation between religiosity and suicidality of justice-involved Black youth and young adults. Of the published studies, existing evidence suggests that religiosity and spirituality indeed play a protective role in the lives of Black youth against injurious behaviors, including delinquency and suicidality [48–50]. A meta-analysis of 62 studies by Kelly et al. [51] notes that religious involvement is inversely correlated with delinquent behaviors for both Black and white youth. Cole-Lewis et al. [52] echoed these findings, indicating that lower levels of suicidality were associated with organizational religiosity among Black and white youth experiencing interpersonal problems. Although religion and spirituality have been documented as protective factors against suicidality and delinquency for Black youth, it is worth noting that the rigid ideals held within faith communities have hindered some youth from seeking mental health services [53–56]. A focus group study of Black teens experiencing depression noted a lack of information about mental illness shared within religious institutions, as well as a heavy dependence upon prayer, a major cultural barrier to treatment engagement [55].

Many youth enjoy both religious and school activities based on the benefits from their participation, including those in their community. Specifically, youth who were able to take advantage of having an outlet such as community centers and activities such as sports or mentorship enjoy significant benefits [57]. For some youth, many problem behaviors could be associated with social challenges if youth mimic adverse behaviors they may witness at school or in the community if their delinquency is not curtailed [57,58], and this may also include suicidal behavior. In addition, when Black youth are removed from school and activities, they may view this as threatening to their identity, which could elicit adverse responses—such as victimizing behaviors as well as other belligerent acts—to the threat [59–61], while also increasing their contact with the youth punishment system.

Black families generally encourage stronger parent–child attachment [62,63], and parental support is even more important when youth are troubled or experiencing challenges and struggles [62,64]. Parents and caregivers' support provides a solid influence in

their children's lives [62,65]. Further, the health and mental health, and wellness of children and youth's parents and caregivers is an important factor in their overall functioning [62,66]. Specifically, when youth reported parental support such that they viewed the relationships with their parents as affirmative, Black youth endorsed variations in reporting suicidal ideations but not attempts [67]. Other studies of parent actions were positively associated with the protective effects for STBs among youth of color, including Black youth [68]. For example, in studies about parents and their child/ren's education, the results also suggest a protective role against STBs [69–71]. Consequently, there should be comprehensive efforts to include the active involvement of parents, caregivers and family members to bolster positive parent–child relationships as a buffer against the risk factors associated with STBs for youth in the punishment system.

2. Current Study Aims and Hypotheses

Intersectionality theory and the bio-ecological model of human development, along with prior research on Black youth and young adults with histories and STBs guide the study aims and corresponding hypotheses. We aimed to identify risk and protective factors spanning from individual (e.g., mental health diagnoses) to contextual (school-based or family-based) factors (See Figure 1). Thus, we examined individual risk factors including sex, socioeconomic status, depression and substance misuse, individual protective factors (i.e., religiosity), and family (i.e., positive parenting), school (i.e., school engagement), and community levels (youth involvement in activities). We examined all risk and protective factors for three related outcomes: lifetime suicidal thoughts, lifetime suicidal plans, and lifetime suicide attempts. It was important to differentiate between these three outcomes, due to the consensus in the suicidology literature that the etiology and associated risk and protective factors may be different for STBs.

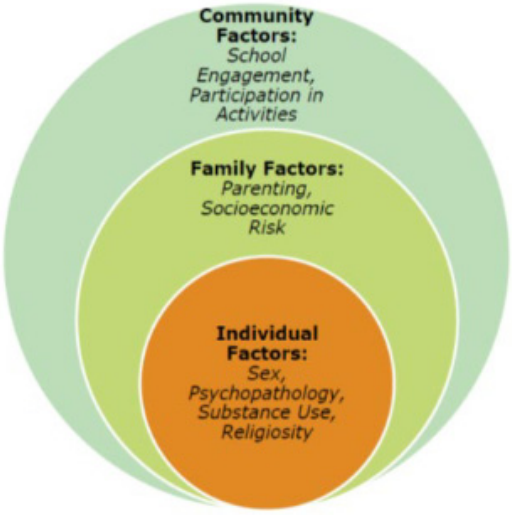

Figure 1. An Intersectional Bio-ecological Model of Black Youth Suicidal Thoughts and Behaviors (STBs).

Among the individual factors, we hypothesized that girls would have higher rates of STBs, and that depression severity and substance misuse would also be associated with higher rates of STBs. Among the contextual factors, we hypothesized that school engagement, religiosity, participation in extracurricular activities, and positive parenting would all lessen the odds of STBs.

3. Materials and Methods

3.1. Participants

Participants were Black youth aged 12–17 who participated in the National Survey on Drug Use and Health (NSDUH) study from years 2014 to 2019 and who had prior history

of arrest (n = 513). Of these youth, there were 31.38% (n = 161) who identified as female. The majority of participants (80.5%) had a family income less than $49,999 per year, and 59.5% of participants' families participated in one or more government assistance program. In terms of poverty level, 51.1% of youth were from families who were below the federal poverty level, 26.5% of youth were from families with income up to two times the federal poverty threshold, and 22.4% of youth were from families who exceeded at least two times the federal poverty threshold.

3.2. Procedures

The present study is a secondary data analysis using NSDUH data from years 2014–2019 (for full NSDUH study procedures, see [72]). NSDUH is sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) and is conducted each year to collect nationally representative data on drug use, mental health, and health behaviors in the general (i.e., non-institutionalized) population aged 12 and older. Individuals are selected for inclusion in the NSDUH based on a multistage stratified sampling design in all 50 states. Interviews are conducted by trained research staff using a handheld computer to record interview results. Parental consent and youth assent was collected before researchers interviewed individuals aged 12 to 17. An ACASI method was used to administer sensitive questions (i.e., about drug use).

3.3. Measures

Lifetime Suicidal Thoughts and Behaviors. Interviewers administered a youth depression module, via ACASI software (ACASI (audio computer-assisted self-administered interview) equipment technique allows standardization of the way in which questions are asked and who is asking them, and it eliminates interviewer interpretation of responses. The perceived anonymity of this type of interview may make respondents feel more at ease in reporting behaviors that are socially undesirable and less likely to embellish responses for socially desirable behaviors [73]), to all individuals between the ages of 12 to 17. Participants first responded to questions about depressive symptoms, including if they ever experienced a period lasting longer than a few days when most of the day they felt "sad, empty or depressed", or were "very discouraged about how things were going in [their] life", or had "lost interest in most things [they] usually enjoy like work hobbies, and personal relationships". Following, youth were asked: "Did you ever think about committing suicide?"; "Did you make a suicide plan?"; and "Did you make a suicide attempt?" Suicidal ideation, planning, and attempts were coded as dichotomous variables with "0" indicating no presence of the symptom or behavior and "1" indicating presence of the symptom or behavior.

Depression Severity. Within the aforementioned depression module, youth were also asked to assess how much their depressive symptoms in the last 12 months interfered with four life domains: chores at home, school or work, family relationships, and their social life. For instance, one item was "The symptoms have disrupted your school work", in which youth were instructed to rate this statement from "0" (not at all) to "10" (extremely). The NSDUH study team then recoded this variable from "1" (none; original category 0) to "5" (very severe; original category 10). This item was derived from the Sheehan Disability Scale (SDS; [74]). The maximum level of severity of impairment in any domain was used to assess depression severity in the present study.

Substance Use. Past year substance misuse was measured with an index that summed the presence of alcohol use, marijuana use, and cigarette use in the past month. Participants were asked the frequency that they used alcohol, marijuana, and smoked cigarettes in the past month. Responses were recoded so any frequency was given a score of "1" and no use was given a score of "0". A sum score was then calculated that ranged from zero to three.

Religiosity. Youth religiosity was measured with a mean score of three items about religious participation and beliefs (α = 0.77). Items were "My religious beliefs are very important to me", "My religious beliefs influence my decisions", and "It is important that

my friends share my religious beliefs", with response options ranging from "1" (strongly disagree) to "4" (strongly agree).

Positive Parenting. Positive parenting was measured with a mean score of two items about parents' supportive verbal behaviors ($\alpha = 0.85$). Items included "During the past 12 months, how often did your parents let you know when you'd done a good job?" and "During the past 12 months, how often did your parents tell you they were proud of you for something you had done?" with response options ranging from "1" (always) to "4" (never). Both items were reverse scored so that higher scores represented more positive parenting, and then an average was calculated.

School Engagement. We assessed school engagement using a mean score on four items ($\alpha = 0.78$). Items assessed how youth felt overall about going to school (1 = "you liked going to school a lot" to 4 = "you hated going to school"), how often they felt their schoolwork was meaningful (1 = "always" to 4 = "never"), how important they thought the things they learned in school were (1 = "very important" to 4 = "very unimportant"), and how interested they thought their classes were (1 = "very interesting" to 4 = "very boring"). All items assessed youths' feelings in the past 12 months. Items were reverse scored before averaging so that higher scores reflected higher levels of positive school engagement.

Activities. An index of extracurricular activities was created that reflected youths' participation in school-based, community-based, faith-based, and other activities. Adolescents were asked four questions about the frequency of their involvement in school-based activities (i.e., "During the past 12 months, in how many different kinds of school-based activities, such as team sports, cheerleading, choir, band, student government, or clubs, have you participated?"), community-based activities ("During the past 12 months, in how many different kinds of community-based activities, such as volunteer activities, sports, clubs, or groups have you participated?"), faith-based activities ("During the past 12 months, in how many different kinds of church or faith-based activities, such as clubs, youth groups, Saturday or Sunday school, prayer groups, youth trips, service or volunteer activities have you participated?") and other activities ("During the past 12 months, in how many different kinds of other activities, such as dance lessons, piano lessons, karate lessons, or horseback riding lessons, have you participated?"). Response options ranged from "0" (none) to "3" (three or more). A sum score was calculated from the four items.

Covariates. Covariates included sex, coded as 1 = male and 2 = female, and SES risk, which was an index comprised of income (given a score of "1" if family income was below $20,000), poverty (given a score of "1" if participants' family fell at or below the federal poverty threshold), and receipt of government assistance (given a score of "1" if participants' family received assistance from government programs such as food stamps or cash assistance. The three items were summed so that a higher score represented greater socioeconomic risk.

3.4. Data Analysis

All analyses accounted for the complex survey structure of the NSDUH by using the Complex Samples utility in SPSS version 26, which allowed us to perform all analyses with the appropriate design/nesting variables and weights. First, univariate analysis wasconducted to investigate the associations connecting each of our hypothesized risk and protective factors, separately, with suicidal thoughts and behaviors. Following this, we tested three adjusted logistic regression models (i.e., in a multivariate analysis) that were run separately for each outcome (suicidal ideation, suicide planning, and suicide attempts). The adjusted logistic regression allowed us to determine the influence of each risk and protective factor while adjusting (i.e., controlling) for the other predictor variables in our model.

Missing data ranged from 0 to 19.1% depending on the study variable. Unadjusted and adjusted logistic regressions were modeled using the sample with complete data (i.e., listwise deletion).

4. Results

4.1. Preliminary Analyses

Descriptive statistics were first examined for all study variables (See Table 1). Among Black youth with a history of arrest, the weighted frequency for suicidal ideation was 9.78%, for suicide planning it was 6.48%, and for suicide attempts it was 7.17%.

Table 1. Descriptive statistics for study variables.

Predictor	Mean	Standard Error	Range	Unweighted *N*
Socioeconomic risk	1.50	0.07	0–3	415
Depression severity	0.48	0.07	0–5	513
Substance use	0.48	0.04	0–3	513
Positive parenting	3.25	0.05	1–4	505
School engagement	3.00	0.04	1–4	465
Activities	4.47	0.19	0–12	503
Religiosity	2.67	0.05	1–4	498

4.2. Univariate Logistic Regression Models

See Table 2 for full results. Youth sex was associated with suicidal thoughts and behaviors such that boys were significantly less likely to exhibit ideation (OR = 0.10, $p < 0.001$), planning (OR = 0.12, $p < 0.001$) and attempts (OR = 0.10, $p < 0.001$) compared to females.

Depression severity was also associated with a significant increase in odds for suicidal ideation (OR = 2.57, $p < 0.001$), suicidal planning (OR = 2.36, $p < 0.001$), and suicide attempts (OR = 2.38, $p < 0.001$), as expected.

In terms of protective factors, higher levels of positive parenting were associated with lower levels of suicidal ideation (OR = 0.61, $p < 0.01$), planning (OR = 0.54, $p < 0.001$), and attempts (OR = 0.51, $p < 0.001$). Additionally, higher levels of school engagement were associated with lower levels of suicidal ideation (OR = 0.47, $p < 0.01$), planning (OR = 0.61, $p < 0.05$), and attempts (OR = 0.42, $p < 0.01$).

4.3. Multivariate Logistic Regression Models

See Table 3 for full results. The multivariate model included all independent variables entered simultaneously to test the associations with suicidal ideation, sex and depression severity remained the only significant factors (respectively: OR = 0.17, $p < 0.01$; OR = 2.51, $p < 0.001$). Sex, depression severity, and positive parenting were all significant predictors of suicide planning (respectively: OR = 0.30, $p < 0.05$; OR = 2.33, $p < 0.001$; OR = 0.52, $p < 0.05$). Finally, sex and depression severity were significantly associated with suicide attempts (respectively: OR = 0.85, $p < 0.01$; OR = 2.17, $p < 0.001$).

Table 2. Unadjusted logistic regression for STBs.

	Suicidal Ideation					Suicide Plan					Suicide Attempt				
Predictor	*N*	*B*	*SE B*	OR	95% CI OR	*N*	*B*	*SE B*	OR	95% CI OR	*N*	*B*	*SE B*	OR	95% CI OR
Demographics															
Sex (male)	495	−2.35	0.43	0.10 ***	[0.10, 0.04]	495	−2.14	0.47	0.12 ***	[0.05, 0.30]	494	−2.32	0.49	0.10 ***	[0.04, 0.26]
SES Risk	495	0.49	0.38	1.63	[0.75, 2.54]	495	0.05	0.48	1.06	[0.40, 2.76]	494	0.37	0.49	1.45	[0.55, 3.84]
Individual risk factors															
Depression severity	495	0.94	0.12	2.57 ***	[2.04, 3.24]	495	0.86	0.12	2.36 ***	[1.85, 3.02]	494	0.87	0.12	2.38 ***	[1.87, 3.03]
Substance use	495	−0.13	0.17	0.88	[0.63, 0.12]	495	−0.04	0.22	0.96	[0.62, 1.48]	494	−0.10	0.23	0.91	[0.58, 1.43]
Protective factors															
Positive parenting	493	−0.50	0.16	0.61 **	[0.44, 0.84]	493	−0.62	0.16	0.54 ***	[0.39, 0.74]	492	−0.68	0.18	0.51 ***	[0.36, 0.72]
School engagement	454	−0.76	0.23	0.47 **	[0.30, 0.74]	454	−0.49	0.20	0.61 *	[0.41, 0.92]	453	−0.86	0.27	0.42 **	[0.24, 0.73]
Activities	494	0.01	0.06	1.01	[0.89, 1.14]	494	0.04	0.07	1.04	[0.91, 1.18]	493	0.03	0.08	1.03	[0.88, 1.20]
Religiosity	488	0.00	0.19	1.00	[0.68, 1.46]	488	−0.06	0.21	0.94	[0.61, 1.44]	487	−0.01	0.23	0.99	[0.62, 1.57]

Note: OR = Odds Ratio (exponentiated *B*). Interactions were tested in separate models. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table 3. Adjusted logistic regression for STBs.

	Suicidal Ideation (*n* = 449)				Suicide Plan (*n* = 449)				Suicide Attempt (*n* = 448)			
Predictor	*B*	*SE B*	OR	95% CI OR	*B*	*SE B*	OR	95% CI OR	*B*	*SE B*	OR	95% CI OR
Demographics												
Sex (male)	−1.75	0.53	0.17 **	[0.06, 0.50]	−1.19	0.51	0.30 *	[0.11, 0.84]	−1.38	0.47	0.25 **	[0.10, 0.65]
SES Risk	0.39	0.66	1.48	[0.40, 5.52]	−0.54	0.62	0.59	[0.17, 2.05]	0.07	0.75	1.08	[0.24, 4.88]
Individual risk factors												
Depression severity	0.92	0.16	2.51 ***	[1.82, 3.45]	0.85	0.17	2.33 ***	[1.65, 3.30]	0.77	0.16	2.17 ***	[1.58, 2.97]
Substance use	−0.56	0.44	0.57	[0.24, 1.38]	−0.22	0.32	0.80	[0.42, 1.54]	−0.47	0.36	0.63	[0.30, 1.30]
Protective factors												
Positive parenting	−0.34	0.31	0.71	[0.38, 1.33]	−0.66	0.29	0.52 *	[0.29, 0.93]	−0.55	0.33	0.58	[0.30, 1.13]
School engagement	−0.34	0.32	0.71	[0.38, 1.35]	0.49	0.46	1.63	[0.65, 4.13]	−0.26	0.34	0.77	[0.39, 1.52]
Activities	0.13	0.08	1.13	[0.97, 1.32]	0.14	0.09	1.15	[0.96, 1.39]	0.14	0.09	1.15	[0.95, 1.37]
Religiosity	0.52	0.28	1.68	[0.97, 2.92]	0.40	0.33	1.50	[0.78, 2.88]	0.37	0.42	1.45	[0.62, 3.36]

Note: OR = Odds Ratio (exponentiated *B*). * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

5. Discussion

The connection between suicide and involvement with the youth punishment system has been established, especially for adolescents who are detained or incarcerated [27,60,75]. Youth and criminal punishment system interventions often focus on the individual versus contextual and/or macro level factors associated with their behavioral outcomes. Further, there tends to be a primary focus on risk versus protective factors. Although risk factors are amendable, there remains the opportunity to consider protective factors (i.e., strengths and assets) that could be leveraged or promoted. The current study was guided by intersectionality theory [18–20] and the bio-ecological model to investigate lifetime STBs among Black adolescents with histories of arrest [24,25,32]. Results showed that both risk and protective factors across their bio-ecological context matter in the etiology of STBs. Specifically, the multivariate logistic regression indicated significant associations between sex, depression severity, and positive parenting with youths' likelihood of STBs. Sex and depression severity were both significantly associated with suicidal ideation, planning and attempts, as expected. Further, even in the context of all other risk and protective factors, positive parenting emerged as a protective factor that decreased the odds of reporting suicidal planning for the adolescents in this study, which is consistent with other study findings [76–78]. This finding is important, as it highlights the significant role that families can play with regard to suicide prevention for this population.

Our study sample of general population youth ages 12–17 years included 9.78% who reported suicidal ideation, 6.48% who reported suicidal planning, and 7.17% who reported a suicide attempt over their lifetime. When we compare them to other populations of adolescents, the findings are mixed. For example, the National Comorbidity Survey noted suicidal behavior over the lifetime of youth ages 13–18 reported ideation (12.1%) and attempts (4.1%), respectively [26]. The rates are higher when the timeframe is restricted to the past year. The Youth Risk Behavior Survey (YRBS) included youth ages 15–19 years who reported higher rates of ideations (15.8%) and attempts (7.8%) in the past year [26,79]. In another study using YRBS data, 11.1% of youth reported suicidal planning in the past year among families living in a Mid-Atlantic public housing development [28,79]. However, for adolescents ages 12–18 years on probation in a Midwestern jurisdiction, 5.79% reported STBs (suicidal thoughts or behaviors, including suicidal ideation: attempts or thoughts to harm self) at the point they were assessed (in 2014, the agency that oversees the Courts utilized the Youth Assessment Screening Instrument (YASI) as the primary risk assessment and implemented it statewide; it comprised risk and protective indicators in 10 domains (Legal History, Family, School, Community and Peers, Alcohol and Drugs, Mental Health, Aggression, Attitudes, Skills, and Employment and Free Time) with 72 questions) [76]. A higher prevalence of suicidal ideation and planning is likely in the present study, since the Mid-Atlantic study only asked about suicidal planning in the last 12 months, whereas in the present study, it asked about suicidal behavior at some point in their lifetime. Further, the study in the Midwestern jurisdiction only asked about suicidal ideations and attempts versus planning. Additionally, of note, the national studies reported higher rates of ideation also comprised older populations than those in our study sample suggesting that STBs could be an issue that exacerbates over time. The findings in this study on the prevalence of ideation, planning as well as attempts, provides more detailed information about the STBs for Black youth in the general population with arrest histories. One could argue that Black adolescents in this study who did not report positive parenting (parental support) may experience more difficulties based on the convergence of their multiple and marginalized identities, including their involvement with and overrepresentation in the youth punishment system [62,75,80,81], especially since they reported such high rates of suicide attempts.

At the individual level of the bio-ecological model, we investigated sex, depression severity, and substance use as risk factors for youth's lifetime STBs. Study findings were consistent with existing research about suicide risk [28,82,83]. Specifically, youth sex was

significantly associated with STBs as boys were less likely to exhibit them than girls, which is consistent with national statistics regarding gender differences [84].

At the family level, we also found participants who reported protective factors, including higher levels of positive parenting, and were less likely to report suicidal ideations and attempts. This is consistent with other empirical work that underscore the power of parents' roles in the lives of their children based on their levels of support and the quality of the relationships [63–65,67,85]. Previous studies with Black adolescents suggest noted variation in reporting ideations but not attempts, especially if they reported parental support, i.e., when they viewed that their parent relationships were positive [67]. From an intersectionality lens, it could be that Black adolescents may not want to be perceived in a manner that may lead them to be further marginalized. Specifically, they may feel comfortable indicating that they have thought about suicide, but some may not want their parents to know that they have actually made an attempt. One way to think of this is that Black adolescents may present both a public face (to their parents and other family members) and a private face (to those who may share their sentiments and feelings), to reduce the impact of a further marginalized identity.

We noted strong positive associations at the community level, where Black adolescents who reported higher levels of school engagement also reported lower levels of suicidal ideation. This is significant because many individuals involved in the youth punishment system often face the stigma of arrest. Moreover, if the arrest occurs in school and the result is detainment or incarceration, they face grave scrutiny and they experience stereotypes and stigmatization when they return to school [11,12,15,80]. This reflects the multiple oppressions associated with what intersectionality defines as the stress of trauma that operates like a triple jeopardy of barriers (racism, sexism) for Black adolescents making them more vulnerable to STBs. For example, youth in the punishment system are more likely to have increased educational, health (physical, mental, sexual), social, legal, and economic challenges than their non-system involved counterparts [86]. In addition, youths' mental health problems are positively linked to the depth of their involvement with the punishment system for Black youth [87]. Overall, youth engaged in the youth punishment system demonstrate that experiences of adversity are related to poorer functioning over time [88] and greater mental health and substance-related needs [89].

5.1. Limitations

Overall, these results contribute to the knowledge about an understudied subpopulation, namely, Black youth with a history of arrest. Our work informs efforts to determine the best ways to modify the individual, family and contextual factors to prevent STBs in this population. Despite this, there are limitations to this study. The first is that it is a secondary dataset, limiting the ability to answer research questions beyond those posed by the original researchers. Related to this limitation, other relevant contextual risk factors could not be included due to lack of data. In particular, there is a potential for ACEs and racism, racial trauma and/or cultural resilience to be associated with STBs in this population. Similarly, the dataset does not provide information on the timing of STBs, only if they have ever occurred. Another limitation includes the single item used for youth depression severity in this study. Ideally, a more precise depression measure, including a clinical cut-off would have been more useful to identify symptomology among Black youth. As such, findings should be interpreted with caution. Finally, we explored direct relationships, but not interrelated independent variables or mediating pathways.

Future research should consider including further data collection focused specifically on a wide range of culturally relevant risk and protective factors for STBs, more mixed methods studies to provide contextual information about the risk and protective factor assessments, and listening to youth's voices in the creation, implementation and testing of targeted interventions. Conducting mixed methods studies that incorporate both parents and caregivers' views on positive parenting would be useful to develop training programs to enhance their skills in this area. In addition, future studies on suicide prevention and

interventions with this population need to be prioritized by classifying specific risk and protective factors as well as age-related mechanisms related to Black youth suicidal behavior [90]. To implement effective suicide prevention programming, understanding targets for intervention is necessary [90], and such programming would benefit from incorporating parents to investigate treatment modalities specific to youth involved with the punishment system, e.g., healing-centered engagement, mindfulness, and multisystemic therapy. There is a need for further research using nonrandomized as well as randomized samples (with control groups) to more confidently establish the efficacy of these interventions. Moreover, developing training on positive parenting skills, to strengthen the bond between adolescents and their parents and caregivers is needed to lessen the odds of STBs.

5.2. Practice and Policy Implications

This study provides important current information for policymakers and practitioners. For policymakers, the study highlights the significance of school engagement as a protective factor for STBs, an activity often impacted by policies affecting school staffing and funding. Additionally, depression was a significant predictor of STBs for Black youth, and it was previously stated that white youth are more likely to have been treated for depression prior to a suicide attempt than youth of color, and specifically Black youth are less likely than their peers of other races and ethnicities to have expressed suicidal ideation or had a prior suicide attempt before dying by suicide [16]. As such, it is prudent to direct policy to increase and improve mental health services that reach Black youth and identify depression (including culturally-tailored measures) and other suicidal risk factors before any attempts, especially considering that for Black youth, their first attempt is often lethal.

For practitioners, the study highlights the importance of engaging parents and the parent–child relationship in treatment of depression and reported STBs, as sex, depression severity, and positive parenting were the only significant protective factors for suicide attempts remaining after the multivariate logistic regression. Additionally, practitioners should shift focus to reaching Black youth and identifying depression warning signs early so that Black youth, like white youth, can receive mental health treatment before expressing STBs, thus potentially preventing them all together.

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References

1. Thompson, M.P.; Swartout, K. Epidemiology of Suicide Attempts among Youth Transitioning to Adulthood. *J. Youth Adolesc.* **2017**, *47*, 807–817. [CrossRef] [PubMed]
2. Lindsey, M.A.; Sheftall, A.H.; Xiao, Y.; Joe, S. Trends of Suicidal Behaviors Among High School Students in the United States: 1991–2017. *Pediatrics* **2019**, *144*, e20191187. [CrossRef] [PubMed]
3. Feigelman, W.; Cerel, J.; McIntosh, J.L.; Brent, D.; Gutin, N. Suicide exposures and bereavement among American adults: Evidence from the 2016 General Social Survey. *J. Affect. Disord.* **2018**, *227*, 1–6. [CrossRef] [PubMed]
4. Yahoo News. Young Black People Dying by Suicide on the Rise for the First Time in History. 2022. Available online: https://news.yahoo.com/young-black-people-dying-suicide-231731428.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuYmluZy5jb20v&guce_referrer_sig=AQAAAKBgWdIKezyJgb0sQIYxfD5FBLwOs83s85SF3bzmD4STUCy6uAZjhUhuYxtMCh1WzkcapNKV-Zt1nRmGWOGcRnWZ4j-Y-3lPnJ7Hv6oJuBmcZBnd7lsxZZlD5-7OJCfjeS0h8Pk2xb_wpHA93ZQAsS55Wi1AbBZM5BRwL4MKHtMb (accessed on 28 March 2022).
5. Duprey, E.B.; Quinn, C.R.; Handley, E.D.; Ross, A.J.; Mitchell, M.; Cerulli, C. Risk and Protective Factors for Suicidal Ideation, Plans, and Attempts among Black Youth. *Soc. Psychiatry Psychiatr. Epidemiol.* **2022**, submitted.
6. Santos, P.H.D.; Neves, S.M.; Sant'Anna, D.O.; Oliveira, C.H.; Carvalho, H.D. The analytic hierarchy process supporting decision making for sustainable development: An overview of applications. *J. Clean. Prod.* **2019**, *212*, 119–138. [CrossRef]
7. Romanelli, M.; Sheftall, A.H.; Irsheid, S.B.; Lindsey, M.A.; Grogan, T.M. Factors Associated with Distinct Patterns of Suicidal Thoughts, Suicide Plans, and Suicide Attempts Among US Adolescents. *Prev. Sci.* **2021**, *23*, 73–84. [CrossRef]
8. Coleman, B.; Emergency Taskforce on Black Youth Suicide and Mental Health. In Ring the Alarm: The Crisis of Black Youth Suicide in America. Available online: https://theactionalliance.org/resource/ring-alarm-crisis-black-youth-suicide-america (accessed on 1 March 2022).
9. Ginther, D.K.; Schaffer, W.T.; Schnell, J.; Masimore, B.; Liu, F.; Haak, L.L.; Kington, R. Race, Ethnicity, and NIH Research Awards. *Science* **2011**, *333*, 1015–1019. [CrossRef]
10. National Institutes of Health. Research Topic Contributes to Persistent Gap in NIH Research Grants to Black Scientists. 2019. Available online: https://www.nih.gov/news-events/news-releases/research-topic-contributes-persistent-gap-nih-research-grants-black-scientists (accessed on 9 February 2019).
11. Beneby, D.R.; Glenn, J.W.; Taylor, L.C. An Assessment of the Hypercriminalization Thesis: Evidence from Juvenile Justice and Human Service Practitioners in the USA. *J. Appl. Youth Stud.* **2020**, *3*, 167–180. [CrossRef]
12. Walton, G.M.; Okonofua, J.A.; Remington Cunningham, K.; Hurst, D.; Pinedo, A.; Weitz, E.; Eberhardt, J.L. Lifting the bar: A relationship-orienting intervention reduces recidivism among children reentering school from juvenile detention. *Psychol. Sci.* **2021**, *32*, 1747–1767. [CrossRef]
13. Cole, H.; Cohen, R. Breaking down barriers: A case study of juvenile justice personnel perspectives on school reentry. *J. Correct. Educ.* **2013**, *64*, 13–35.
14. Kubek, J.B.; Tindall-Biggins, C.; Reed, K.; Carr, L.E.; Fenning, P.A. A systematic literature review of school reentry practices among youth impacted by juvenile justice. *Child. Youth Serv. Rev.* **2020**, *110*, 104773. [CrossRef]
15. Dorsey, M.S.; King, D.; Howard-Howell, T.; Dyson, Y. Culturally Responsive Sexual Health Interventions for Black Adolescent Females in the United States: A Systematic Review of the Literature, 2010-2020. *Child. Youth Serv. Rev.* **2022**, *21*, 106480. [CrossRef]
16. Lee, C.S.; Wong, Y.J. Racial/ethnic and gender differences in the antecedents of youth suicide. *Cult. Divers. Ethn. Minor. Psychol.* **2020**, *26*, 532–543. [CrossRef] [PubMed]
17. Puzzanchera, C. Juvenile Arrests, 2019. U.S. Department of Justice, Office of Justice Programs. 2021. Available online: https://ojjdp.ojp.gov/publications/juvenile-arrests-2019.pdf (accessed on 1 March 2022).
18. Aguilar, D.D. Tracing the Roots of Intersectionality. MR Online. Available online: https://mronline.org/2012/04/12/aguilar120412-html/ (accessed on 1 November 2021).
19. Taylor, K.Y. Black feminism and the Combahee River collective. *Mon. Rev.-Indep. Soc. Mag.* **2019**, *70*, 20–28. [CrossRef]
20. Waller, B.Y.; Harris, J.; Quinn, C.R. Caught in the Crossroad: An Intersectional Examination of African American Women Intimate Partner Violence Survivors' Help Seeking. *Trauma Violence Abus.* **2021**, *99*, 1303. [CrossRef] [PubMed]
21. Burgess-Proctor, A. Intersections of Race, Class, Gender, and Crime. *Fem. Criminol.* **2006**, *1*, 27–47. [CrossRef]
22. Owen, B.; Wells, J.; Pollock, J. *Search of Safety: Confronting Inequality in Women's Imprisonment*; Univ of California Press: Oak-land, CA, USA, 2017; Volume 3.
23. Williams-Butler, A.; Liu, F.-Y.; Howell, T.; Menon, S.E.; Quinn, C.R. Racialized Gender Differences in Mental Health Service Use, Adverse Childhood Experiences, and Recidivism Among Justice-Involved African American Youth. *Race Soc. Probl.* **2022**, *9*, 1–14. [CrossRef]
24. Bronfenbrenner, U.; Morris, P. The bioecological model of human development. In *Handbook of Child Psychology*, 6th ed.; Theoretical Models of Human, Development; Damon, W., Lerner, R.M., Eds.; John Wile: New York, NY, USA, 2006; Volume 1, pp. 793–828.
25. Opara, I.; Assan, M.A.; Pierre, K.; Gunn, I.J.F.; Metzger, I.; Hamilton, J.; Arugu, E. Suicide among Black Children: An Integrated Model of the Interpersonal-Psychological Theory of Suicide and Intersectionality Theory for Researchers and Clinicians. *J. Black Stud.* **2020**, *51*, 611–631. [CrossRef]
26. Stokes, M.L.; McCoy, K.P.; Abram, K.M.; Byck, G.R.; Teplin, L.A. Suicidal ideation and behavior in youth in the juvenile justice system: A review of the literature. *J. Correct. Health Care* **2015**, *21*, 222–242. [CrossRef]

27. Teplin, L.A.; Abram, K.M.; McClelland, G.M.; Dulcan, M.K.; Mericle, A.A. Psychiatric Disorders in Youth in Juvenile Detention. *Arch. Gen. Psychiatry* **2002**, *59*, 1133–1143. [CrossRef]
28. Quinn, C.R.; Liu, C.; Kothari, C.; Cerulli, C.; Thurston, S.W. Psychological Distress Among Youth Probationers: Using Social Determinants of Health to Assess Suicidal Thoughts and Behaviors. *Adolesc. Psychiatry* **2018**, *7*, 89–104. [CrossRef] [PubMed]
29. Penn, J.V.; Thomas, C. Practice Parameter for the Assessment and Treatment of Youth in Juvenile Detention and Correctional Facilities. *J. Am. Acad. Child Adolesc. Psychiatry* **2005**, *44*, 1085–1098. [CrossRef] [PubMed]
30. Wasserman, G.A.; McReynolds, L.S. Suicide Risk at Juvenile Justice Intake. *Suicide Life-Threat. Behav.* **2006**, *36*, 239–249. [CrossRef] [PubMed]
31. Wasserman, G.A.; McReynolds, L.S.; Schwalbe, C.S.; Keating, J.M.; Jones, S.A. Psychiatric Disorder, Comorbidity, and Suicidal Behavior in Juvenile Justice Youth. *Crim. Justice Behav.* **2010**, *37*, 1361–1376. [CrossRef]
32. Nock, M.K.; Green, J.; Hwang, I.; McLaughlin, K.; Sampson, N.A.; Zaslavsky, A.M.; Kessler, R.C. Prevalence, Correlates, and Treatment of Lifetime Suicidal Behavior Among Adolescents. *JAMA Psychiatry* **2013**, *70*, 300–310. [CrossRef]
33. Ford, J.D.; Chapman, J.; Mack, J.M.; Pearson, G. Pathways from Traumatic Child Victimization to Delinquency: Implications for Juvenile and Permanency Court Proceedings and Decisions. *Juv. Fam. Court J.* **2006**, *57*, 13–26. [CrossRef]
34. Ford, J.D.; Hartman, J.K.; Hawke, J.; Chapman, J.F. Traumatic victimization, posttraumatic stress disorder, suicidal ideation, and substance abuse risk among juvenile justice-involved youth. *J. Child Adolesc. Trauma* **2008**, *1*, 75–92. [CrossRef]
35. Anda, R.F.; Felitti, V.J.; Bremner, J.D.; Walker, J.D.; Whitfield, C.; Perry, B.D.; Dube, S.R.; Giles, W.H. The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epi-demiology. *Eur. Arch. Psychiatry Clin. Neurosci.* **2006**, *256*, 174–186. [CrossRef]
36. Felitti, V.J.; Anda, R.F.; Nordenberg, D.; Spitz, A.M.; Edwards, V.; Koss, M.P.; Marks, J.S. Relationship of child-hood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACES) study. *Am. J. Prev. Med.* **1998**, *14*, 245–258. [CrossRef]
37. Perez, N.M.; Jennings, W.G.; Piquero, A.R.; Baglivio, M.T. Adverse Childhood Experiences and Suicide Attempts: The Mediating Influence of Personality Development and Problem Behaviors. *J. Youth Adolesc.* **2016**, *45*, 1527–1545. [CrossRef]
38. Capaldi, D.M.; Kim, H.K.; Richards, C.S.; O'Hara, M.W. Comorbidity of depression and conduct disorder. In *The Oxford Handbook of Depression and Comorbidity*; Oxford University Press: Oxford, UK, 2014; pp. 186–199.
39. Reinke, W.M.; Eddy, J.M.; Dishion, T.J.; Reid, J.B. Joint Trajectories of Symptoms of Disruptive Behavior Problems and Depressive Symptoms During Early Adolescence and Adjustment Problems During Emerging Adulthood. *J. Abnorm. Child Psychol.* **2012**, *40*, 1123–1136. [CrossRef] [PubMed]
40. Chatters, L.M.; Taylor, R.J.; Lincoln, K.D.; Nguyen, A.; Joe, S. Church-Based Social Support and Suicidality Among African Americans and Black Caribbeans. *Arch. Suicide Res.* **2011**, *15*, 337–353. [CrossRef] [PubMed]
41. Kim, Y.J.; Moon, S.S.; Kim, Y.K.; Boyas, J. Protective factors of suicide: Religiosity and parental monitoring. *Child. Youth Serv. Rev.* **2020**, *114*, 105073. [CrossRef]
42. Sheldrake, P. *Spirituality: A Brief History*, 2nd ed.; Wiley-Blackwell: West Sussex, UK, 2013.
43. Graves, K.N.; Kaslow, N.J.; Frabutt, J.M. A culturally-informed approach to trauma, suicidal behavior, and overt aggression in African American adolescents. *Aggress. Violent Behav.* **2010**, *15*, 36–41. [CrossRef]
44. Goldston, D.B.; Molock, S.D.; Whitbeck, L.B.; Murakami, J.L.; Zayas, L.H.; Hall, G.C.N. Cultural considerations in adolescent suicide prevention and psychosocial treatment. *Am. Psychol.* **2008**, *63*, 14–31. [CrossRef]
45. Good, M.; Willoughby, T. Adolescence as a Sensitive Period for Spiritual Development. *Child Dev. Perspect.* **2008**, *2*, 32–37. [CrossRef]
46. Hill, P.C.; Pargament, K.I. Advances in the conceptualization and measurement of religion and spirituality: Implications for physical and mental health research. *Am. Psychol.* **2003**, *58*, 64–74. [CrossRef]
47. Miller, W.R.; Thoresen, C.E. Spirituality, religion, and health: An emerging research field. *Am. Psychol.* **2003**, *58*, 24–35. [CrossRef]
48. Adedoyin, A.C.; Salter, S.N. Mainstreaming black churches into suicide prevention among adolescents: A literature review. *Ethn. Inequalities Health Soc. Care* **2013**, *6*, 43–53. [CrossRef]
49. Greening, L.; Ma, L.S. Religiosity, Attributional Style, and Social Support as Psychosocial Buffers for African American and White Adolescents' Perceived Risk for Suicide. *Suicide Life-Threat. Behav.* **2002**, *32*, 404–417. [CrossRef]
50. Rew, L.; Wong, Y.J. A systematic review of associations among religiosity/spirituality and adolescent health attitudes and behaviors. *J. Adolesc. Health* **2006**, *38*, 433–442. [CrossRef] [PubMed]
51. Kelly, P.E.; Polanin, J.; Jang, S.J.; Johnson, B.R. Religion, Delinquency, and Drug Use. *Crim. Justice Rev.* **2015**, *40*, 505–523. [CrossRef]
52. Cole-Lewis, Y.C.; Gipson, P.Y.; Opperman, K.J.; Arango, A.; King, C.A. Protective Role of Religious Involvement Against Depression and Suicidal Ideation Among Youth with Interpersonal Problems. *J. Relig. Health* **2016**, *55*, 1172–1188. [CrossRef] [PubMed]
53. Planey, A.M.; Smith, S.M.; Moore, S.; Walker, T.D. Barriers and facilitators to mental health help-seeking among African American youth and their families: A systematic review study. *Child. Youth Serv. Rev.* **2019**, *101*, 190–200. [CrossRef]
54. Samuel, I.A. Utilization of Mental Health Services Among African-American Male Adolescents Released from Juvenile Detention: Examining Reasons for Within-Group Disparities in Help-Seeking Behaviors. *Infant Ment. Health J.* **2014**, *32*, 33–43. [CrossRef]

55. Breland-Noble, A.M.; Board, A.P.A.A.; Bell, C.C.; Burriss, A. "Mama just won't accept this": Adult Perspectives on Engaging Depressed African American Teens in Clinical Research and Treatment. *J. Clin. Psychol. Med. Settings* **2011**, *18*, 225–234. [CrossRef]
56. Breland-Noble, A.M.; Wong, M.J.; Childers, T.; Hankerson, S.; Sotomayor, J. Spirituality and religious coping in African-American youth with depressive illness. *Ment. Health Relig. Cult.* **2015**, *18*, 330–341. [CrossRef]
57. Porch, L. A Study of Juvenile Delinquency and a Re-entry Program Back into the Community. Ph.D. Dissertation, DePaul University, Chicago, IL, USA, 2021.
58. Lipsey, M.W.; Derzon, J.H. Predictors of violent or serious delinquency in adolescence and early adulthood: A synthesis of longitudinal research. In *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions*; Loeber, R., Farrington, D.P., Eds.; Sage Publications, Inc.: New York, NY, USA, 1998; pp. 86–105. Available online: https://www.ojp.gov/ncjrs/virtual-library/abstracts/predictorsviolent- (accessed on 29 October 2014).
59. Basch, C.E. Aggression and Violence and the Achievement Gap Among Urban Minority Youth. *J. Sch. Health* **2011**, *81*, 619–625. [CrossRef]
60. Henderson, D.X.; Walker, L.; Barnes, R.R.; Lunsford, A.; Edwards, C.; Clark, C. A Framework for Race-Related Trauma in the Public Education System and Implications on Health for Black Youth. *J. Sch. Health* **2019**, *89*, 926–933. [CrossRef]
61. Peguero, A.A. Violence, schools, and dropping out: Racial and ethnic disparities in the educational consequence of student victimization. *J. Interpers. Violence* **2011**, *26*, 3753–3772. [CrossRef]
62. Quinn, C.R.; Boyd, D.T.; Kim, B.-K.E.; Menon, S.E.; Logan-Greene, P.; Asemota, E.; Diclemente, R.J.; Voisin, D. The Influence of Familial and Peer Social Support on Post-Traumatic Stress Disorder Among Black Girls in Juvenile Correctional Facilities. *Crim. Justice Behav.* **2021**, *48*, 867–883. [CrossRef]
63. Arbona, C.; Power, T.G. Parental attachment, self-esteem, and antisocial behaviors among African American, Eu-ropean American, and Mexican American adolescents. *J. Couns. Psychol.* **2003**, *50*, 40–51. [CrossRef]
64. Kiser, L.J.; Medoff, D.R.; Black, M.M. The role of family processes in childhood traumatic stress reactions for youths living in urban poverty. *Traumatology* **2010**, *16*, 33–42. [CrossRef] [PubMed]
65. Miller-Graff, L.E. Frameworks for childhood PTSD treatment in conflict-affected settings. *Peace Confl. J. Peace Psychol.* **2016**, *22*, 262–271. [CrossRef]
66. Hagan, M.J.; Browne, D.T.; Sulik, M.; Ippen, C.G.; Bush, N.; Lieberman, A.F. Parent and Child Trauma Symptoms During Child-Parent Psychotherapy: A Prospective Cohort Study of Dyadic Change. *J. Trauma. Stress* **2017**, *30*, 690–697. [CrossRef]
67. Boyd, D.T.; Quinn, C.R.; Jones, K.V.; Beer, O.W.J. Suicidal ideations and Attempts Within the Family Context: The Role of Parent Support, Bonding, and Peer Experiences with Suicidal Behaviors. *J. Racial Ethn. Health Disparities* **2021**, *7*, 1–10. [CrossRef]
68. Marraccini, M.E.; Griffin, D.; O'Neill, J.C.; Martinez, R.R.; Chin, A.J.; Toole, E.N.; Grapin, S.L.; Naser, S.C. School Risk and Protective Factors of Suicide: A Cultural Model of Suicide Risk and Protective Factors in Schools. *Sch. Psychol. Rev.* **2021**, *5*, 1–24. [CrossRef]
69. Piña-Watson, B.; Castillo, L.G.; Rodriguez, K.M.; Ray, S. Familial factors related to suicidal ideation of Latina ado-lescents in the United States. *Arch. Suicide Res.* **2014**, *18*, 213–220. [CrossRef]
70. Wang, C.; La Salle, T.; Wu, C.; Do, K.A.; Sullivan, K.E. School climate and parental involvement buffer the risk of peer victimization on suicidal thoughts and behaviors among Asian American middle school students. *Asian Am. J. Psychol.* **2018**, *9*, 296–307. [CrossRef]
71. Wang, Q.; Ren, L.; Wang, W.; Xu, W.; Wang, Y. The relationship between post-traumatic stress disorder and sui-cidal ideation among shidu parents: The role of stigma and social support. *BMC Psychiatry* **2019**, *19*, 1–9. [CrossRef]
72. United States Department of Health and Human Services (USDHHS). National Survey of Drug Use and Health (NSDUH) Releases [Data Fi006Ce]. 2019. Available online: https://www.samhsa.gov/data/release/2019-national-survey-drug-use-and-health-nsduh-releases (accessed on 11 December 2020).
73. Kissinger, P.; Rice, J.; Farley, T.; Trim, S.; Jewitt, K.; Margavio, V.; Martin, D.H. Application of Computer-assisted Interviews to Sexual Behavior Research. *Am. J. Epidemiol.* **1999**, *149*, 950–954. [CrossRef] [PubMed]
74. Leon, A.C.; Olfson, M.; Portera, L.; Farber, L.; Sheehan, D.V. Assessing Psychiatric Impairment in Primary Care with the Sheehan Disability Scale. *Int. J. Psychiatry Med.* **1997**, *27*, 93–105. [CrossRef] [PubMed]
75. Kemp, K.; Poindexter, B.; Ng, M.Y.; Correia, V.; Marshall, B.D.; Koinis-Mitchell, D.; Tolou-Shams, M. Early Identification of Suicide Risk Factors Among Justice-Involved Youth. *Crim. Justice Behav.* **2021**, *49*, 730–744. [CrossRef]
76. Quinn, C.R.; Beer, O.W.J.; Boyd, D.; Tirmazi, T.; Nebbitt, V.; Joe, S. An Assessment of the Role of Parental Incar-ceration and Substance Misuse in Suicidal Planning of African American Youth and Young Adults. *J. Racial Ethn. Health Disparities* **2021**, *5*, 1–13. [CrossRef]
77. Infante, D.A. Corporal punishment of children: A communication-theory perspective. In *Corporal Punishment of Children in Theoretical Perspective*; Donnelly, M., Straus, M.A., Eds.; Oxford University Press: Oxford, UK, 2005; pp. 183–198.
78. McLoyd, V.C.; Kaplan, R.; Hardaway, C.R.; Wood, D. Does endorsement of physical discipline matter? Assessing moderating influences on the maternal and child psychological correlates of physical discipline in African American families. *J. Fam. Psychol.* **2007**, *21*, 165–175. [CrossRef]
79. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance System—United States, 2011. *Morb. Mortal. Wkly. Rep.* **2012**, *61*, 1–162.

80. Quinn, C.R.; Boyd, D.; Beaujolais, B.; Hughley, A.; Mitchell, M.; DiClemente, R.J.; Voisin, D.R. Perceptions of sexual risk and HIV/STI prevention among Black adolescent girls in a detention center: An investigation of the role of parents and peers. *J. Racial Ethn. Health Disparities* 2022, in press.
81. Pope, C.; Lovell, R.; Hsia, H. *Disproportionate Minority Confinement: A Review of the Research Literature from 1989 through 2001*; Office of Juvenile Justice and Delinquency Prevention: Washington, DC, USA, 2002.
82. Domalanta, D.D.; Risser, W.L.; Roberts, R.E.; Risser, J.M.H. Prevalence of depression and other psychiatric dis-orders among incarcerated youths. *J. Am. Acad. Child Adolesc. Psychiatry* **2003**, *42*, 477–484. [CrossRef]
83. Shaffer, D.; Gould, M.; Hicks, R.C. Worsening suicide rate in black teenagers. *Am. J. Psychiatry* **1994**, *151*, 1810–1812. [CrossRef]
84. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance—United States, 2019. *MMWR Suppl.* **2020**, *69*, 47. [CrossRef]
85. Boyd, D.T.; Jones, K.V.; Quinn, C.R.; Gale, A.; Williams, E.-D.G.; Lateef, H. The Mental Health of Black Youth Affected by Community Violence: Family and School Context as Pathways to Resilience. *Children* **2022**, *9*, 259. [CrossRef] [PubMed]
86. Quinn, C.R.; Duron, J.; Simmons-Horton, S.; Boyd, D.T. Exploring structural and systemic barriers affecting system-involved youth and families: Implications for policy and practice. In *Child and Family Serving Systems: A Compendium of Policy and Practice*; Denby, R.W., Ingram, C., Eds.; Child Welfare League of America: Washington, DC, USA, 2017.
87. Espinosa, E.M.; Sorensen, J.R.; Lopez, M.A. Youth Pathways to Placement: The Influence of Gender, Mental Health Need and Trauma on Confinement in the Juvenile Justice System. *J. Youth Adolesc.* **2013**, *42*, 1824–1836. [CrossRef] [PubMed]
88. Duron, J.F.; Williams-Butler, A.; Liu, F.Y.Y.; Nesi, D.; Fay, K.P.; Kim, B.K.E. The influence of adverse childhood experiences (ACEs) on the functional impairment of justice-involved adolescents: A comparison of baseline to follow-up re-ports of adversity. *Youth Violence Juv. Justice* **2021**, *19*, 384–401. [CrossRef]
89. Duron, J.F.; Williams-Butler, A.; Mattson, P.; Boxer, P. Trauma exposure and mental health needs among adoles-cents involved with the juvenile justice system. *J. Interpers. Violence* **2021**, *88*, 62605211016358.
90. Sheftall, A.H.; Vakil, F.; Ruch, D.A.; Boyd, R.C.; Lindsey, M.A.; Bridge, J.A. Black Youth Suicide: Investigation of Current Trends and Precipitating Circumstances. *J. Am. Acad. Child Adolesc. Psychiatry* **2021**, *8*, 21. [CrossRef]

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Supportive Neighborhoods, Family Resilience and Flourishing in Childhood and Adolescence

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Abstract: Flourishing is linked with health and well-being in childhood and adulthood. This study applied a promotive factors model to examine how neighborhood assets might benefit child and adolescent flourishing by promoting family resilience. Using data from the combined 2018 and 2019 National Survey of Children's Health, structural equation models tested direct and indirect relationships between neighborhood physical environment, neighborhood social cohesion, family resilience, and flourishing among 18,396 children and 24,817 adolescents. After controlling for multiple covariates that may influence flourishing, the models supported that higher levels of neighborhood social cohesion were directly associated with higher levels of flourishing adolescents, and indirectly by positive associations with family resilience for both children and adolescents. No indirect effects between neighborhood physical environments and flourishing were supported by the data for either children or adolescents. However, neighborhood physical environments were positively associated with adolescent flourishing. Understanding social environmental factors that strengthen and enhance child and adolescent flourishing are critical toward designing prevention, intervention, and policy efforts that can build on the existing strengths of families and their communities.

Keywords: child flourishing; adolescent flourishing; neighborhood social cohesion; physical neighborhood environments; family resilience

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1. Introduction

Over the past two decades, the prevalence of child and adolescents mental health problems continues to increase [1,2]. Identifying and understanding the social environmental factors that promote mental health and flourishing is a necessary and pragmatic step toward assuaging this growing public health concern. Because child and adolescents psychological well-being is significantly linked to family environment [3], and families are nested in communities, it is imperative to understand how the family context and community context can help promote child and family well-being.

Research on child and family resilience traditionally centers on understanding if the presence of protective and promotive factors divert or attenuate (i.e. moderate) the effects of risk(s) on health and developmental outcomes [4–6]. Scholarship in this arena often utilize moderation analyses to examine the interplay between intra-personal, inter-personal, and community promotive and protective factors that can be incorporated into designing or enhancing prevention, intervention, and policy efforts to promote optimal outcomes. While these compensatory and protective models of risk and resilience help us understand how children and adolescents yield favorable outcomes by factors that attenuate adversity [5], the direct impact of promotive factors are not often the focus. It is plausible that promotive factors can reach beyond those who are at-risk for undesirable outcomes. Whereas protective factors mitigate or buffer the effects of a risk on an outcome [5], promotive factors can promote favorable outcomes regardless of the level (or presence) of risk; thus, their benefits may extend to a broader population.

1.1. Child and Adolescent Flourishing

Flourishing can be understood as the "combination of feeling good and functioning effectively," [6], (p.837) and is recognized as an indicator of mental well-being in diverse child and adolescent populations [7]. More recently, general flourishing has been described as the amalgamation of positive emotion and a sense of self-achievement and accomplishment [8,9]. Characteristics of flourishing in children and adolescents include fostering positive relationships, participating in familial, social, and academic endeavors, exhibiting a sense of purpose, motivation, and self-fulfillment, as well as exhibiting positive strategies of coping and resiliency through adversity [10–12]. Conversely, the inability to develop or exercise these qualities is linked with adverse outcomes that may persist into adulthood. For example, poor coping skills, impulsivity, and the lack of motivation and interest in learning throughout childhood and adolescence may impede academic progress or success [11].

Flourishing is related to favorable health and well-being outcomes among children and adolescents. Previous research suggests that flourishing fosters the formation of healthy relationships and positive outcomes in mental, emotional, and physical health throughout adulthood [11,13]. Additionally, flourishing is inversely associated with depression, anxiety, panic attacks, physical pain, chronic disease, and suicidality [13–15]. Further, longitudinal research demonstrates that health and well-being are significantly better among those with high levels of flourishing [15] and predicts functioning and longevity in adults [13].

1.2. Family Resilience and Child and Adolescent Flourishing

Family resilience refers to the process that families undergo to cope with or adapt to demands and stress [16,17]. Because families play a pivotal role in child and adolescent health, development, and well-being [18,19], family resilience can promote flourishing in multiple ways. For example, family resilience can promote supportive relationships. Positive and supportive parent–child relationships are salient predictors of healthy child and adolescent outcomes [20].

In addition to directly supporting healthy development and well-being, supportive family relationships can also foster favorable outcomes such as flourishing by facilitating resilience among children and adolescents who face adversity [3]. For example, child psychopathology risks are significantly reduced among children whose mothers experienced depression if fathers engage in sensitive parenting practices characterized by displaying affection, support, resourcefulness, and encouragement [21]. Further, because family relationships can extend beyond parent–child relationships, supportive sibling relationships have also been found to buffer the effects of problematic relationships between parents on children. When exposed to intra-parental conflict, children who have positive relationships with their siblings demonstrate better adjustment than those without supportive relationships [22].

Family resilience can promote child and adolescent flourishing by buffering the impact of adversity. For example, a qualitative study of low-income, rural mothers reported strategies mothers would implement so that they could provide their children with a birthday celebration despite the economic challenges they faced [23]. Families can also mitigate the effect of adversity on their children by implementing strategies to help children and adolescents adjust to significant changes. In the global COVID-19 pandemic, children experienced major life disruptions due to quarantines. One study found that parents' development of new home routines and emotional support were associated with lower levels of child internalizing and externalizing symptoms [24].

Family resilience can additionally influence flourishing among children and adolescents by modeling healthy behaviors. According to Social Learning Theory [25], children are constantly observing their parents and, over time, they can emulate the behaviors they observed. By witnessing how their parents and other family members respond to stressors and demands in healthy (e.g., seeking advice, relying on social support), children may also develop these skills, preparing them to respond to future adversity.

1.3. Neighborhood Physical and Social Environments and Child and Adolescent Flourishing

Neighborhood physical and social environments are vital contextual factors for the health, well-being, and development of children and adolescents [26,27] and can promote flourishing in various ways. Social cohesion, which refers to residents' sense of belonging, safety, and acceptance within their community [28], plays a significant role in residents' health, safety, and well-being. The idea of "group belonging" can benefit children and adolescents by encouraging them to explore and develop their identity and learn prosocial behaviors. Parents can also benefit from group belonging because of increased social support and the community's monitoring of children and their activities [28–30].

Socially cohesive neighborhoods can directly protect and promote child and adolescent health, development, and flourishing. Social cohesion is associated with reduced stress and increased self-esteem, personal mastery, interpersonal autonomy, and mental health among adolescents regardless of urban or rural environmental classification [28]. Moreover, higher levels of neighborhood collective efficacy are inversely linked to adolescent depression and anxiety after controlling for socioeconomic status, household income, and sex of the child [31].

Socially cohesive neighborhoods can additionally foster safe environments for children and adolescents by activating community safeguarding among residents. Several studies indicate that adolescents who live and stay in violent, disadvantaged neighborhoods exhibited decreased levels of self-efficacy and increased levels of psychological distress compared to their counterparts who live or relocate to advantaged, less violent neighborhoods [26]. Equivalently, continued exposure to challenging environmental conditions (poverty, crime, violence, abuse, etc.) encumber developmental factors central to flourishing in adolescence [32].

Neighborhood social cohesion could also indirectly influence well-being and flourishing among children and adolescents by enabling family resilience. When parents have close ties with other neighborhood residents, they may draw on them for social and emotional support. Additionally, social cohesion can enhance parental health and well-being by facilitating health behaviors such as exercise [33]. These beneficial effects from social cohesion may then pass through parents to advantage their children.

Living in challenging environmental conditions is associated with lower levels of health and well-being among children and adolescents in the neighborhood [34,35]. However, the neighborhood built environment also plays a crucial role in adolescents development [36]. The relationships among the physical environment, social environment, and child and adolescent health and development are complex. The presence of positive physical neighborhood features like parks, roads, sidewalks, and recreation centers can promote child and adolescent health and well-being [37]. These positive physical features can affect adolescents directly by increasing physical activity, lowering stress, and reducing exposure to negative stimuli [38,39]. In addition, they can indirectly bolster child and adolescent well-being by creating opportunities for social interactions and social support for both children and families [39,40]. By providing areas for families to gather, physical neighborhood environments can facilitate relationship building among parents, thus providing parents with opportunities to develop additional social support and social capital.

A published systematic literature review found that while studies examining the relationship between the neighborhood built-environment and psychological processes are scarce, yet they are an important area of research [41]. Further, few child development studies have focused on the built environment [39], which could provide salient insights as to how these elements promote child and family resilience. Despite the risk of adverse outcomes associated with living in disadvantaged areas [34,35], children and adolescents living in such environments are more likely to demonstrate coping skills, a concept related to resilience [42,43]. Further, additional indirect paths may activate family processes, which could also bolster child and adolescent well-being.

1.4. Current Study

We aim to expand the study of community and family promotive factors in child and adolescent well-being by focusing on how they might work directly and indirectly to foster flourishing among children and adolescents. Much of the previous resilience research in child and adolescent well-being tends to focus on the roles of protective and promotive factors as averting or attenuating an adverse outcome in the presence of risk(s). Conversely, less attention has focused on promotive models to understand how assets and resources can work together and lead to favorable child and adolescent outcomes regardless of risk.

Few studies examining relationships between child and adolescent mental health and well-being have examined social and built environments together. The majority of studies reviewed tended to focus on problems or adverse outcomes instead of positive mental health outcomes, processes, or functioning [41]. Further, prior research has traditionally focused on children or adolescents instead of both groups. The current study aims to address some of these limitations by applying a promotive factors approach to understanding how social and built neighborhood environments can support familial resilience and, consequently, flourishing in children and adolescents.

Two complementary frameworks guided our study. First, the social-ecological model [44] posits that child and adolescent outcomes are dynamically shaped by surrounding social and structural environments at the inter-personal level, community level, and societal level. This model guided us to examine if community-level promotive factors, neighborhood social cohesion and a favorable neighborhood environment, were directly associated with child and adolescent flourishing and indirectly associated through an inter-personal level promotive factor, family resilience. In order to examine the potential of these possible direct and indirect promotive effects, we applied a promotive factors model [45], which focus on the main effects between promotive factors and outcomes, as opposed to interactional effects. To the best of our knowledge, no prior study has applied a promotive factors model to understand how community and family promotive factors may and directly and indirectly relate to child and adolescent flourishing through relationships with family resilience among a nationally representative sample of US children and adolescents.

2. Materials and Methods

2.1. Participants and Procedure

Data were obtained from the publicly available combined 2018–2019 National Survey of Children's Health (NSCH), a nationally representative survey of US children administered by the US Census Bureau and maintained by the Data Resource Center for Child and Adolescent Health (DRC) and the Child and Adolescent Health Measurement Initiative (CAMHI) [46]. In efforts to increase sample size, CAMHI combined the NSCH surveys from 2018 and 2019 [46]. Child development, physical and mental health, well-being, and social experiences and characteristics of children 0–17 years old questions were answered by the focal child's parent or caretaker via online and paper surveys. Data collection for the 2018 NSCH occurred between June 2018 to January 2019, and data for the 2019 NSCH was collected between June 2019 and January 2020. The Child and Adolescent Health Measurement Initiative (CAMHI) combined the 2018 NSCH and 2019 NSCH into a single data file to enhance statistical power for researchers conducting analyses of the data because some variables had smaller sample sizes. The combined data file resulted in a total sample size of 59,963 (see [46] for detailed methodological information about the combined 2018–2019 NSCH data set). We selected an analytic subset of 43,213 children between the ages of 6–17 years old from the 2018–2019 combined NSCH data as these cases contained the ages of children and adolescents that were the focus of our study. We separated the analytic sample of children into two groups, (1) children between 6–11 years old and (2) adolescents aged 12–17 years old and ran the model separately for each group in the event relationships might differ by developmental timing (i.e., childhood vs. adolescence).

2.2. Measures

2.2.1. Independent Variables

Neighborhood Social Cohesion. Neighborhood social cohesion characterizes residents' perceptions of close-knit social ties and a sense of safety within their community. It was assessed as a latent variable using four items that described the neighborhood's social environment, including perceptions of neighbors helping one another, watching out for children, the safety of children, and knowing where to go for help. Participants rated these items using a four-point scale (definitely disagree to definitely agree). The reliability coefficient for this scale demonstrated acceptable internal consistency for both the 6–11 and 12–17-year-old groups (alpha = 0.814 and 0.82, respectively).

Physical Neighborhood Environment. The latent variable neighborhood physical environment aimed to capture the conditions of the physical neighborhood environment and was assessed by four binary items that characterized physical environmental conditions (presence of walkways, parks/playgrounds, recreation centers, and libraries). Participants reported yes or no on the presence of these conditions; reliability analyses yielded acceptable internal consistency for both 6–11- and 12–17-year-olds (alpha = 0.734 and 0.749 respectively).

2.2.2. Mediating Variable

Family resilience was assessed as a latent variable using four indicators, each measured on a four-point scale (none of the time, some of the time, most of the time, and all of the time). Participants were asked to rate their perceptions about the degree to which their family talked together, worked together when facing a problem, drew on strengths, and stayed hopeful. Reliability analyses demonstrate good internal consistency for the 6–11 and 12–17-year-old groups (alpha = 0.891 and 0.895, respectively).

2.2.3. Dependent Variable

A latent variable for child and adolescent flourishing was assessed using three items that gauged participants' perceptions of their child's interest in and curiosity in learning new things, ability to complete the tasks they start, and ability to remain calm when challenged using a four-point scale (never to always). These items were developed for the NSCH to measure flourishing for children 6–17 years old [46]. Items were coded so that higher scores indicated greater flourishing. Scale reliability demonstrated acceptable thresholds for both children aged 6–11 and 12–17 years (alpha = 0.724 and 0.749, respectively).

2.2.4. Covariates

We controlled for several social determinants of health and health conditions that may affect child and adolescent flourishing. Economic hardship assessed participants' perceptions of the frequency they could not afford family needs and was collapsed into two categories (never or rarely, and very often or somewhat often). Public assistance was measured as a binary variable using the receipt of at least one form of government assistance (Medicaid, food stamps, reduced lunches, subsidized housing). Child global health was measured on a five-point scale (excellent to poor) and was collapsed into three categories due to the small variability observed in the original five categories (by NSCH study personnel). Biological sex was measured as binary using males as the reference group. Race/ethnicity was measured using dummy variables for Black, Hispanic, Asian, and Multiracial, with White as the reference group. Chronic health condition was measured as a binary variable in which the child was reported to have at least one chronic health condition or none.

2.3. Analytic Strategy

We employed structural equation modeling (SEM) to test the hypotheses such that neighborhood social cohesion and neighborhood physical environment directly predicted child and adolescent flourishing, and indirectly via family resilience. Covariates were

regressed on the dependent variable to control for the possible effects of the children and adolescents' biological sex, health, race/ethnicity, and family economic disadvantage and hardship. Identical mediation models were performed for each age group separately to examine whether relationships differed by age group. We used the maximum likelihood estimator (MLR) because it is a robust modal estimation method that can deal with non-normality and missing data. Measurement and structural models were evaluated using recommended thresholds for model fit non-significant chi-square of model fit (χ^2_{df}) [47,48], root mean square of error of approximation (RMSEA) < 0.06 [49], comparative fit index (CFI) and Tucker-Lewis Index (TLI) < 0.90 [48], and standardized root mean square residual (SRMR) < 0.08 [49]. Survey weights were applied to the analyses to account for the complex design of the 2018–2019 combined NSCH data. All SEM procedures were performed using Mplus version 8.3 [50].

3. Results

3.1. Descriptive Statistics

Weighted descriptive statistics of the 6–11-year-old child samples demonstrated similar characteristics as those of the 12–17-year-old adolescent samples. Both samples for children and adolescents were nearly evenly divided between biological sex with males comprising 51.0% of the child sample, and 51.2% of the adolescent sample. The majority of children in both the child and adolescent samples identified as White, non-Hispanic (49.8% for both groups), and the majority resided with married parents (70.4% and 67.8%, respectively). Further, most of the children (58.6%) and adolescents (59.7%) resided in homes that were 200% of the US Federal Poverty Rate (sample characteristics are provided in Table 1).

Table 1. Sample characteristics.

Characteristic	Children 6–11 Years Old		Adolescents 12–17 Years Old	
	Unweighted Frequency	Weighted Percent	Unweighted Frequency	Weighted Percent
Age (years)				
6–8	8484	48.3%		
9–11	9912	51.7%		
12–14			11,124	50.4%
15–17			13,693	49.6%
Child's biological sex				
Male	9571	51.0%	12,956	51.2%
Female	8825	49.0%	11,861	48.8%
Race/ethnicity				
White (non-Hispanic)	12,514	49.8%	17,501	49.8%
Black (non-Hispanic)	1251	13.9%	1639	14.0%
Asian (non-Hispanic)	870	4.7%	1218	4.6%
Multiple race (non-Hispanic)	1493	6.4%	1630	5.2%
Hispanic (any race)	2268	25.2%	2829	26.3%
Child has at least one chronic health condition	8545	43.0%	12,978	47.3%
FPL of household				
0–99%	2278	19.6%	2675	18.9%
100–199%	3140	21.8%	3917	21.4%
200% or greater	12,978	58.6%	18,225	59.7%
Primary parent/caretaker				
Employed	13,758	69.4%	19,127	70.8%
Married	13,640	70.4%	18,367	67.8%
Divorced/separated	1968	10.4%	3499	15.6%
Never married	1085	8.1%	1011	6.4%
Child's health is excellent or very good	16,912	90.1%	22,189	87.4%
Family economic hardship frequency				
Very or somewhat often	2466	16.2%	3252	16.0%
Never or rarely	15,616	83.8%	21,130	84.0%

3.2. Measurement Models

Measurement models for the latent variables were assessed via confirmatory factor analysis (CFA). Initial model fit indices for both the 6–11-year-old and 12–17-year-old groups did not meet recommended thresholds for several model fit indices (Table 2). Thus, we made minor model re-specifications which resulted in correlating item measurement errors between two indicators for each age group's CFA; re-specifications were informed by evaluating the model modification indices and theory as to what may have contributed to the model misfit among these items (e.g., similar wording between items). Factor loadings for items assessing latent variables for child and adolescent models were statistically significant and ranged within acceptable thresholds (Table 3).

Table 2. Measurement models.

Model	Fit Index	Child Model	Adolescent Model
Initial	χ^2 df	χ^2_{84} = 989.702 **	χ^2_{84} = 839.470 **
	RMSEA	0.024 (0.023–0.026)	0.019 (0.018–0.020)
	CFI	0.951	0.963
	TLI	0.938	0.9954
	SRMR	0.029	0.079
Modified	χ^2 df	χ^2_{82} = 488.463 **	χ^2_{83} = 557.513 **
	RMSEA	0.016 (0.015–0.018)	0.015 (0.014–0.016)
	CFI	0.978	0.977
	TLI	0.972	0.971
	SRMR	0.024	0.032

** $p < 0.01$; df = degrees of freedom; RMSEA = root mean square of error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis Index; SRMR = standardized root mean square residual.

Table 3. Standardized factor loadings (λ) for the final measurement models.

Latent Variable	Item	Child Model λ	Adolescent Model λ
Neighborhood Cohesion			
	People in neighborhood help each other out	0.838 **	0.856 **
	People In neighborhood watch out for other's children	0.822 **	0.835 **
	Child is safe in neighborhood	0.610 **	0.601 **
	Know where to go for help in neighborhood	0.660 **	0.627 **
Physical Environment			
	Neighborhood has sidewalks or walking paths	0.483 **	0.538 **
	Neighborhood has park or playground	0.679 **	0.720 **
	Neighborhood has recreation center	0.636 **	0.655 **
	Neighborhood has library or bookmobile	0.687 **	0.655 **
Family Resilience			
	Family talks together when facing problems	0.773 **	0.881 **
	Family works together when facing problems	0.824 **	0.942 **
	Family draws on strengths when facing problems	0.890 **	0.786 **
	Family stays hopeful when facing problems	0.703 **	0.667 **
Flourishing			
	Child shows interest and curiosity in learning new things	0.584 **	0.632 **
	Child works to finish the tasks they start	0.820 **	0.798 **
	Child stays calm and in control when faced with a challenge	0.685 **	0.690 **

Items have been paraphrased for purposes of brevity. ** $p < 0.01$.

3.3. Structural Models

3.3.1. Children

The structural model for children aged 6–11 years yielded adequate model fit with exception to the model chi-square (Table 4), which can be sensitive to a large sample size. The model chi-square can be sensitive to large sample sizes [51], thus, multiple indices were used to assess fit. Statistically significant structural paths indicated that the physical environment was not a significant predictor of either family resilience or child flourishing (Figure 1). Conversely, neighborhood social cohesion is directly associated with child flourishing (β = 0.093, $p < 0.01$). The indirect relationship between neighborhood social cohesion and child flourishing, in which neighborhood social cohesion is associated with family resilience (β = 0.270, $p < 0.01$) and family resilience associated with child flourishing (β = 0.293, $p < 0.01$), was also statistically significant. Significant covariates included inverse relationships between child flourishing and economic hardship (β = −0.070, $p < 0.01$), public assistance (β = −0.047, $p < 0.01$), and having at least one chronic health condition (β = −0.237, $p < 0.01$). On the contrary, higher levels of global health (β = 0.220, $p < 0.01$), male biological sex (β = 0.104, $p < 0.01$), and identifying as Black, Asian, or Hispanic (β = 0.111, 0.069, 0.058, $p < 0.05$, respectively) were associated with higher levels of flourishing.

Table 4. Structural model fit statistics.

Fit Index	Child Model	Adolescent Model
χ^2_{df}	χ^2_{208} = 1526.939 **	χ^2_{209} = 1781.037 **
RMSEA	0.019 (0.018–0.020)	0.018 (0.017–0.019)
CFI	0.939	0.930
TLI	0.929	0.920
SRMR	0.054	0.060

** $p < 0.01$; df = degrees of freedom; RMSEA = root mean square of error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis Index; SRMR = standardized root mean square residual.

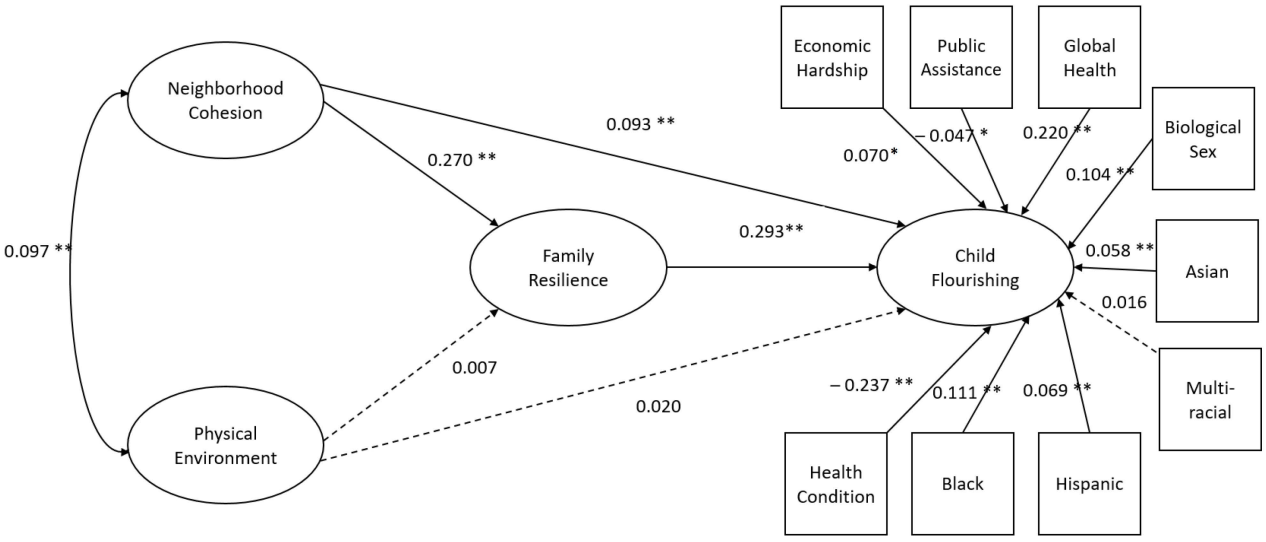

Figure 1. Child structural model. All model coefficients are standardized. * $p < 0.05$, ** $p < 0.01$. Solid lines represent statistically significant relationships. Dashed lines represent non-statistically significant relationships.

3.3.2. Adolescents

Model fit indices, with the exception of model chi-square, suggested acceptable fit (Table 4). Significant structural paths identified that physical environment, neighborhood social cohesion, and family resilience were positively associated with higher levels of adolescent flourishing (Figure 2). As observed in the child model, indirect effects were

statistically significant ($p < 0.05$). The relationship between neighborhood social cohesion and adolescent flourishing was, in part, accounted for by family resilience. Given the positive relationships between variables, as neighborhood social cohesion increased, family resilience and adolescent flourishing also increased. Unlike the child model, the physical environment was directly associated with higher levels of adolescent flourishing, but it was not associated with nor mediated by family resilience. Relationships between adolescent flourishing and model covariates paralleled the child structural model; economic hardship ($\beta = -0.050$, $p < 0.01$), public assistance ($\beta = -0.050$, $p < 0.01$), and having at least one chronic health condition ($\beta = -0.202$, $p < 0.01$) were negatively associated with adolescent flourishing whereas male biological sex ($\beta = 0.120$, $p < 0.01$), global health ($\beta = 0.209$, $p < 0.01$) identifying as Black, Asian, or Hispanic ($\beta = 0.039, 0.056, 0.067$, $p < 0.05$, respectively) were associated with higher levels of flourishing.

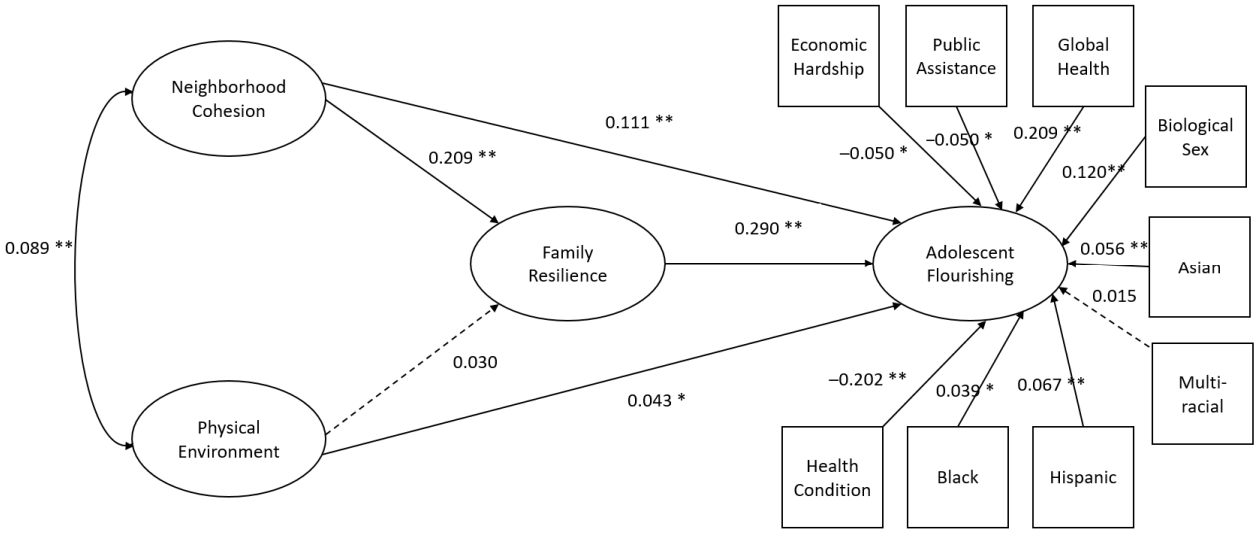

Figure 2. Adolescent structural model. All model coefficients are standardized. * $p < 0.05$, ** $p < 0.01$. Solid lines represent statistically significant relationships. Dashed lines represent non-statistically significant relationships.

4. Discussion

Identifying elements that bolster flourishing within the child and adolescent population are imperative to promote health and success later in life. Moreover, a greater understanding of the individual, familial, and environmental predictors of flourishing will further inform and increase the effectiveness of future programs and policies in schools, communities, and adolescent service agencies. Therefore, research must begin to unravel the socioecological influence on flourishing and provide continued support for the growth, development, and resilience of today's adolescents. Resilience studies can benefit by expanding beyond investigating how protective factors avert or mitigate risks. Specifically, investigations examining how promotive factors can work with or through other protective and promotive factors offer critical insights into how children and adolescents can benefit from multiple sources of resilience. The current study was guided by a social ecological framework to examine the latter by applying a promotive factors model to investigate how community-level and family-level assets and resources might work in tandem to promote child and adolescent flourishing.

4.1. Family Resilience

At the family-level, our findings demonstrated that higher levels of family resilience were related to higher levels of flourishing among children and adolescents while statistically controlling for multiple social determinants of health (e.g., SES, race/ethnicity). Family resilience may promote flourishing by fostering nurturing social environments that

provide children and adolescents with support, hope, and encouragement. Additionally, resilience processes within families can enable flourishing by helping children and adolescents to develop healthy coping and problem-solving skills via parental modeling, direction, and experience. Young children may witness how their families collectively work to resolve problems while also encouraging one another and instilling hope. Family resilience could promote flourishing among adolescents by providing adolescents with direct problem-solving experiences. For instance, because adolescence is a developmental time when adolescents begin to build autonomy, parents help their adolescent children's responses to adversity by coaching them and incorporating them into family problem-solving decisions.

4.2. Physical and Social Neighborhood Environments

At the community level, for both children and adolescents, living in a socially cohesive neighborhood was associated with higher levels of flourishing. Neighborhood social cohesion may foster a sense of security for children and parents. Additionally, when parents have close ties with neighbors, they may be more willing to let their children interact with other neighborhood children [52]. Among adolescents, a socially cohesive neighborhood can offer parents additional monitoring and supervision [53]. Similar to children, parents/caretakers who assess their communities to be safe and supportive may be more willing to permit their adolescents to get outside and engage with others in the community [52].

Neighborhood physical environment was significantly related to higher levels of flourishing among adolescents but not children. This finding may be due to the increased independence and autonomy that often comes with adolescence. Parents typically place more trust in adolescents to safely navigate their neighborhoods as they age. As a result, adolescents are more likely to spend time in their neighborhood than younger children and are more likely to be affected by their physical environment [54].

4.3. Indirect Relationships

Given that the social ecological model suggests that the surrounding social and structural environments can influence child and adolescent outcomes, we examined if community-level promotive factors and a family-level promotive factor might work in tandem to associate with child and adolescent flourishing. Indirect relationships between neighborhood social cohesion, family resilience, and flourishing were significant for adolescents but not children. Because the child model sample included children between the ages of 6–11 years old, it may be that their parents were less willing to allow their children to spend much time around the neighborhood without their supervision. Further, it is also possible that parents of younger children may be more conservative when assessing their family's neighborhood and physical environment; parental assessments of neighborhood social environments have been linked with children's independent mobility [55]. More recent research supports that parents' permission for their children's independent mobility is declining [56,57]; future research should examine how this trend may impact relationships between social cohesion and child flourishing.

Among families with adolescent children, living in socially cohesive neighborhoods might contribute to their resilience in multiple ways. First, when parents/caretakers have supportive connections with others in their community, they have access to additional emotional and social support outside of their family. Raising adolescents entails both rewarding and challenging experiences—having neighbors who can provide emotional support may be beneficial for the parent/caretaker's well-being and thus explain the indirect relationship between neighborhood social cohesion and adolescent flourishing. Additionally, trusting relationships between parents and neighbors could facilitate seeking help with material support if needed. Parents who believe they can draw on this support if the need arises may feel more confident in their parenting role, thus bolstering family resilience. Further, communities with high levels of social cohesion may be more likely to watch out for the children and adolescents within the neighborhood, providing higher

levels of safety. As a result, parents may feel reduced stress in their caretaking tasks because they feel that the neighborhood, in general, is a place where their child will be protected. Fourth, social cohesion may contribute to the ability of children and adolescents to engage within their neighborhood and make connections with other children and adults living in the neighborhood. Safe, stable, and nurturing relationships are critical for healthy child development [58]. Taking all of these together, we suggest that neighborhood social cohesion increases positive outcomes for children and parents alike, resulting in improved functioning of the family unit as a whole and the interactions within. Improved family functioning, in turn, contributes to positive outcomes in children and adolescents.

Contrary to our hypothesis and prior literature, indirect effects between physical neighborhood environments, family resilience, and flourishing were not statistically significant for either children or adolescents. In a previous study that used data from the 2007 NSCH, family functioning was found to mediate the relationship between neighborhood physical resources and global child health among children aged 6–17 years old [59]. There is overlap between family resilience and family function, but the latter captures other processes not related to resilience, including parenting stress. Therefore, the neighborhood physical environment may relate more to a constellation of family processes than resilience. Additionally, our null finding may also be due to the limitation that the measure for neighborhood physical environment only asked whether amenities like parks and recreation centers were present, not if the families were using them or how they perceived their quality. Future research is warranted to examine further what might hinder relationships between physical neighborhood environments and family resilience.

4.4. Limitations

The current study's findings should be considered with the following limitations. First, as with all secondary data analyses, the original data were not designed to address the research questions of the current study. We believe that the available data offered suitable measures of the constructs of interests, and the models still offer important insights. Second, given the cross-sectional nature of the data, temporal support for causality is not possible. However, we drew from theory and prior literature, such as other studies that have tested indirect effects using cross-sectional data from the NSCH (e.g., [60–62], to support the hypothesized relationships. Future studies should examine the relationships between neighborhood social and physical environments, family resilience, and child and adolescent flourishing over time. As with any study examining the neighborhood-built environment, it is necessary to discuss the role of socioeconomic status in shaping the built environment. Typically, higher socioeconomic status neighborhoods are more walkable and have amenities such as parks [63]. Hence, we were careful to select covariates for the dependent variable that could control for such effects, including economic hardship and public assistance receipt. Despite these limitations, we believe that the current study offers important insights in the arena of child and adolescent flourishing, and these data allowed us to make estimates of the general population of non-institutionalized children and adolescents residing in the US.

5. Conclusions

Children and adolescents thrive in social and built environments that support their health and well-being. While these young persons spend most of their time in the family environment, the sociological model suggests that family environments are influenced by additional surrounding environments (e.g., neighborhoods, communities). Hence, individual family members are also affected by these extra-familial environments.

We found that above and beyond the effects of chronic health problems, economic disadvantage, race/ethnicity, and biological sex, child and adolescent flourishing was bolstered by socially cohesive neighborhoods and family resilience. Further, while the neighborhood physical environment did not associate with family resilience for children and adolescents, it directly associated with higher levels of flourishing for adolescents,

though not children. Understanding what strengthens and enhances the protective and promotive factors of child and adolescent flourishing is critical for designing prevention, intervention, and policy efforts aimed at realizing optimal health and well-being for these vulnerable members of society. Such efforts should consider incorporating community social cohesion and family resilience into programs and other endeavors that aim to promote child and adolescent well-being. Tapping into these promotive factors may not only bolster new or existing programs, but they honor and recognize strengths that may already be present in communities and families. Resilience research is further enriched by expanding its scope to include models that examine how promotive factors contribute to child well-being and development, despite the level of risk.

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References

1. Mojtabai, R.; Olfson, M.; Han, B. National Trends in the Prevalence and Treatment of Depression in Adolescents and Young Adults. *Pediatrics* **2016**, *138*, e20161878. [CrossRef] [PubMed]
2. Twenge, J.M.; Cooper, A.B.; Joiner, T.E.; Duffy, M.E.; Binau, S.G. Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005–2017. *J. Abnorm. Psychol.* **2019**, *128*, 185–199. [CrossRef] [PubMed]
3. Browne, D.T.; Plamondon, A.P.; Prime, H.; Puente-Duran, S.; Wade, M. Cumulative risk and developmental health: An argument for the importance of a family-wide science. *Wiley Interdiscip. Rev. Cogn. Sci.* **2015**, *6*, 397–407. [CrossRef] [PubMed]
4. Brooks, J.E. Strengthening Resilience in Children and Youths: Maximizing Opportunities through the Schools. *Child. Sch.* **2006**, *28*, 69–76. [CrossRef]
5. Fergus, S.; Zimmerman, M.A. ADOLESCENT RESILIENCE: A Framework for Understanding Healthy Development in the Face of Risk. *Annu. Rev. Public Health* **2005**, *26*, 399–419. [CrossRef] [PubMed]
6. Masten, A.S. Ordinary magic. Resilience processes in development. *Am. Psychol.* **2001**, *56*, 227–238. [CrossRef]
7. Hilton, C.L.; Ratcliff, K.; Collins, D.M.; Flanagan, J.; Hong, I. Flourishing in children with autism spectrum disorders. *Autism Res.* **2019**, *12*, 952–966. [CrossRef]
8. Jankowski, P.J.; Sandage, S.J.; Bell, C.A.; Davis, D.E.; Porter, E.; Jessen, M.; Motzny, C.L.; Ross, K.V.; Owen, J. Virtue, flourishing, and positive psychology in psychotherapy: An overview and research prospectus. *Psychotherapy* **2020**, *57*, 291–309. [CrossRef]
9. Witten, H.; Savahl, S.; Adams, S. Adolescent flourishing: A systematic review. *Cogent Psychol.* **2019**, *6*, 1640341. [CrossRef]
10. Kim, T.; Jang, C.-Y.; Kim, M. Socioecological Predictors on Psychological Flourishing in the US Adolescence. *Int. J. Environ. Res. Public Health* **2020**, *17*, 7917. [CrossRef]
11. Kwong, T.Y.; Hayes, D.K. Adverse family experiences and flourishing amongst children ages 6–17 years: 2011/12 National Survey of Children's Health. *Child Abus. Negl.* **2017**, *70*, 240–246. [CrossRef] [PubMed]
12. Orkibi, H.; Hamama, L.; Gavriel-Fried, B.; Ronen, T. Pathways to Adolescents' Flourishing: Linking Self-Control Skills and Positivity Ratio Through Social Support. *Youth Soc.* **2015**, *50*, 3–25. [CrossRef]
13. Keyes, C.L.M.; Simoes, E. To Flourish or Not: Positive Mental Health and All-Cause Mortality. *Am. J. Public Health* **2012**, *102*, 2164–2172. [CrossRef]

14. Howell, A.J.; Keyes, C.L.M.; Passmore, H.-A. Flourishing Among Children and Adolescents: Structure and Correlates of Positive Mental Health, and Interventions for Its Enhancement. In *Research, Applications, and Interventions for Children and Adolescents*; Springer: Dordrecht, The Netherlands, 2013; pp. 59–79. [CrossRef]
15. Keys, C. Why flourishing? In *Well-Being and Higher Education a Strategy for Change and the Realization of Education's Greater Purpose*; Harward, D.W., Ed.; Association of American Colleges and Universities: Washington, DC, USA, 2016; pp. 99–1077.
16. Patterson, J.M. Understanding family resilience. *J. Clin. Psychol.* **2002**, *58*, 233–246. [CrossRef] [PubMed]
17. Walsh, F. Family Resilience: A Framework for Clinical Practice. *Fam. Process* **2003**, *42*, 1–18. [CrossRef] [PubMed]
18. Carr, D.; Springer, K.W. Advances in Families and Health Research in the 21st Century. *J. Marriage Fam.* **2010**, *72*, 743–761. [CrossRef]
19. Twum-Antwi, A.; Jefferies, P.; Ungar, M. Promoting child and youth resilience by strengthening home and school environments: A literature review. *Int. J. Sch. Educ. Psychol.* **2019**, *8*, 78–89. [CrossRef]
20. Masten, A.S.; Barnes, A.J. Resilience in Children: Developmental Perspectives. *Children* **2018**, *5*, 98. [CrossRef]
21. Vakrat, A.; Apter-Levy, Y.; Feldman, R. Sensitive Fathering Buffers the Effects of Chronic Maternal Depression on Child Psychopathology. *Child Psychiatry Hum. Dev.* **2018**, *49*, 779–785. [CrossRef]
22. Davies, P.T.; Parry, L.Q.; Bascoe, S.M.; Martin, M.J.; Cummings, E.M. Children's Vulnerability to Interparental Conflict: The Protective Role of Sibling Relationship Quality. *Child Dev.* **2018**, *90*, 2118–2134. [CrossRef]
23. Lee, J.; Katras, M.J.; Bauer, J.W. Children's Birthday Celebrations From the Lived Experiences of Low-Income Rural Mothers. *J. Fam. Issues* **2008**, *30*, 532–553. [CrossRef]
24. Cohodes, E.M.; McCauley, S.; Gee, D.G. Parental Buffering of Stress in the Time of COVID-19: Family-Level Factors May Moderate the Association Between Pandemic-Related Stress and Youth Symptomatology. *Res. Child Adolesc. Psychopathol.* **2021**, *49*, 935–948. [CrossRef]
25. Bandura, A. *Social Learning Theory*; Prentice-Hall Series in Social Learning Theory; Prentice Hall: Englewood Cliffs, NJ, USA, 1977.
26. Dupéré, V.; Leventhal, T.; Vitaro, F. Neighborhood processes, self-efficacy, and adolescent mental health. *J. Health Soc. Behav.* **2012**, *53*, 183–198. [CrossRef] [PubMed]
27. Hurd, N.M.; Stoddard, S.A.; Zimmerman, M.A. Neighborhoods, social support, and african american adolescents' mental health outcomes: A multilevel path analysis. *Child Dev.* **2013**, *84*, 858–874. [CrossRef] [PubMed]
28. Van Gundy, K.T.; Stracuzzi, N.F.; Rebellon, C.J.; Tucker, C.J.; Cohn, E.S. Perceived Community Cohesion and the Stress Process in Youth. *Rural Sociol.* **2011**, *76*, 293–318. [CrossRef]
29. Duncan, T.E.; Duncan, S.C.; Okut, H.; Strycker, L.A.; Hix-Small, H. A Multilevel Contextual Model of Neighborhood Collective Efficacy. *Am. J. Community Psychol.* **2003**, *32*, 245–252. [CrossRef]
30. McLeigh, J.D.; McDonell, J.R.; Lavenda, O. Neighborhood poverty and child abuse and neglect: The mediating role of social cohesion. *Child. Youth Serv. Rev.* **2018**, *93*, 154–160. [CrossRef]
31. Donnelly, L.; McLanahan, S.; Brooks-Gunn, J.; Garfinkel, I.; Wagner, B.G.; Jacobsen, W.C.; Gold, S.; Gaydosh, L. Cohesive Neighborhoods Where Social Expectations Are Shared May Have Positive Impact On Adolescent Mental Health. *Health Aff.* **2016**, *35*, 2083–2091. [CrossRef]
32. Van Schalkwyk, I.; Wissing, M.P. Psychosocial Well-being in a Group of South African Adolescents. *J. Psychol. Afr.* **2010**, *20*, 53–60. [CrossRef]
33. Lindström, M. Social capital, desire to increase physical activity and leisure-time physical activity: A population-based study. *Public Health* **2011**, *125*, 442–447. [CrossRef]
34. Brenner, A.B.; Zimmerman, M.A.; Bauermeister, J.A.; Caldwell, C.H. Neighborhood Context and Perceptions of Stress Over Time: An Ecological Model of Neighborhood Stressors and Intrapersonal and Interpersonal Resources. *Am. J. Community Psychol.* **2013**, *51*, 544–556. [CrossRef] [PubMed]
35. Liu, S.R.; Kia-Keating, M.; Santacrose, D.E.; Modir, S. Linking profiles of neighborhood elements to health and related outcomes among children across the United States. *Health Place* **2018**, *53*, 203–209. [CrossRef] [PubMed]
36. Leventhal, T.; Brooks-Gunn, J. The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychol. Bull.* **2000**, *126*, 309–337. [CrossRef] [PubMed]
37. Koohsari, M.J.; Badland, H.; Giles-Corti, B. (Re)Designing the built environment to support physical activity: Bringing public health back into urban design and planning. *Cities* **2013**, *35*, 294–298. [CrossRef]
38. Almanza, E.; Jerrett, M.; Dunton, G.; Seto, E.; Pentz, M.A. A study of community design, greenness, and physical activity in children using satellite, GPS and accelerometer data. *Health Place* **2012**, *18*, 46–54. [CrossRef]
39. Christian, H.; Zubrick, S.R.; Foster, S.; Giles-Corti, B.; Bull, F.; Wood, L.; Knuiman, M.; Brinkman, S.; Houghton, S.; Boruff, B. The influence of the neighborhood physical environment on early child health and development: A review and call for research. *Health Place.* **2015**, *33*, 25–36. [CrossRef]
40. Witherspoon, D.; Ennett, S. An examination of social disorganization and pluralistic neighborhood theories with rural mothers and their adolescents. *J. Youth Adolesc.* **2010**, *40*, 1243–1253. [CrossRef]
41. Alderton, A.; Villanueva, K.; O'Connor, M.; Boulangé, C.; Badland, H. Reducing Inequities in Early Childhood Mental Health: How Might the Neighborhood Built Environment Help Close the Gap? A Systematic Search and Critical Review. *Int. J. Environ. Res. Public Health* **2019**, *16*, 1516. [CrossRef]

42. Gaylord-Harden, N.K.; Barbarin, O.; Tolan, P.H.; Murry, V.M. Understanding development of African American boys and young men: Moving from risks to positive youth development. *Am. Psychol.* **2018**, *73*, 753–767. [CrossRef]
43. Rabinowitz, J.A.; Powell, T.; Sadler, R.; Reboussin, B.; Green, K.; Milam, A.; Smart, M.; Furr-Holden, D.; Latimore, A.; Tandon, D. Neighborhood Profiles and Associations with Coping Behaviors among Low-Income Youth. *J. Youth Adolesc.* **2019**, *49*, 494–505. [CrossRef]
44. Bronfenbrenner, U. *The Ecology of Human Development: Experiments by Nature and Design*; Harvard University Press: Cambridge, MA, USA, 1979.
45. Davis, T.; Ammons, C.; Dahl, A.; Kliewer, W. Community violence exposure and callous–unemotional traits in adolescents: Testing parental support as a promotive versus protective factor. *Pers. Individ. Differ.* **2014**, *77*, 7–12. [CrossRef] [PubMed]
46. Child and Adolescent Health Measurement Initiative. National Survey of Children's Health (2 Years Combined Data Set): SPSS Data Set. [Internet]. Child and Adolescent Health Measurement Initiative, 2021. Available online: www.childhealthdata.org (accessed on 16 February 2022).
47. Bollen, K.A. A New Incremental Fit Index for General Structural Equation Models. *Sociol. Methods Res.* **1989**, *17*, 303–316. [CrossRef]
48. Kline, R.B. *Principles and Practice of Structural Equation Modeling*, 4th ed.; The Guilford Press: New York, NY, USA, 2018.
49. Hu, L.T.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model. Multidiscip. J.* **1999**, *6*, 1–55. [CrossRef]
50. Muthen, B.; Muthen, L. *Mplus*; Statmodel: Los Angeles, CA, USA, 2019.
51. Rose, S.A.; Markman, B.; Sawilowsky, S. Limitations in the systematic analysis of structural equation model fit indices. *J. Mod. Appl. Stat. Methods* **2017**, *16*, 69–85. [CrossRef]
52. Boxberger, K.; Reimers, A.K. Parental Correlates of Outdoor Play in Boys and Girls Aged 0 to 12—A Systematic Review. *Int. J. Environ. Res. Public Health* **2019**, *16*, 190. [CrossRef]
53. Loebach, J.; Sanches, M.; Jaffe, J.; Elton-Marshall, T. Paving the Way for Outdoor Play: Examining Socio-Environmental Barriers to Community-Based Outdoor Play. *Int. J. Environ. Res. Public Health* **2021**, *18*, 3617. [CrossRef]
54. Nordbø, E.C.A.; Nordh, H.; Raanaas, R.K.; Aamodt, G. GIS-derived measures of the built environment determinants of mental health and activity participation in childhood and adolescence: A systematic review. *Landsc. Urban Plan.* **2018**, *177*, 19–37. [CrossRef]
55. Vlaar, J.; Brussoni, M.; Janssen, I.; Mâsse, L.C. Roaming the Neighbourhood: Influences of Independent Mobility Parenting Practices and Parental Perceived Environment on Children's Territorial Range. *Int. J. Environ. Res. Public Health* **2019**, *16*, 3129. [CrossRef]
56. Marzi, I.; Reimers, A.K. Children's Independent Mobility: Current Knowledge, Future Directions, and Public Health Implications. *Int. J. Environ. Res. Public Health* **2018**, *15*, 2441. [CrossRef]
57. Riazi, N.A.; Wunderlich, K.; Yun, L.; Paterson, D.C.; Faulkner, G. Social-Ecological Correlates of Children's Independent Mobility: A Systematic Review. *Int. J. Environ. Res. Public Health* **2022**, *19*, 1604. [CrossRef]
58. Merrick, M.T.; Ports, K.A.; Guinn, A.S.; Ford, D.C. Safe, stable, nurturing environments for children. In *Adverse Childhood Experiences Using Evidence to Advance Research, Practice, Policy, and Prevention*; Asmundson, G.J.G., Afifi, T.O., Eds.; Academic Press: Cambridge, MA, USA, 2020; pp. 329–347.
59. Fan, Y.; Chen, Q. Family functioning as a mediator between neighborhood conditions and children's health: Evidence from a national survey in the United States. *Soc. Sci. Med.* **2012**, *74*, 1939–1947. [CrossRef] [PubMed]
60. Alexander, D.S.; Huber, L.R.; Piper, C.R.; Tanner, A.E. The association between recreational parks, facilities and childhood obesity: A cross-sectional study of the 2007 National Survey of Children's Health. *J. Epidemiol. Community Health* **2013**, *67*, 427–431. [CrossRef] [PubMed]
61. Jackson, D.B.; Posick, C.; Vaughn, M.G.; Testa, A. Adverse childhood experiences and traumatic brain injury among adolescents: Findings from the 2016–2018 National Survey of Children's Health. *Eur. Child Adolesc. Psychiatry* **2022**, *31*, 289–297. [CrossRef] [PubMed]
62. Leung, C.Y.; Torres, R. Sleep duration does not mediate the association between screen time and adolescent depression and anxiety: Findings from the 2018 National Survey of Children's Health. *Sleep Med.* **2021**, *81*, 227–234. [CrossRef]
63. Steinmetz-Wood, M.; Kestens, Y. Does the effect of walkable built environments vary by neighborhood socioeconomic status? *Prev. Med.* **2015**, *81*, 262–267. [CrossRef]

children

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Article

Pre-Birth Household Challenges Predict Future Child's School Readiness and Academic Achievement

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Abstract: Early developmental success and school readiness strongly influence future skill development, occupational opportunities, and health. Therefore, it is critical to identify and address early determinants of school readiness for supporting children's overall well-being and success. In this retrospective cohort study, we examined the effects of pre-birth household challenges, such as homelessness or experiences of intimate partner violence, on children's early school readiness. We linked data from the Alaska 2009–2011 Pregnancy Risk Assessment Monitoring System (PRAMS) to administrative and education records through 2019. Education records included kindergarten developmental scores, third grade reading assessments, and attendance records. Generalized linear models with Quasi-Poisson distributions for each outcome of interest examined the predictive value of pre-birth household challenges on the risks of not meeting school readiness expectations. We found that experiencing higher numbers of pre-birth household challenges was related to higher risk of the child not meeting developmental and reading proficiency and having chronic absenteeism. These results suggest that it is imperative support systems for pregnant persons and their families be introduced as soon as possible in pre-natal care routines to address current pre-birth household stressors and prevent future challenges. Such early prevention efforts are needed to ensure the best possible developmental start for children.

Keywords: household challenges; ACEs; pre-birth; early development; reading; school readiness; PRAMS

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1. Introduction

The pre-natal period, including the health and well-being of the pregnant parent, is crucial for a child's early developmental success [1]. High pre-natal stress experienced by the birthing parent is associated with suboptimal cognitive and socio-emotional outcomes for school aged children (for reviews, see [2,3]). Such outcomes underly a child's school readiness, or how prepared they are to succeed in school cognitively, socially, physically, and emotionally [4]. Early developmental success and school readiness influence future skill development, occupational opportunities, and health [5–7]. Therefore, identifying and addressing early determinants of school readiness is important for supporting children's overall well-being and success. As such, major stressful pre-birth challenges experienced by the birthing parent around the time of pregnancy may have profound negative impacts on their child's school readiness and future achievement. The current study aimed to clarify this relationship between pre-birth household challenges experienced by the birthing parent and their potential impact on the child's school readiness and achievement in a longitudinal Alaskan cohort.

Before children enter kindergarten, they have already experienced a plethora of early educational experiences that shape their cognitive and socio-emotional development [8].

The ongoing interaction between a child and learning opportunities within their environment influences the child's level of readiness to learn upon entrance into school (i.e., school readiness). This presenting "readiness" further interacts with a school's ability to receive and support the various abilities of children, which also interacts with the underlying family's and community's ability to support continued optimal early child development [9]. Readiness to learn typically includes a child's physical well-being and sensory motor development, social and emotional development, approaches to learning (e.g., enthusiasm, temperament), language development, and general knowledge and cognition (e.g., literacy and math skills) [4,10]. Higher levels of school readiness consistently predict higher later academic achievement [11–13], which in turn has been linked to multiple improved economic and health outcomes [5–7]. The focus of the current study was to identify early determinants of a child's personal school readiness and early academic achievement, key pieces in the chain of influences to future educational success.

Prior research demonstrates that both mutable and immutable pre-birth factors are linked to early childhood outcomes. In a predictive risk model for school readiness developed by Camacho and colleagues [14], the most important pre-natal or at birth variables found in predicting school readiness were related to socioeconomic conditions (i.e., social class, maternal education, and family income) and the child's ethnicity. This model falls in line with prior studies identifying socioeconomic determinants of school readiness, such as maternal education, economic disadvantage, and single-parent family status [15,16]. Treatable parental health factors such as pre-natal substance use [17–21] and mental health concerns experienced by the birthing parent [22,23] (for reviews, see [2,24]) also increase the risk of the child not meeting developmental standards needed for proper school readiness. It should be noted that certain substance uses during pregnancy, such as smoking, may be a consequence of or may interact with deeper familial socioeconomic and psychopathological risk factors, rather being than a causal determinant of school readiness in and of itself [25]. Overall, multiple mutable pre-birth challenges and risk factors interact with demographic factors to predict risk for children not meeting school readiness ideals by the time they enter the education system at kindergarten.

Additional research has connected the accumulation of the above and other types of pre-birth stressors to school readiness. Children born to birthing parents who self-reported experiencing higher levels of pre-natal stress through natural disaster exposure (e.g., loss of personal and/or business income, exposure to physical dangers, change in family dynamic or place of residence) demonstrated lower general intellectual and language abilities at age 2 [26], prior to entering kindergarten. One study documented that exposure to four or more pre-birth stressors, such as job loss and marital issues, was negatively associated with literacy scores at an even later developmental stage (age 10) for female children [27]. Potentially, experiencing such high levels of stress during pregnancy could make it difficult for the family to provide the extra needed support for optimal early development to their future child due to a focus on current basic needs.

While prior research has identified risk factors for not meeting early school readiness related to perinatal stressors, no study to these authors' knowledge has directly studied the effect of pre-birth household challenges experienced by the birthing parent around pregnancy on multiple measures of school readiness and early academic achievement of the child in a representative statewide longitudinal cohort. To fill this knowledge need, the current study examined whether the number of pre-birth household challenges experienced by the birthing parent predicted the child's school readiness and early academic achievement, as measured by performance on the Alaska kindergarten developmental profile assessment, third grade reading assessments, and average school attendance.

2. Materials and Methods

2.1. Data Sources

This project used retrospective data from the Alaska 2009–2011 Pregnancy Risk Assessment Monitoring System (PRAMS). Alaska PRAMS is a population-based weighted sample

of birthing parents delivering live births in Alaska. Birthing parents are surveyed about factors related to pre-pregnancy, pregnancy, and post-birth experiences. The 2009–2011 PRAMS phase sampled 5578 of the 33,709 eligible Alaska resident births, with oversampling on birthing parents who identified as Alaska Native and who had newborns with low birthweight status (<2500 g). The average weighted response weight was 66%. The complete PRAMS survey methodology is described elsewhere [28].

Leveraging the Alaska Longitudinal Child Abuse and Neglect Linkage Project (ALCANLink), which links PRAMS survey responses with multiple administrative records (see [29,30] for description of sources linked), we integrated PRAMS survey responses with Department of Education and Early Development (DEED) records through 2019. DEED records included the cohort children's 3rd grade Performance Evaluation for Alaska's Schools (PEAKS) English language arts assessment scores, Alaska Developmental Profile (ADP) scores, and attendance records. PEAKS English language arts (ELA) evaluation assesses students' skills in reading complex texts, writing with clarity, and presenting and evaluating ideas. Students can receive a PEAKS ELA score of Advanced, Proficient, Below Proficient, or Far Below Proficient. The ADP is an Alaskan developed evaluation tool given to students entering kindergarten or first grade which identifies whether students are consistently demonstrating 13 goals and indicators in the following five domains from Alaska's Early Learning Guidelines: (1) physical well-being, health, and motor development; (2) social and emotional development; (3) approaches to learning; (4) cognition and general knowledge; (5) communication, language, and literacy. Students can receive a score range of 0–13 goals met, and meeting at least 11 out of 13 goals overall is considered to be the developmental gold standard in this assessment (DEED, https://education.alaska.gov/assessments/developmental, accessed on 14 March 2022).

2.2. Measures

2.2.1. Exposures

The 2009–2011 PRAMS cohort (n = 3549 respondents) data were used to identify household challenges experienced by the birthing parent during the pre-birth period (typically during the 12 months before birth). Household challenges were identified from Centers for Disease Control and Prevention (CDC) standardized PRAMS questions regarding stressful life events [20]. Self-reported pre-birth household challenges included: having a close family member become very sick and go into the hospital, experiencing a divorce or separation, moving to a new address, experiencing homelessness, the birthing parent losing their job, the partner or spouse losing their job, arguing with a partner or spouse more than usual, having a lot of bills that could not be paid, being in a physical fight, the birthing parent or partner or spouse being jailed, someone close to the birthing parent having a problem with drugs or drinking, experiencing a death of someone close to the birthing parent, experiencing intimate partner violence, and the birthing parent being checked or treated for anxiety or depression by a medical professional.

The total number of household challenges experienced was calculated by adding up the number of components respondents endorsed with a "yes". Missing responses were treated as a 0 or "no" response when calculating the total household challenges. Due to small sample size, we then categorized the number of pre-birth household challenge components experienced into a single construct with the following categories: 0–1 reported, 2–3 reported, and $\geq$4 reported. Categories were developed based on prior research of household-challenge-based risk groups [23]. Respondents who did not answer any of the exposure questions were excluded from the analyses.

2.2.2. Outcomes

The first outcome of interest was the child's kindergarten developmental profile (ADP score). We created a bivariate ($\geq$11 goals met, <11 goals met) ADP variable consistent with DEED's developmental gold standard definition. The second outcome of interest was the child's 3rd grade PEAKS ELA score. We created a bivariate PEAKS variable by categorizing

Advanced and Proficient (A/P) scores together as "met proficiency" and Below Proficient and Far Below Proficient (BP/FBP) as "did not meet proficiency." The final outcome of interest was chronic absenteeism, defined as missing at least 10% of the days in which a student was enrolled in school. The child's school attendance records were averaged across the 2015–2019 school years, and we created a bivariate variable from the resulting average to indicate the presence of chronic absenteeism (≥90% attendance, <90% attendance).

2.2.3. Covariates

Prior research working with Alaska population data [31,32] identified demographic variables significantly associated with negative early childhood outcomes: Alaska Native/American Indian race status, lower maternal education, and unmarried maternal marital status. Maternal education status has been associated with school readiness outcomes in non-Alaska data as well [14]. Therefore, Alaska Native race status, maternal education, and maternal age at the time of the birth were included as *a priori* covariates in multivariate analyses. It is important to note that the above demographic variables do not represent causal factors or biological predispositions toward certain early childhood outcomes, but likely represent a population experiencing differential distribution of underlying modifiable risk factors (e.g., systemic challenges, lack of additional social or economic supports).

2.3. Statistical Analysis

Using the PRAMS post-stratification population weights, we derived the estimated proportion of the birth population reflective of each component of the demographic, exposures, and outcome classifications.

We separately examined the bivariate association of each individual pre-birth household challenge component and risk of not meeting PEAKS proficiency, not meeting the 11-goal threshold on ADP, and being chronically absent by calculating risk ratios with "no exposure" as the reference category. We then constructed two generalized linear models with Quasi-Poisson distributions for each outcome of interest to examine the predictive value of pre-birth household challenges on the risks of not meeting school readiness expectations. We used Quasi-Poisson models to account for overdispersion, which relaxes the assumption that the variance is equal to the mean and instead assumes the variance is a linear function of the mean. First, we separately modeled the association of the total number of pre-birth household challenges (categorized as 0–1, 2–3, and 4+ challenges) on ADP scores, PEAKS scores, and attendance records. Outcome reference categories were A/P (PEAKS), ≥11 goal met (ADP), and ≥90% attendance (attendance), respectively. Secondly, we constructed a multivariate model adjusting for Alaska Native race (Native, non-Native), maternal education (≥12 years, <12 years), and maternal age (≥20 years, <20 years) at the time of the birth to understand the individual association of each component. We used backward elimination stepwise regression to remove nonsignificant covariates to establish our final most parsimonious prediction models. Covariates were retained in the final model if their removal produced a >10% change in the effect estimate.

All analyses were conducted using R version 4.1.0 and either the survey [33] or srvyr [34] package.

2.4. Institutional Review Board

The PRAMS, DEED, and administrative records used in this study were examined retrospectively under routine public health surveillance. Full details on the PRAMS institutional review board (IRB) approval are found in the Institutional Review Board Statement subsection at the end of this article. The remainder of the current study involved the linkage of existing legally authorized administrative databases housed within the Alaska Department of Health and Social Services (DHSS) and DEED. Under these circumstances, IRB approval was not required or sought for the current study.

3. Results

3.1. Participant Characteristics

A total of 3549 birthing parents responded to the PRAMS survey, which represents 33,417 (±233) children born in Alaska during 2009–2011. Table 1 presents demographic characteristics of the respondents. The distribution of the number of household challenges within the population is presented in Table 2.

Table 1. Demographic characteristics of PRAMS respondents (birthing parents) and offspring.

Variable	*N*	Weighted Mean (95% CI)
Sex of Child		
Male	1822	0.52 (0.49, 0.54)
Female	1727	0.49 (0.47, 0.51)
County Type		
Urban	2843	0.87 (0.86, 0.89)
Rural	477	0.13 (0.11, 0.14)
Missing	7	-
Marital Status		
Married	2067	0.62 (0.60, 0.64)
Not Married	1477	0.38 (0.36, 0.40)
Missing	5	-
Level of Education		
≥12 Years	2843	0.87 (0.86, 0.89)
<12 Years	477	0.13 (0.11, 0.14)
Missing	229	-
Race		
Alaska Native/Native American	1257	0.26 (0.25, 0.26)
Non-White/Non-Native	387	0.12 (0.11, 0.14)
White	1715	0.62 (0.61, 0.64)
Missing	190	-
Medicaid		
Yes	2053	0.53 (0.51, 0.55)
No	1496	0.47 (0.45, 0.49)

PRAMS: Pregnancy Risk Assessment Monitoring System. Medicaid: Whether Medicaid covered birthing expenses.

Table 2. Distribution of number of household challenges reported by PRAMS survey respondents.

Stressor Count	*N*	Weighted Mean (95% CI)
4+	680	0.19 (0.17, 0.21)
2–3	955	0.26 (0.24, 0.27)
0–1	1914	0.56 (0.54, 0.58)

PRAMS: Pregnancy Risk Assessment Monitoring System.

3.2. Pre-Birth Household Challenges and Developmental Profile Score

Overall, 69% of the population fell below the developmental profile gold standard (<11 goals met; Supplemental Figure S1). Supplemental Table S1 presents the pre-birth household challenge components' unadjusted association with developmental profile score. Experiencing homelessness was associated with the highest risk of not meeting ADP gold standards (Risk Ratio (RR) = 1.23, 95% Confidence Interval (CI) = 1.09, 1.38), followed by experiencing a divorce or separation (RR = 1.16, 95% CI = 1.05, 1.28). Children born to mothers who reported experiencing ≥4 pre-birth household stressors had 1.16 times the risk of not meeting developmental profile standards than those who were born to mothers who reported experiencing 0–1 household stressors, after adjusting for birthing parent Alaska Native race and years of education at the time of the birth (Table 3). Experiencing 2–3 pre-birth household challenges did not significantly predict risk of not meeting the standard developmental goals.

Table 3. Relative comparison of expected kindergarten developmental profile score, third grade reading proficiency score, and average school attendance rate by number of pre-birth household challenges.

Number of Pre-Birth Household Challenges	PRAMS Respondents (n = 3549)		Risk Ratio (95% CI)	Adjusted Risk Ratio (95% CI) [a]
ADP	≥11 Goals *	<11 Goals		
4+	106	358	1.15 (1.07, 1.24)	1.16 (1.07, 1.25)
2–3	176	465	1.03 (0.95, 1.12)	1.02 (0.94, 1.11)
0–1	404	916	Referent	Referent
PEAKS	A/P *	BP/FBP		
4+	53	208	1.40 (1.24, 1.57)	1.36 (1.21, 1.53)
2–3	94	253	1.29 (1.15, 1.45)	1.27 (1.14, 1.42)
0–1	252	424	Referent	Referent
Attendance	≥0.90% *	<0.90%		
4+	369	148	1.38 (1.12, 1.70)	1.29 (1.04, 1.60)
2–3	515	203	1.20 (0.99, 1.46)	1.12 (0.93, 1.36)
0–1	1105	351	Referent	Referent

[a] Education outcome scores adjusted for birthing parent Alaska Native race and years of education at time of the birth. * Referent category for outcome variable. PRAMS: Pregnancy Risk Assessment Monitoring System. ADP: Alaska Developmental Profile. PEAKS: Performance Evaluation for Alaska's Schools Reading Assessment. A/P: Score of Advanced or Proficient on PEAKS. BP/FBP: Score of Below Proficient or Far Below Proficient on PEAKS.

3.3. Pre-Birth Household Challenges and Third Grade Reading Score

Overall, 64% of the population did not meet proficiency in PEAKS third grade reading assessment. Supplemental Table S2 presents the pre-birth household challenge components' unadjusted association with third grade reading score. The presence of any pre-birth household challenge, except the birthing parent losing their job or having a sick family member in the hospital, was significantly associated with increased risk of the child not meeting PEAKS third grade reading score proficiency.

The number of reported pre-birth household challenges predicted third grade readings scores in a stepwise, dose–response manner (Table 3). Children born to mothers who reported experiencing ≥4 and 2–3 household stressors during the 12 months before birth had 1.36 and 1.27 times the risk of not meeting reading proficiency, respectively, than those who were born to mothers who reported experiencing 0–1 household stressors, after adjusting for birthing parent Alaska Native race and years of education at the time of the birth.

3.4. Pre-Birth Household Challenges and School Attendance

Within the population of interest, 22% met the definition for chronic absenteeism (school attendance <90%). Chronic absenteeism was significantly associated with the birthing parent facing homelessness, being jailed or their partner being jailed, divorce or separation, death of a close friend or family member, increased frequency of arguments with partner or spouse, or drug or alcohol abuse by someone close to the birthing parent during the pre-birth period (Supplemental Table S3). Only children born to birthing parents who reported experiencing ≥4 pre-birth household stressors had a significantly higher risk of chronic absenteeism than those who were born to mothers who reported experiencing 0–1 household stressors, after adjusting for birthing parent Alaska Native race and years of education at the time of the birth (Table 3).

4. Discussion

This study investigated the relationships between pre-birth household challenges and children's school readiness and academic achievement within an Alaska statewide representative birth cohort. Indicators of school readiness and achievement included performance on kindergarten developmental profiles, third grade reading evaluation scores, and average

school attendance across five years. We discovered that children born into households that experienced high levels of pre-birth household challenges (4+ challenges) were at an increased risk of not meeting future kindergarten developmental goals and experiencing chronic absenteeism compared to children born in households that experienced one or no pre-birth challenges. The level of pre-birth household challenges experienced also had a dose–response relationship with the child's third grade reading evaluation scores, with higher levels of pre-birth household challenges (2–3 and 4+ challenges) being associated with a stepwise increase in the risk of the child not meeting reading proficiency compared to children born in households who experienced 1 or no pre-birth challenges. Considering that early developmental success and school readiness influences future achievement, these results suggest that it is imperative support systems for pregnant persons and their families are introduced as soon as possible in the normal pre-natal care routine to address current pre-birth household stressors and prevent future challenges. Such early prevention efforts are needed to ensure the best possible developmental start for children.

Results from this study align with and expand upon prior research highlighting links between individual pre-natal stressor exposure and negative education outcomes of offspring. Consistent with prior research linking economic disadvantage during the pre-natal period with the future children not meeting school readiness expectations [14–16], in our study, we documented that heavy financial burden, such as homelessness, job loss, and divorce, were consistently independently associated with greater negative impacts on school readiness. Furthermore, when taking each challenge together, our results strongly suggest an additive effect, and the most noticeable school readiness consequences can be seen at the highest levels of pre-natal household challenge experiences. The prevailing rationale for the additive influence of stressors on child development suggests that combined financial and other pre-birth stressors may simply overwhelm parents and lead them to be focused on survival and basic needs (e.g., paying rent, putting food on the table), making it difficult to provide the optimized physical and psychological home environment supportive of learning and development for the child [35]. Finally, a strength of this study was that it used multiple measures and timepoints to examine these pre-birth household challenge effects on school readiness and achievement rather than relying on a single snapshot of early education abilities. In this way, we were able to not only show pre-birth household-challenge-related consequences on early, pre-grade school readiness outcomes, but also continuous negative impacts within the same cohort in later education achievement and engagement.

There are several potential reasons why a parent's experiences of stress or challenges prior to the birth of their child would affect the child's eventual school readiness and early academic achievement. Parents experiencing financial-based challenges, such as homelessness or losing their job(s), may not be able to afford basic pre-natal care or, if the challenge continues post-birth, to enroll their child in beneficial early success programs such as preschool. Poor or absent pre-natal care can negatively affect the child's physical development (e.g., low birth weight), which in turn can have negative effects on school readiness [36]. In addition, parents may not be able to afford to purchase quality children's books or to spend long periods of time reading to their child (as opposed to searching for work or housing), both of which are influential to a child's early reading skills and development [37,38]. Furthermore, experiencing higher pre-birth household challenges predicts an increased risk of the child having higher adverse childhood experiences by the age of 3 years [31], and adverse childhood experiences have long been linked to poor developmental, health, and educational outcomes (e.g., for review, see [39]), including reduced school readiness [40]. Finally, the parents' stress may limit their awareness of, and thus access to, beneficial child development programs such as Head Start and other early childhood educational opportunities. Therefore, pre-birth household challenges that the birthing parent experiences can lead to a chain reaction of maladaptive events or experiences that eventually disadvantage the child's school readiness.

Person- or family-level prevention efforts and programs may mitigate the effects of pre-birth household challenges on children's school readiness and early learning development. In the pre-birth window, primary care physicians and related health care providers can screen pregnant individuals for the presence of these household challenges. If significant challenges are present, health care providers can guide the pregnant individual and their family toward public health resources and care coordinators aimed at helping families navigate and connect with financial, social, or other supports services needed. Comprehensive programs that address family-specific challenges are effective. Children whose families participated in a nurse home visiting program from the pre-natal period through the child's infancy demonstrated higher intellectual functioning and fewer clinical behavioral issues [41]. Other interventions can be engaged in at the perinatal and early childhood periods to mitigate the transmission of stress and subsequent risk of poor outcomes from the parent to the child. One example of this is the Child FIRST program [42], which identifies children in high-risk families as early as possible and provides in-home assistance geared toward decreasing psychosocial stress, promoting connection to integrated services and supports, and promoting responsive, nurturing caregiving through a relationship-based psychotherapeutic approach. Children in families enrolled in Child FIRST had improved language development compared to those who experienced usual care, and birthing parents in the program had less parenting stress and protective service involvement compared to those following usual care. Evidence-based pre-natal and perinatal programs that not only address pre-birth household challenges, but work to mitigate their effects on the child and birthing parent post-birth should be readily available and easily accessible for any pregnant individual and their family in order to curb risks of the child not meeting early educational development markers.

There are some limitations to the current study. One limitation is that the study was conducted using an Alaska-based population, making the population demographic distribution different from the general United States population. However, this study can serve as a generalizable platform for other states and areas to adopt when examining pre-birth effects on children's school readiness. Another limitation is that PRAMS responses are self-reported and may reflect social-desirability bias toward not reporting on sensitive experiences. However, results from the PRAMS survey show 19% of our cohort reported high levels of household challenges (4+), which is comparable to the U.S. percentage of adults who reported feeling high levels of stress over the years during which PRAMS was conducted (24% in 2009 and 2010, 22% in 2011; www.stressinamerica.org, accessed on 19 February 2022). However, it should be noted there are individual differences in subjective feelings of stress following challenging experiences. This study is also limited by the lack of potential heterogeneity in education outcomes, with over 50% of Alaskan children not meeting the developmental profile standard or third grade reading score proficiency levels. Additional research that accounts for the pre-birth and early childhood experiences are critical, especially considering the length of time between the stressors being experienced in this study and the school outcomes being measured. However, the current study indicates that despite this limitation, initiating and supporting families in some key areas may have impacts on school readiness of offspring years later. Finally, there is a limitation in the calculation of the household challenge total scores used in the bivariate analyses. In constructing these scores, any missing response was counted as a "no" response, which could lead to underestimated counts.

Future research should focus on ways in which public health can target and mitigate the effects of pre-birth household stressors on children's school readiness and development and the impact of care coordination to assist families dealing with multiple challenges. Several intervention strategies were mentioned above, but none specifically addressed the relationship between pre-birth household challenges and targeted comprehensive school readiness measures as outcomes of interest. It is important to note that the relationship between pre-birth household stressors and school readiness is likely mediated by several factors, such as parent−child attachment, that were beyond the scope of the current project.

These factors and intervention efforts to target them can be addressed by future public health and education researchers.

Education readiness and early school performance are strong predictors of future education success and graduation. Education success and graduation are strong predictors of health and economic attainment. Understanding these relationships is critical for developing a cross-sector approach including education, public health, and medical professionals. Thus, while efforts are made to restructure and improve the educational system, we also need to focus on supporting families early on and to recognize them as the first "educational institution" that establishes the learning foundation. This would increase the number of children entering school ready to learn.

5. Conclusions

The current study examined whether the number of pre-birth household challenges experienced by the birthing parent predicted the child's early school readiness, as measured by kindergarten developmental profiles, third grade reading assessments, and average school attendance. We found that experiencing higher numbers of pre-birth household challenges was related to higher risk of the child not meeting developmental and reading proficiency and having chronic absenteeism. Experiencing homelessness was consistently the highest risk pre-birth challenge for poor school readiness outcomes. These results demonstrate how important the pre-birth window is for providing familial support programs, particularly financial, early on in an individual's pregnancy to start children on a path to educational success immediately at birth.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/children9030414/s1, Table S1: Independent associations of pre-birth household challenge components 12 months before birth of 3-year-old child with child's ADP goals met; Table S2: Independent associations of pre-birth household challenge components 12 months before birth of 3-year-old child with third grade PEAKS ELA evaluation score; Table S3: independent associations of pre-birth household challenge components 12 months before birth of 3-year-old child with child's average school attendance; Figure S1: Weighted percent distribution of number of Alaska Developmental Profile (ADP) goals met in population.

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Institutional Review Board Statement: At the time of data collection, the PRAMS methodology and survey were approved by University of Alaska Anchorage and Centers for Disease Control and Prevention (CDC) Institutional Review Boards (IRBs) and conducted according to the guidelines of the Declaration of Helsinki. PRAMS was developed by the CDC Division of Reproductive Health in 1987 and has conducted ongoing surveillance since then in many states across the country. Federal IRB of the program has been ongoing, including since the inception of the Alaska PRAMS project in 1990. Additional local IRB review has been in place in Alaska since its approval on 28 November 2006. Ethical review and approval were obtained by DPH MCH-Epidemiology leadership staff for this study because the current study involved the linkage of existing legally authorized administrative databases housed within the Alaska Department of Health and Social Services (DHSS) and DEED. All investigators were employees of Alaska DHSS and operated under state confidentiality and data-sharing agreements as outlined in Section 18 of Alaska state code. The linkage of DEED data to the ALCANLink project was conducted by request of the DEED Commissioner to facilitate our population understanding of factors that limit and promote educational success and contribute to the health and well-being of the Alaskan population, and it was executed under an inter-department agreement.

Informed Consent Statement: Not applicable for project's retrospective data analyses.

Data Availability Statement: The data presented in this study are available as a restricted access limited data set on request to the corresponding author and with approval by DEED administrators. Due to privacy and legal constraints, access to these data requires a data use agreement and research and protocol review.

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Conflicts of Interest: Johnson receives consultancies and is an educational activities speaker through her personal consulting business. Her business did not influence or affect analyses on the current project. Husa and Parrish declare no conflicts of interest.

References

1. National Research Council. *From Neurons to Neighborhoods: The Science of Early Childhood*; The National Academies Press: Washington, DC, USA, 2000. [CrossRef]
2. Kingston, D.; Tough, S. Prenatal and postnatal maternal mental health and school-age child development: A systematic review. *J. Matern. Child Health* **2013**, *18*, 1728–1741. [CrossRef] [PubMed]
3. Buffa, G.; Dahan, S.; Sinclair, I.; St-Pierre, M.; Roofigari, N.; Mutran, D.; Rondeau, J.; Dancause, K.N. Prenatal stress and child development: A scoping review of research in low- and middle-income countries. *PLoS ONE* **2018**, *13*, e0207235. [CrossRef] [PubMed]
4. Head Start Early Childhood Learning & Knowledge Center. School Readiness. Available online: https://eclkc.ohs.acf.hhs.gov/school-readiness (accessed on 2 February 2022).
5. Heckman, J.J. Skill formation and the economics of investing in disadvantaged children. *Science* **2006**, *312*, 1900–1902. [CrossRef] [PubMed]
6. Knudsen, E.I.; Heckman, J.J.; Cameron, J.L.; Shonkoff, J.P. Economic, neurobiological, and behavioral perspectives on building America's future workforce. *Proc. Natl. Acad. Sci. USA* **2006**, *103*, 10155–10162. [CrossRef] [PubMed]
7. World Health Organization. Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health—Final Report of the Commission on Social Determinants of Health. Available online: https://www.who.int/publications/i/item/WHO-IER-CSDH-08.1 (accessed on 18 February 2022).
8. National Research Council. *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation*; The National Academies Press: Washington, DC, USA, 2015; ISBN 978-0-309-32485-4. [CrossRef]
9. Williams, P.G.; Lerner, M.A.; Council on Early Childhood; Council on School Health. School Readiness. *Am. Acad. Pediatr.* **2019**, *144*, e20191766. [CrossRef] [PubMed]
10. National Education Goals Panel. The goal 1 technical planning subgroup report on school readiness. In *Potential Strategies for Long-Term Indicator Development. Reports of the Technical Planning Subgroups*; National Education Goals Panel: Washington, DC, USA, 1991.
11. Duncan, G.J.; Dowsett, C.J.; Claessens, A.; Magnuson, K.; Huston, A.C.; Klebanov, P.; Pagani, L.S.; Feinstein, L.; Engel, M.; Brooks-Gunn, J.; et al. School readiness and later achievement. *Dev. Psychol.* **2007**, *43*, 1428–1446. [CrossRef]
12. Pan, Q.; Trang, K.; Love, H.R.; Templin, J. School readiness profiles and growth in academic achievement. *Front. Educ.* **2019**, *4*, 127. [CrossRef]
13. Romano, E.; Babchishin, L.; Pagani, L.S.; Kohen, D. School readiness and later achievement: Replication and extension using a national Canadian survey. *Dev. Psychol.* **2010**, *46*, 995–1007. [CrossRef]
14. Camacho, C.; Straatmann, V.S.; Day, J.C.; Taylor-Robinson, D. Development of a predictive risk model for school readiness at age 3 years using the UK Millennium Cohort Study. *BMJ Open* **2019**, *9*, e024851. [CrossRef]
15. Janus, M.; Duku, E. The school entry gap: Socioeconomic, family, and health factors associated with children's school readiness to learn. *Early Educ. Dev.* **2007**, *18*, 375–403. [CrossRef]
16. West, J.; Denton, K.; Reaney, L.M. *The Kindergarten Year: Findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (Rep. No. NCES 2001023)*; National Center for Education Statistics: Washington, DC, USA, 2000. Available online: http://ies.ed.gov/pubsearch/pubsinfo.asp?pubid=2001023 (accessed on 19 February 2022).
17. Behnke, M.; Smith, V.C.; Committee on Substance Abuse; Committee on Fetus and Newborn. Prenatal substance abuse: Short- and long-term effects on the exposed fetus. *Pediatrics* **2013**, *131*, e1009–e1024. [CrossRef] [PubMed]
18. Cho, K.; Frijters, J.C.; Zhang, H.; Miller, L.L.; Gruen, J.R. Prenatal exposure to nicotine and impaired reading performance. *J. Pediatr.* **2013**, *162*, 713–718.e2. [CrossRef] [PubMed]

19. Lee, S.J.; Bora, S.; Austin, N.C.; Westerman, A.; Henderson, J.M.T. Neurodevelopmental outcomes of children born to opioid-dependent mothers: A systematic review and meta-analysis. *Acad. Pediatr.* **2020**, *20*, 308–318. [CrossRef] [PubMed]
20. Levine, T.A.; Davie-Gray, A.; Kim, H.M.; Lee, S.J.; Woodward, L.J. Prenatal methadone exposure and child developmental outcomes in 2-year-old children. *Dev. Med. Child Neurol.* **2021**, *63*, 1114–1122. [CrossRef] [PubMed]
21. Pulsifer, M.B.; Butz, A.M.; Foran, M.O.; Belcher, H.M.E. Prenatal drug exposure: Effects on cognitive functioning at 5 years of age. *Clin. Pediatr.* **2008**, *47*, 58–65. [CrossRef] [PubMed]
22. O'Connor, T.G.; Heron, J.; Golding, J.; Beveridge, M.; Glover, V. Maternal antenatal anxiety and children's behavioral/emotional problems at 4 years. *Br. J. Psychiatry* **2002**, *180*, 502–508. [CrossRef]
23. Mensah, F.K.; Kiernan, K.E. Parents' mental health and children's cognitive and social development: Families in England in the Millennium Cohort Study. *Soc. Psychiatry Psychiatr. Epidemiol.* **2010**, *45*, 1023–1035. [CrossRef]
24. Glover, V. Maternal depression, anxiety and stress during pregnancy and child outcome: What needs to be done. *Best Pract. Res. Clin. Obstet. Gynaecol.* **2014**, *28*, 25–35. [CrossRef]
25. Gilman, S.E.; Gardener, H.; Buka, S.L. Maternal smoking during pregnancy and children's cognitive and physical developmental: A causal risk factor? *Am. J. Epidemiol.* **2008**, *168*, 522–531. [CrossRef]
26. Laplante, D.P.; Barr, R.G.; Brunet, A.; Galbaud du Fort, G.; Meaney, M.L.; Saucier, J.F.; Zelazo, P.R.; King, S. Stress during pregnancy affects general intellectual and language functioning in human toddlers. *Pediatr. Res.* **2004**, *56*, 400–410. [CrossRef]
27. Li, J.; Robinson, M.; Malacova, E.; Jacoby, P.; Foster, J.; van Eekelen, A. Maternal life stress events in pregnancy link to children's school achievement at age 10 years. *J. Pediatr.* **2013**, *162*, 483–489. [CrossRef] [PubMed]
28. Shulman, H.B.; D'Angelo, D.V.; Harrison, L.; Smith, R.A.; Warner, L. The Pregnancy Risk Assessment Monitoring System (PRAMS): Overview of Design and Methodology. *Am. J. Public Health* **2018**, *108*, 1305–1313. [CrossRef] [PubMed]
29. Parrish, J.W.; Young, M.B.; Perham-Hester, K.A.; Gessner, B.D. Identifying risk factors for child maltreatment in Alaska: A population-based approach. *Am. J. Prev. Med.* **2011**, *40*, 666–673. [CrossRef] [PubMed]
30. Parrish, J.W.; Shanahan, M.E.; Schnitzer, P.G.; Lanier, P.; Daniels, J.L.; Marshall, S.W. Quantifying sources of bias in longitudinal data linkage studies of child abuse and neglect: Measuring impact of outcome specification, linkage error, and partial cohort follow-up. *Inj. Epidemiol.* **2017**, *4*, 23. [CrossRef] [PubMed]
31. Rittman, D.; Parrish, J.; Lanier, P. Prebirth household challenges to predict adverse childhood experiences score by age 3. *Pediatrics* **2020**, *146*, e20201303. [CrossRef] [PubMed]
32. Austin, A.E.; Parrish, J.W.; Shanahan, M.E. Using time-to-event analysis to identify preconception and prenatal predictors of child protective services contact. *Child Abus. Negl.* **2018**, *82*, 83–91. [CrossRef]
33. Lumley, T.; Survey: Analysis of Complex Survey Samples. R Package Version 4.0. 2020. Available online: https://cran.r-project.org/web/packages/survey/survey.pdf (accessed on 19 February 2022).
34. Ellis, G.F.; Schneider, B.; Srvyr: 'Dplyr'-Like Syntax for Summary Statistics of Survey Sata. R Package Version 1.0.1. 2021. Available online: https://CRAN.R-project.org/package=srvyr (accessed on 19 February 2022).
35. Sigler, M.K. Expanding transition: Redefining school readiness in response to toxic stress. *Voices Urban Educ.* **2016**, *43*, 37–45.
36. Reichman, N.E. Low birth weight and school readiness. *Future Child* **2005**, *15*, 91–116. [CrossRef]
37. Bus, A.G.; IJzendoorn, M.H.; Pellegrini, A.D. Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Rev. Educ. Res.* **1995**, *65*, 1–21. [CrossRef]
38. Segers, E.; Damhuis, C.M.P.; van de Sande, E.; Verhoeven, L. Role of executive functioning and home environment in early reading development. *Learn. Individ. Differ.* **2016**, *49*, 251–259. [CrossRef]
39. Shonkoff, J.P.; Garner, A.S.; Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics* **2012**, *129*, e232–e246. [CrossRef] [PubMed]
40. Jackson, D.B.; Testa, A.; Vaughn, M.G. Adverse childhood experiences and school readiness among preschool-aged children. *J. Pediatr.* **2020**, *230*, 191–197.e5. [CrossRef] [PubMed]
41. Olds, D.L.; Kitzman, H.; Cole, R.; Robinson, J.; Sidora, K.; Luckey, D.W.; Henderson, C.R.; Hands, C.; Bondy, J.; Holmberg, J. Effects of nurse home visiting on maternal life course and child development: Age 6 follow-up results of a randomized trial. *Pediatrics* **2004**, *114*, 1550–1559. [CrossRef]
42. Lowell, D.I.; Carter, A.S.; Godoy, L.; Paulicin, B.; Briggs-Gowan, M.J. A randomized controlled trial of Child FIRST: A comprehensive home-based intervention translating research into early childhood practice. *Child Dev.* **2011**, *82*, 193–208. [CrossRef] [PubMed]

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Neglect, Abuse, and Adaptive Functioning: Food Security and Housing Stability as Protective Factors for Adolescents

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Abstract: This study addresses gaps in knowledge of protective factors that support adaptive functioning among maltreated adolescents. The sample included 1003 high-risk youths participating in the Longitudinal Studies of Child Abuse and Neglect (53% female, 56% Black, and 82% living in poverty). Adolescent neglect (Exposure to Risky Situations, Lack of Monitoring, Inattention to Basic Needs, Permitting Misbehavior, Lack of Support) and physical, sexual, and emotional abuse were self-reported at age 16. Age 18 adaptive functioning measures included healthcare receipt (medical, dental, and mental health), self-rated global health, high school graduation or enrollment, prosocial activities, peer relationships (Companionship, Conflict, Satisfaction, and Intimacy), and independent living skills. Previous childhood maltreatment, demographics, and earlier prosocial activities and peer relationships were controls. Structural equation modeling showed that adolescent neglect and abuse were associated with lower adaptive functioning. Multigroup models showed protective effects for food security on the relationships between sexual abuse and self-rated health and between Inadequate Monitoring and Companionship. Housing stability buffered relationships between Inadequate Support and high school graduation or enrollment and between Permitting Misbehavior and independent living skills. Findings imply the need for adolescent-focused prevention, including the promotion of food security and housing stability to support adaptive functioning in maltreated adolescents. However, notable mixed findings show the need for additional research.

Keywords: child maltreatment; adaptive functioning; protective factors; neglect; abuse; adolescence; resilience; healthcare; educational functioning; social functioning

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1. Introduction

According to the National Survey of Children's Exposure to Violence, more than a third (38%) of adolescents in the United States have experienced child maltreatment in their lifetime [1]. Similarly, a synthetic cohort lifetable analysis estimated that 37% of youths are reported to child protective services (CPS) for child maltreatment by 18 years of age [2]. The estimated lifetime economic burden of investigated child maltreatment during 2015 in the United States was USD 2 trillion [3]. In addition, many studies have identified that child maltreatment is associated with subsequent psychopathology, risk behaviors, and victimization [4–6]. Compounding the problem, unmet basic material needs for secure food and stable housing exist at disproportionately higher rates among families with maltreatment [7].

Though previous studies have articulated the consequences of maltreatment that occurs during childhood, limited research has focused on neglect and abuse that occurs

during adolescence. In addition, prior studies have primarily been framed from a problem-focused or deficit perspective of child maltreatment, examining its effects on later maladaptation. Relatively little research has been framed from a resilience-focused perspective, considering the relationship between child maltreatment and adaptive functioning [8]. A resilience-focused perspective may provide clearer and more effective targets for prevention to advance the healthy development of maltreated youths. This study contributes to knowledge in this area by examining the relationships between neglect and abuse types during adolescence and subsequent adaptive functioning. In addition, it examines potential moderating effects of two potential key modifiable protective factors: food security and housing stability.

1.1. Child Maltreatment and Adaptive Functioning

A resilience-focused perspective considers the capacity of an individual to adapt successfully to risks and challenges (e.g., child maltreatment) that could undermine adaptive functioning [9]. Adaptive functioning is the degree to which individuals perform well at social and interpersonal activities consistent with their development [10]. Given the key task of transitioning to independent adulthood in adolescence, key domains of adaptive functioning include health, high school completion, social connectedness (e.g., involvement in prosocial activities, positive relationships with friends), and independent living skills; these have been shown to predict health and well-being in emerging adulthood [11–13]. It is important to consider that resilience assumes adaptive functioning across multiple systems or domains, as an individual could be functioning adaptively in one domain (e.g., social connectedness) and maladaptively in another (e.g., high school completion) [9]. Thus, it is important to understand factors that can promote adolescent adaptive functioning across a variety of domains.

Among other factors, a substantial body of research has documented that child maltreatment is inversely associated with adaptive functioning [8,14], including health-related life quality [15], academic performance [16], and social connectedness [17,18]. In a probability sample of Vietnamese adolescents (N = 1851), Tran et al. found that self-reports of lifetime physical and sexual abuse were associated with lower quality of physical health; however, emotional abuse was associated with better academic performance [19]. Alink et al. found that children (M_{age} = 7.6) with CPS-reports of maltreatment struggled to develop social functioning relative to non-maltreated children (i.e., without CPS reports) [20]. Lower levels of social functioning were related to lower morning cortisol levels one year later, which is a physiological indicator of stress response. Oshri et al. examined the growth patterns of social skills among adolescents reported to CPS for maltreatment (N = 1179); maltreated adolescents who had higher or increased levels of social skills (approximately 30% of the sample) reported better physical health, higher independent living skills, and higher grades [18].

Among different types of maltreatment, neglect specifically has been negatively associated with adaptive functioning, such as academic performance and peer relations [21–23]. An investigation on a rural Chinese sample (N = 2397) found that diverse dimensions of neglect (physical, educational, and medical) were inversely associated with social living ability (prosocial activities, social and educational functioning, communication, independent living, and self-management) [24].

1.2. Child Maltreatment during Adolescence

Adolescence is the developmental period spanning childhood to adulthood during which multiple social and physical transitions take place [25]. Given neurological, cognitive, and social changes that occur during adolescence, it may be a sensitive period for child maltreatment exposure [26]. However, limited studies have focused on maltreatment specifically during adolescence [4,16,27]. An even smaller subset has included developmentally sensitive conceptualizations of maltreatment [4]. For example, neglect would be differently interpreted depending on development: leaving an infant or young child at

home unsupervised is considered neglect, whereas doing so for an adolescent usually is not [28]. Finally, the limited existing research with developmentally specific measures of adolescent maltreatment has been framed from a deficit perspective, focusing on health risk outcomes [4]. This does little to enlighten the effective promotion of adaptive functioning during adolescence.

1.3. Food Security and Housing Stability as Potential Protective Factors

Research that can identify malleable factors to promote adaptive functioning in the face of child maltreatment is highly relevant to intervention. Most research and existing maltreatment interventions to date have targeted parent and parent–child relationship factors, such as parenting knowledge, behavior, and parental health [8,29]. Given the well-established relationship between child maltreatment and poverty, however, increasing calls have been made to further address the material needs of families at risk for maltreatment [30]. This includes interventions to assure that children's basic needs for shelter (i.e., housing stability) and nutrition (i.e., food security) are met to hopefully prevent maltreatment and mitigate its deleterious effects. Of note, poverty and parental neglect are related but distinct factors that may both jeopardize housing and nutrition.

Food security and housing stability are basic needs that are integral to daily functioning [31,32]. Consistent with family stress theory, the absence of housing stability and food security can seriously strain the family system, compromising child adjustment [33,34]. Preoccupation and stress within the family system around not having enough food or stable shelter and physiological effects of their absence, such as hunger, fatigue, irritability, and difficulty concentrating [31,32], could compromise adaptive functioning among maltreated adolescents. Thus, the presence of food security and housing stability may promote resilience in children and adolescents in the face of maltreatment through their stabilizing effects on family systems, including their contribution to basic physiological needs, by promoting attendance to non-emergency health, educational and social needs, and skill development.

Empirical work supports food security and housing stability as potential moderators for the effects of child maltreatment on adolescent adaptive functioning. Inverse relationships between child maltreatment and housing stability and, to a lesser extent, food security, have been established [7,35]. For example, a systematic review of 21 articles found that housing instability, including homelessness, eviction, and multiple moves, is associated with caregiver-reported, child self-reported, and CPS indications of maltreatment [35]. Similarly, a study using a large United States sample found an inverse relationship between food security and child maltreatment [36].

DuMont et al. found that children who had experienced maltreatment were more likely to be successful in at least four of five domains of functioning, including graduating from high school, mental health, fewer substance use problems, fewer arrests, and less self-reported violence, if they grew up with both parents until age 18 or remained in their first out-of-home child welfare placement for more than 10 years [37]. Housing stability has been linked to children's educational attainment and cognition/learning, healthcare receipt, health, and wellbeing [38]; this may buffer the negative effects of maltreatment. Similarly, consistent access to adequate, nutritious food has been linked to better educational, social, and health outcomes [31,39], potentially mitigating the effects of maltreatment during adolescence.

1.4. The Current Study

The overarching objective of this study is to address gaps in knowledge on protective moderating factors—food security and housing stability—to inform interventions that will support adaptive functioning among maltreated adolescents. Using a developmentally sensitive, multidimensional measure of adolescent neglect with known psychometric properties [40], this study examines the effects of adolescent neglect and abuse types on adolescent adaptive functioning in the high-risk Longitudinal Studies of Child Abuse and

Neglect (LONGSCAN) sample. Guided by resilience theory [9], we examine multiple domains of adaptive functioning, including health (healthcare receipt and self-rated global health), high school graduation or enrollment, social connectedness (prosocial activities and peer relationships), and independent living skills. We address three research questions. First, to what extent do adolescent neglect and abuse types at age 16 relate to later adolescent adaptive functioning at age 18, above and beyond childhood maltreatment, poverty, and age 16-year prosocial activities and peer relationships? We hypothesized that adolescent neglect and abuse types would be inversely associated with all domains of adaptive functioning. Second, does food security moderate the relationships between adolescent neglect and abuse types and adaptive functioning? We hypothesized that food security would play a protective role, such that associations between adolescent neglect and abuse types and adaptive functioning would be weaker for individuals with food security than those with food insecurity. Third, does housing stability buffer the relationships between adolescent abuse and neglect types and adaptive functioning? We hypothesized that housing stability would play a protective role in the same manner as food security.

2. Method

2.1. Sample and Procedures

The study sample was derived from LONGSCAN, a multi-site longitudinal cohort study following children and adolescents at risk for maltreatment from age 4 to age 18 in the United States [41]. Data collection was conducted every two years beginning in 1991 when children were 4 years old and ending in 2012, when the 18-year data collection was completed. Parent–child dyads were interviewed at years 4–16 and children were interviewed at 18 years. Except for interviews at age 10, which were conducted by phone, data were collected via in-person interviews, with sensitive information collected by Audio Computer-Assisted Self Interviews. In addition, relatively brief telephone interviews with parents were conducted the years between biannual interviews (i.e., the odd-numbered child ages) to facilitate a more complete picture of the family environment and the children's development.

Each of the five sites used the same data collection protocols and measures but different sampling strategies. Sampling frames included children investigated by CPS (northwestern and southwestern sites), children with risk factors for maltreatment (poverty, etc.) served by pediatric clinics (eastern site) and in public health tracking systems (southern site), and children reported to CPS or in high-risk groups that were matched on neighborhood, race/ethnicity, and SES (midwestern site). Adolescents in the analytic sample of $N = 1003$ are a subset of the original $N = 1354$ study participants and were included if they completed the age 16-year and/or the 18-year study measures and had valid data on the hypothesized moderators (i.e., food security, housing stability). Black youths were overrepresented in the analytic sample (56%) relative to those who were excluded (45%), $\chi^2(1) = 13.485$, $p < 0.001$. White youths were underrepresented (24% analytic sample vs. 33% excluded), $\chi^2(1) = 10.033$, $p < 0.001$. No other differences were found. This study involved secondary data analysis of deidentified data obtained from the National Data Archive on Child Abuse and Neglect; it was thus determined to be non-human subjects research by Temple University's institutional review board.

2.2. Measures

2.2.1. 16-Year Adolescent Neglect

The Mid-adolescent Neglect Scale, a LONGSCAN-developed instrument, was administered to youths at 16 years of age to assess past-year experiences of parental neglect. Youths responded on a 4-point Likert response scale (strongly disagree, disagree, agree, strongly agree). The scale has five confirmed dimensions of neglect: Inadequate Monitoring (e.g., "*wanted to know where I was if not at home*"; $\alpha = 0.81$), Inattention to Basic Needs (e.g., "*made sure I had a safe place to be when I was not at school*"; $\alpha = 0.93$), Permitting Misbehavior (e.g., "*if I had wanted to smoke cigarettes, my parents would have been upset*"; $\alpha = 0.78$), Exposure to Risky Situations (e.g., "*were involved in loud fights that may have included hitting*; $\alpha = 0.81$),

and Inadequate Support (e.g., "*helped me when I had a problem*"; $\alpha = 0.91$). These scales have demonstrated convergent validity [40].

2.2.2. 16-Year Adolescent Abuse

At age 16, the adolescents self-reported physical abuse, sexual abuse, and emotional abuse from the age of 12. The scales included 12 physical abuse ($\alpha = 0.67$), 11 sexual abuse (girls $\alpha = 0.95$, boys $\alpha = 0.89$), and 12 emotional abuse ($\alpha = 0.81$) yes/no items [42]. They were based on Barnett et al.'s conceptualizations of abuse [43]. Responses were yes (1) or no (0). Sum scores of items where abuse was indicated were calculated for each measure.

2.2.3. 18-Year Adaptive Functioning Variables

Healthcare Receipt. Youths responded to three yes/no questions about the receipt of routine medical care ("*did you get a healthcare check-up?*") dental care ("*did you get dental care, or a dental check-up?*"), and psychological counseling ("*did you get counseling or therapy for a psychological or emotional problem?*") in the past 12 months. The psychological counseling question was combined with another question about whether these services were needed, since psychological counseling is not appropriate for everyone. The resulting variables indicated receiving (or not needing) routine medical, dental, or psychological care (1) and not receiving routine medical care, dental care, or needed psychological care (0).

Self-rated Global Health. The youths self-reported their health to a single item: "compared to others, how would you say your health is?". Responses were poor (1), fair (2), good (3), and excellent (4). This item is reliable and widely used [44].

Independent Living Skills. Independent living skills were assessed by the Ansell Casey Life Skills Assessment, Ages 11–18, Short Form. This 20-item scale measures adolescents' practical life skills in 5 domains: money management, work-study skills, self-care, daily living skills, and social development. The total raw score was used, which represents the percentage of overall possible mastery ($\alpha = 0.90$). Psychometric studies on the instrument have demonstrated internal consistency and test–retest reliability [45,46] with other work, demonstrating criterion validity [47].

High School Graduation or Enrollment. Caregivers reported by phone whether or not (*yes/no*) the youth "graduated from high school or received a GED" and were currently enrolled in high school. These questions were merged into a dichotomous variable indicating high school graduation or enrollment (*yes* = 1, *no* = 0).

Prosocial Activities. Youths responded to 11 yes/no questions about participation in sports, clubs, performing arts, scout troops, volunteer groups, religious or church groups or activities, an apartment, block, neighborhood, or community meeting, political or advocacy group meeting, political rally or march, and solidarity or ethnic support groups [42]. The items were summed for a total count of activities within the past year ($\alpha = 0.68$).

Peer Relationships. Adapted from Furman and Burhmester, LONGSCAN's Network of Relationships inventory was used to measure the quality of peer relationships [48]. The scale has four dimensions with 3 items each: Companionship (e.g., *how much free time do you spend with [friends];* $\alpha = 0.75$), Conflict (e.g., *how much do you disagree and quarrel with [friends];* $\alpha = 0.81$), Satisfaction (e.g., *how happy are you with the way things are between you and [friends];* $\alpha = 0.85$), and Intimacy (e.g., *how much do you tell everything to [friends];* $\alpha = 0.82$). Each question was asked separately about the best female friend, best male friend, male friend who is not a brother or boyfriend, female friend who is not a sister or girlfriend, boyfriend, and girlfriend. Youths indicated levels of satisfaction, frequency etc. on 5-point Likert-type response scales. Mean scores for each dimension were used (potential range: 15).

2.2.4. Moderating Variables

Food Security. Food security was measured by caregiver reports to 8 items. At 12, 14, and 16 years of age, caregivers reported on whether or not (*yes* = 1/*no* = 0) in the past 30 days the household ran out of money to buy food or the following occurred because there was not enough money to buy food: the household relied on a limited number of

food items, caregivers ate less food, caregivers cut their own meal sizes or skipped meals, children said that they were hungry, children ate less than caregivers felt they should, caregivers cut children's meal sizes or children skipped meals, and children went to bed hungry. Once summed, a score of zero indicated food security (1) and a score of one or higher indicated food insecurity (0).

Housing Stability. Housing stability was derived from annual administrations of LONGSCAN's Life Events Scale from 12–17 years. At each interview, the caregiver reported whether in the past year: the family moved, the child moved away from the family, the child "didn't have a place to stay and spent some nights with friends or relatives?", "the child didn't have a place to stay and spent some nights at a shelter", and whether the child/family was evicted from their home. Housing stability (1) was indicated by one or fewer family moves over the 6-year period and no indication of the other experiences of housing stability. Housing instability (0) was indicated by two or more moves with the family over the 6-year period or any indication of other housing instability experiences.

2.2.5. Control Variables

Childhood Maltreatment. Experiences of childhood abuse and neglect from 0 to 12 years were measured by self-report assessments at 12 years of lifetime physical abuse (15 items; α = 0.65), sexual abuse (11 items; α = 0.81), and emotional abuse (18 items; α = 0.82), and CPS reports of neglect through age 12. To accommodate for loss of memory for early childhood maltreatment, we also included CPS reports of any physical, sexual, or emotional abuse from age 0 to 4 years. These various indicators were combined to create a single dichotomous variable for childhood maltreatment (1 = yes, 0 = no).

16-year Adaptive Functioning. At 16 years, youths reported prosocial activities and peer relationships for measures parallel to those used for the 18-year outcome measures. These were used as control variables to assist in establishing temporal ordering.

Demographics. Sex (male = 0, female = 1) and race/ethnicity were reported by caregivers at baseline. Multiple responses were not allowed. Due to small distributions of Hispanic (6.8%), Native American (0.6%), Asian (0.3%), Mixed Race (11.8%) and Other (0.6%) categories, race/ethnicity was recoded as White (reference), Black (1), or Other (1). Poverty was ascertained by whether youths lived under the federal poverty level at ages 4, 6, 8, 12, 14, or 16 (indication at one or more timepoints was coded as poverty). These were based on caregiver reports of household income, the number of dependents living in the household, and the federal poverty limit for the year corresponding with data collection.

2.3. Analysis

2.3.1. Descriptive and Bivariate Analyses

Means and standard deviations were assessed for all continuous variables. For categorical and ordinal variables, frequency distributions were assessed (Table 1). Bivariate subgroup (i.e., food secure and insecure, housing stable and unstable) differences were assessed using t-tests and chi-squared tests. Bivariate correlations were examined to check for multicollinearity, using Allison's criteria of $R^2 < 0.60$ [49].

Table 1. Frequencies of Study Variables in Overall Sample, Food Security Groups, and Housing Stability Groups.

	Total Sample N **= 1003**	**Food Secure** N **= 486**	**Food Insecure** N **= 517**		**Housing Stable** N **= 618**	**Housing Unstable** N **= 385**	
	N (%)/M(SD)	**N (%)/M(SD)**	**N (%)/M(SD)**	**Statistical Test**	**N (%)/M(SD)**	**N (%)/M(SD)**	**Statistical Test**
Adaptive Functioning Outcomes at 18 years							
Received medical check-up	671 (79.2)	328 (78.5)	343 (80.0)	χ^2 (1, N = 847) = 0.28	422 (79.3)	249 (79.0)	χ^2 (1, N = 847) = 0.01
Received dental care	553 (65.2)	279 (66.7)	274 (63.7)	χ^2 (1, N = 848) = 0.86	349 (65.5)	204 (64.8)	χ^2 (1, N = 848) = 0.05
Received/did not need counseling/therapy	782 (92.5)	390 (93.5)	392 (91.6)	χ^2 (1, N = 845) = 1.15	491 (92.6)	291 (92.4)	χ^2 (1, N = 845) = 0.02
Self-rated health							
Excellent	263 (30.9)	137 (32.6)	126 (29.2)	χ^2 (1, N = 851) = 1.83	168 (31.5)	95 (30.0)	χ^2 (1, N = 851) = 0.28
Good	384 (45.1)	188 (44.8)	196 (45.5)		239 (44.8)	145 (45.7)	
Fair	184 (21.6)	87 (20.7)	97 (22.5)		114 (21.3)	70 (22.1)	
Poor	20 (2.4)	8 (1.9)	12 (2.8)		12 (2.4)	7 (2.2)	
Graduated or in high school	466 (79.1)	230 (86.5)	236 (73.1)	χ^2 (1, N = 589) = 15.86 ***	298 (83.7)	168 (72.1)	χ^2 (1, N = 589) = 11.48 ***
Prosocial activities	1.9 (1.9)	1.9 (1.8)	2.0 (2.1)	t (828.98) = 0.317	2.02 (1.9)	1.79 (1.9)	t (838) = −1.61
Companionship	3.4 (0.68)	3.5 (0.6)	3.5 (0.7)	t (838) = 0.335	3.49 (0.6)	3.45 (0.7)	t (838) = −0.91
Conflict	2.3 (0.73)	2.3 (0.7)	2.4 (0.7)	t (838) = 2.18 *	2.31 (0.8)	2.34 (0.7)	t (715.19) = 0.56
Satisfaction with Friends	4.1 (0.59)	4.1 (0.6)	4.1 (0.6)	t (838) = −0.94	4.13 (0.6)	4.09 (0.6)	t (838) = −0.96
Intimacy	3.4 (0.85)	3.5 (0.8)	3.5 (0.8)	t (838) = 0.857	3.54 (0.8)	3.50 (0.8)	t (838) = −0.99
Total independent living skills	80.9 (12.7)	81.1 (12.4)	80.6 (12.9)	t (829) = −0.86	81.0 (12.7)	80.7 (12.6)	t (829) = −0.36
Adolescent Abuse (12–16 years)							
Physical abuse	0.4 (0.9)	0.3 (0.9)	0.4 (1.0)	t (723) = 1.13	0.31 (0.8)	0.44 (1.1)	t (452.52) = 1.67
Emotional abuse	0.8 (1.6)	0.7 (1.5)	0.9 (1.7)	t (707.96) = 1.53	0.73 (1.4)	0.96 (2.0)	t (433.31) = 1.72
Sexual abuse	0.3 (1.2)	0.2 (0.9)	0.3 (1.4)	t (666.92) = 1.48	0.18 (0.9)	0.38 (1.5)	t (399.29) = 1.98 *
Control Variables							
Childhood maltreatment (0–12 years)	760 (76.2)	357 (74.1)	403 (78.3)	χ^2 (1, N = 997) = 2.41	432 (70.2)	328 (85.9)	χ^2 (1, N = 997) = 31.73 ***
Female	526 (52.8)	271 (56.2)	255 (49.5)	χ^2 (1, N = 997) = 4.50 *	327 (53.2)	199 (52.1)	χ^2 (1, N = 997) = 0.11
White	239 (24.0)	121 (25.1)	118 (22.9)	χ^2 (1, N = 997) = 0.66	143 (23.3)	96 (25.1)	χ^2 (1, N = 997) = 0.46
Black	561 (56.3)	254 (52.7)	307 (59.6)	χ^2 (1, N = 997) = 4.84 *	363 (59.0)	198 (51.8)	χ^2 (1, N = 997) = 4.95 *
Other	197 (19.8)	107 (22.2)	90 (17.5)	χ^2 (1, N = 997) = 3.50	109 (17.7)	88 (23.0)	χ^2 (1, N = 997) = 4.20 *
Poverty	820 (82.2)	363 (75.3)	457 (88.7)	χ^2 (1, N = 997) = 30.74 ***	484 (78.7)	336 (88.0)	χ^2 (1, N = 997) = 13.84 ***
Prosocial activities (16 years)	2.1 (1.5)	2.2 (1.6)	2.0 (1.5)	t (782.60) = −2.12 *	2.19 (1.5)	1.86 (1.5)	t (816) = −3.06 **
Companionship (16 years)	3.4 (0.7)	3.4 (0.7)	3.4 (0.7)	t (815) = 0.271	3.40 (0.7)	3.39 (0.7)	t (815) = −0.226
Conflict (16 years)	2.2 (0.7)	2.2 (0.6)	2.3 (0.7)	t (815) = 1.44	2.20 (0.7)	2.27 (0.7)	t (815) = 1.39
Satisfaction with friends (16 years)	4.1 (0.6)	4.1 (0.6)	4.1 (0.6)	t (814) = −0.58	4.07 (0.6)	4.07 (0.6)	t (814) = 0.12
Intimacy (16 years)	3.4 (0.9)	3.4 (0.9)	3.4 (0.9)	t (815) = −0.539	3.35 (0.9)	3.42 (0.8)	t (815) = 1.12

Notes: M = mean, SD = standard deviation. Statistical tests are chi-squared tests of independence for categorical variables and independent sample t-tests for continuous variables. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

2.3.2. Structural Equation Modeling

Single Group. Using a previously specified measurement model for adolescent neglect (see Figure S1), we conducted structural equation modeling in the overall sample [4,40]. Structural equation modeling was selected for its ability to incorporate the adolescent neglect latent variable and multiple outcome variables into a single model, reduce measurement error, and easily apply advanced missing data techniques to reduce bias [50]. In a single model, the eleven outcome variables were regressed on the 5-factor measurement model for adolescent neglect, adolescent sexual abuse, physical abuse, and emotional abuse scores, and control variables (i.e., race/ethnicity, sex, poverty, and childhood maltreatment). In addition, 18-year measures of prosocial activities and peer relationships were regressed on the corresponding 16-year measures. Weighted least squared square means and variance adjusted (WLSMV) estimation was used. Independent living skills, peer relationships, and prosocial activities were treated as continuous; standardized betas are reported for these. All other variables were treated as categorical or ordered categorical. No interpretable effect size is provided by M*plus* for categorical and ordered categorical outcomes with WSLMV [51]; therefore, unstandardized betas are reported for these. Hu and Bentler's fit criteria were applied: Root Mean Square Error of Approximation (RMSEA) < 0.06, Tucker Lewis Index (TLI) > 0.95, and Standardized Root Mean Squared Residual (SRMR) < 0.08 [52]. Pairwise present was used to manage item-level missingness.

Multigroup. Following analysis of the one-group structural equation model, we conducted multigroup analysis to assess moderated effects for housing stability and food security status. In order to rule out the possibility that any group differences in structural paths were due to measurement bias, measurement invariance analyses were first conducted to assess whether the configuration of the items (configural invariance) and the contribution of items to factors (metric invariance) in the 5-factor adolescent neglect measurement model were equivalent between groups [53]. Configural models were first run to simultaneously examine the measurement model across the subgroups with no constraints, examining the direction and significance of item loadings. Metric invariance was then tested to assess the group equivalence of the relationships between scale items and latent variables. This was accomplished by comparing the configural model to the subsequent model in which factor loadings were constrained to be equal across groups. Deteriorations in model fit, including a significant log likelihood ratio test and deterioration in RMSEA, TLI, and SRMR would indicate metric non-invariance [54].

Next, multiple group structural equation modeling analysis was conducted. Two sets of models determined whether (1) food security and (2) housing stability moderated relationships between adolescent neglect and abuse and subsequent adaptive functioning. Group differences were tested by labeling and creating difference terms for individual structural paths with the M*plus'* "Model Constraint" command (e.g., "path1_secure − path1_insecure = path1_difference"). M*plus* provides estimates for difference terms (i.e., moderated effects) and associated Wald tests.

3. Results

3.1. Descriptive and Bivariate Statistics

In the overall sample, two thirds of the youths (65%) reported receiving dental care in the past year, making it the least frequently met healthcare need followed by regular medical check-ups (79%) and counseling/therapy (93%). Three quarters (76%) of youths perceived themselves to be in excellent or good health. Total scores indicated 81% mastery of independent living skills (range: 33–100). On average, the youths engaged in 2 out of 11 prosocial activities (range: 0–9). Four fifths (79%) of the youths had graduated from or were currently enrolled in high school. Half (49%, n = 486) were food secure and 62% (n = 618) had stable housing.

Several statistically significant group differences were found at the bivariate level. Of note, more youths who were food secure had graduated from or were enrolled in high school (87%) compared to those experiencing food insecurity (73%), and they had lower

conflict with friends at age 18 (M = 2.3 vs. 2.4). Significantly more youths with stable housing had graduated from or were enrolled in high school (84%) than those who had experienced housing instability (72%), and they had lower adolescent sexual abuse scores (0.18 vs. 0.38).

3.2. Structural Equation Model—Single Group

Parameter estimates for the single group model are shown in Table 2. Model fit indices were within range (see Table 3). More Inadequate Monitoring was related to lower Companionship (β = −0.13, SE = 0.06, p = 0.037), Satisfaction (β = −0.13, SE = 0.06, p = 0.023), and Intimacy with friends (β = −0.15, SE = 0.06, p = 0.010), but higher self-rated health (B = 0.19, SE = 0.07, p = 0.008). Greater Inattention to Basic Needs was associated with a lower likelihood of receiving dental care in the past year (B = −0.61, SE = 0.24, p = 0.011), but higher independent living skills (β = 0.48, SE = 0.18, p = 0.006). Permitting Misbehavior was related to engagement in fewer prosocial activities (β = −0.13, SE = 0.06, p = 0.026). Greater Exposure to Risky Situations (β = −0.29, SE = 0.09, p = 0.001) and Inadequate Support (β = −0.40, SE = 0.12, p = 0.001) were related to lower independent living skills. Greater Inadequate Support was also related to higher conflict with friends (β = 0.29, SE = 0.12, p = 0.015).

Physical abuse was associated with lower independent living skills (β = −0.12, SE = 0.04, p = 0.004). Emotional abuse was related to lower self-rated health (B = −0.06, SE = 0.03, p = 0.028) but higher independent living skills (β = 0.13, SE = 0.05, p = 0.014). Sexual abuse was associated with lower Companionship (β = −0.08, SE = 0.04, p = 0.038) and Intimacy (β = −0.11, SE = 0.05, p = 0.030).

3.3. Structural Equation Model—Food Security Multigroup Analysis

Measurement invariance testing for the food security groups revealed configurations within groups were as expected and there was no significant deterioration in fit between the configural and metric models (Table 3). Thus, structural analysis proceeded with this support for measurement invariance. Structural models for the individual outcomes were run separately due to non-convergence of the larger model. Problems with nonconvergence and larger standard errors associated with the small subgroup sizes were addressed by simplifying the race variable to Black or non-Black, and removing childhood maltreatment from the independent living model.

The multigroup analysis identified several significant group differences for the food secure and insecure groups (see underlined coefficients in Table 4). Sexual abuse was related to higher self-rated health in the food secure group, but not the food insecure group (Difference = 0.26, SE = 0.08, p = 0.001). Another moderated effect indicated a relationship between Inadequate Monitoring and lower Companionship in the food insecure group, but no relationship in the food secure group (Difference = −0.20, SE = 0.08, p = 0.013). Finally, sexual abuse was related to higher Conflict with friends, but only in the food secure group (Difference = −0.12, SE = 0.05, p = 0.014).

Table 2. Structural Equation Model Predicting Functional Adaptations (N = 1003).

	Received Medical Check-Up		Received Dental Care		Received Needed Counseling/Therapy		Self-Rated Health		Graduated or in High School	
	B (*SE*)	***p***	**B (*SE*)**	***p***	**B (*SE*)**	***p***	**B (*SE*)**	***p***	**B (*SE*)**	***p***
Adolescent Neglect										
Inadequate Monitoring	0.12 (0.09)	0.204	0.07 (0.09)	0.397	−0.19 (0.12)	0.121	0.19 (0.07) **	0.008	−0.03 (0.11)	0.795
Inattention to Basic Needs	−0.23 (0.26)	0.382	−0.61 (0.24) *	0.011	0.09 (0.40)	0.824	−0.32 (0.19)	0.098	−0.29 (0.32)	0.373
Permitting Misbehavior	0.07 (0.10)	0.469	0.08 (0.09)	0.341	0.10 (0.12)	0.403	0.11 (0.07)	0.115	−0.20 (0.11)	0.075
Exposure to Risky Situation	0.08 (0.14)	0.587	0.15 (0.13)	0.242	−0.14 (0.20)	0.481	0.17 (0.10)	0.097	0.20 (0.16)	0.207
Inadequate Support	−0.02 (0.18)	0.925	0.26 (0.17)	0.123	−0.32 (0.27)	0.235	−0.22 (0.14)	0.121	0.17 (0.23)	0.473
Adolescent Abuse										
Physical Abuse	0.07 (0.08)	0.423	0.08 (0.07)	0.272	−0.13 (0.11)	0.237	0.03 (0.05)	0.612	0.13 (0.10)	0.167
Emotional Abuse	0.00 (0.05)	0.966	−0.01 (0.04)	0.823	0.00 (0.06)	0.964	−0.06 (0.03) *	0.028	−0.06 (0.06)	0.316
Sexual Abuse	0.01 (0.05)	0.773	0.00 (0.05)	0.946	0.14 (0.27)	0.609	0.01 (0.04)	0.760	−0.04 (0.06)	0.457
Control Variables										
Child Maltreatment (0–12 years)	−0.06 (0.12)	0.601	−0.18 (0.11)	0.116	−0.19 (0.17)	0.255	−0.04 (0.09)	0.648	−0.28 (0.13) *	0.041
Female	0.41 (0.10) ***	0.000	0.18 (0.09)	0.058	−0.20 (0.14)	0.148	−0.36 (0.08) ***	0.000	0.18 (0.12)	0.142
Black (ref.: White)	0.18 (0.14)	0.204	0.08 (0.13)	0.562	−0.22 (0.18)	0.206	0.21 (0.10) *	0.032	0.44 (0.18) *	0.015
Other (ref.: White)	−0.04 (0.15)	0.803	0.16 (0.15)	0.288	−0.35 (0.19)	0.070	0.21 (0.11)	0.068	0.50 (0.22) *	0.024
Poverty	0.02 (0.14)	0.918	−0.43 (0.13) **	0.001	0.05 (0.18)	0.722	0.03 (0.11)	0.769	−1.01 (0.23) ***	0.000
Outcome (16 years)										

	Prosocial Activities		Companionship		Conflict		Satisfaction		Intimacy		Total Independent Living Skills	
	β (SE)	***p***	**β (SE)**	***p***	**β (SE)**	***p***	**β (SE)**	***p***	**β (SE)**	***p***	**β (SE)**	***p***
Adolescent Neglect												
Inadequate Monitoring	−0.03 (0.06)	0.567	−0.13 (0.06) *	0.037	−0.09 (0.06)	0.097	−0.13 (0.06) *	0.023	−0.15 (0.06) *	0.010	−0.07 (0.06)	0.253
Inattention to Basic Needs	−0.08 (0.18)	0.644	−0.15 (0.18)	0.401	−0.17 (0.18)	0.361	−0.25 (0.18)	0.176	−0.04 (0.17)	0.799	0.48 (0.18) **	0.006
Permitting Misbehavior	−0.13 (0.06) *	0.026	0.03 (0.07)	0.681	0.05 (0.07)	0.470	0.03 (0.06)	0.635	−0.04 (0.06)	0.525	−0.08 (0.07)	0.248
Exposure to Risky Situation	0.05 (0.09)	0.558	0.01 (0.09)	0.915	0.05 (0.10)	0.646	0.08 (0.10)	0.452	0.05 (0.10)	0.600	−0.29 (0.09) **	0.001
Inadequate Support	0.05 (0.12)	0.669	0.10 (0.12)	0.415	0.29 (0.12) *	0.015	0.13 (0.12)	0.276	0.07 (0.11)	0.570	−0.40 (0.12) **	0.001
Adolescent Abuse												
Physical Abuse	−0.01 (0.04)	0.788	0.04 (0.04)	0.341	0.02 (0.04)	0.559	0.08 (0.04)	0.056	0.04 (0.05)	0.390	−0.12 (0.04) **	0.004
Emotional Abuse	0.05 (0.04)	276	−0.04 (0.05)	0.416	0.00 (0.05)	0.995	−0.07 (0.04)	0.098	−0.01 (0.05)	0.792	0.13 (0.05) *	0.014
Sexual Abuse	−0.02 (0.05)	0.751	−0.08 (0.04) *	0.038	−0.02 (0.03)	0.516	0.04 (0.04)	0.296	−0.11 (0.05) *	0.030	0.04 (0.06)	0.430
Control Variables												
Child Maltreatment (0–12 years)	0.03 (0.03)	0.322	−0.01 (0.04)	0.793	−0.02 (0.03)	0.654	0.01 (0.04)	0.748	0.00 (0.03)	0.972	−0.06 (0.04)	0.119
Female	−0.06 (0.03)	0.087	−0.02 (0.03)	0.591	−0.02 (0.03)	0.524	−0.02 (0.04)	0.544	0.08 (0.03) *	0.021	0.15 (0.04) ***	0.000
Black (ref.: White)	0.04 (0.05)	0.456	0.12 (0.05) **	0.008	0.25 (0.04) ***	0.000	0.09 (0.05)	0.079	0.06 (0.05)	0.186	−0.15 (0.05) **	0.002
Other (ref.: White)	−0.04 (0.05)	0.474	0.12 (0.04) **	0.007	0.12 (0.04) **	0.001	0.04 (0.05)	0.428	0.05 (0.05)	0.279	−0.11 (0.05) *	0.018
Poverty	−0.01 (0.04)	0.745	−0.00 (0.04)	0.987	0.00 (0.04)	0.914	−0.09 (0.04) *	0.031	−0.05 (0.04)	0.145	0.04 (0.04)	0.403
Outcome (16 years)	0.39 (0.04) ***	0.000	0.40 (0.03) ***	0.000	0.38 (0.03) ***	0.000	0.39 (0.04) ***	0.000	0.41 (0.04) ***	0.000	-	-

Notes: β = standardized beta, SE = standard error, B = unstandardized beta, ref. = reference. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3. Fit Indices.

	$\chi^2/\Delta\chi^2$	RMSEA (90% CI)	TLI	SRMR
Measurement Invariance Testing				
Food Security				
Configural		0.063 (0.060, 0.065)	0.944	0.082
Metric	56.265 (42), $p = 0.070$	0.051 (0.049, 0.054)	0.962	0.084
Housing Stability				
Configural		0.059 (0.057, 0.061)	0.951	0.068
Metric	68.322 (42), $p = 0.006$	0.049 (0.046, 0.051)	0.966	0.072
Structural Models				
Single Group	4818.46 (1802), $p < 0.001$	0.041 (0.039, 0.042)	0.936	0.059
Multigroup Models for Food Security				
Healthcare	4245.03 (2366), $p < 0.001$	0.040 (0.038, 0.042)	0.963	0.071
Dental care	4251.46 (2366), $p < 0.001$	0.040 (0.038, 0.042)	0.963	0.071
Mental healthcare	4242.73 (2366), $p < 0.001$	0.040 (0.038, 0.042)	0.963	0.072
Self-rated health	4244,03 (2366), $p < 0.001$	0.040 (0.038, 0.042)	0.963	0.071
High School graduation/ enroll.	4261.42 (2366), $p < 0.001$	0.040 (0.038, 0.042)	0.963	0.072
Prosocial Activities	4341.50 (2447), $p < 0.001$	0.039 (0.037, 0.041)	0.963	0.072
Companionship	4323.87 (2549), $p < 0.001$	0.037 (0.035, 0.039)	0.965	0.071
Conflict with friends	4343.98 (2447), $p < 0.001$	0.039 (0.038, 0.041)	0.963	0.072
Satisfaction with friend	4171.64 (2445), $p < 0.001$	0.038 (0.036, 0.040)	0.967	0.069
Intimacy	4380.97 (2447), $p < 0.001$	0.040 (0.038, 0.042)	0.962	0.072
Independent Living Skills	4127.18 (2240), $p < 0.001$	0.041 (0.039, 0.043)	0.962	0.065
Multigroup Models for Housing Stability				
Healthcare	4309.47 (2366), $p < 0.001$	0.041 (0.039, 0.043)	0.961	0.073
Dental care	4308.49 (2366), $p < 0.001$	0.041 (0.039, 0.042)	0.961	0.073
Mental healthcare	4303.22 (2366), $p < 0.001$	0.041 (0.039, 0.042)	0.961	0.074
Self-rated health	4226.24 (2466), $p < 0.001$	0.038 (0.036, 0.040)	0.965	0.073
High School graduation/ enroll.	4313.71 (2366), $p < 0.001$	0.041 (0.039, 0.043)	0.961	0.073
Prosocial Activities	4400.82 (2447), $p < 0.001$	0.040 (0.038, 0.042)	0.961	0.072
Companionship	4378.14 (2549), $p < 0.001$	0.038 (0.036, 0.040)	0.964	0.073
Conflict with friends	4409.02 (2447), $p < 0.001$	0.040 (0.038, 0.042)	0.961	0.073
Satisfaction with friend	4392.32 (2447), $p < 0.001$	0.040 (0.038, 0.042)	0.961	0.072
Intimacy	4439.41 (2447), $p < 0.001$	0.040 (0.039, 0.042)	0.960	0.073
Independent Living Skills	4249.95 (2240), $p < 0.001$	0.042 (0.040, 0.044)	0.958	0.065

Notes: RMSEA = Root Mean Square Error of Approximation; TLI = Tucker Lewis Index; SRMR = Standardized Root Mean Squared Residual.

3.4. Structural Equation Model—Housing Stability Multigroup Analysis

Modifications were made to address errors in model identification at the measurement invariance testing stage for the housing stability groups: (1) item 20 was cut from the Inattention to Basic Needs factor and (2) an error covariance between items 1 and 2 was removed. As shown in Table 3, the log ratio test of model differences between the configural and metric models was significant. However, all other model fit indices remained within thresholds. Thus, analysis proceeded with this partial support for measurement invariance.

Several differences were also found for the housing stability groups (see underlined path coefficients in Table 5). More Inadequate Support was associated with a lower likelihood of graduating from or being enrolled in high school, but only in the unstable housing group (Difference = 1.65, $SE = 0.57$, $p = 0.004$). More Permitting Misbehavior was related to lower independent living skills only when housing was unstable, but not in the stable housing group (Difference = 3.77, $SE = 1.77$, $p = 0.033$). In addition, more Inadequate Monitoring was associated with a greater likelihood of high school graduation or enrollment when housing was unstable, but a lower likelihood of graduation or enrollment when housing was stable (Difference = 0.85, $SE = 0.28$, $p = 0.002$). Emotional abuse was unrelated to prosocial activities in the stable housing group but was related to higher prosocial activities in the unstable housing group (Difference = -0.25, $SE = 0.10$, $p = 0.014$).

Table 4. Multigroup Structural Equation Models Predicting Functional Adaptations as Moderated by Food Security (N = 1003).

	Received Medical Check-Up		Received Dental Care		Received Needed Counseling/Therapy		Self-Rated Health		Graduated or in High School	
	FS B (SE)	**FI B (SE)**	**FS B (SE)**	**FI B (SE)**	**FS B (SE)**	**FI B (SE)**	**FS B (SE)**	**FI B (SE)**	**FS B (SE)**	**FI B (SE)**
Adolescent Neglect										
IM	−0.21 (0.11)	−0.00 (0.14)	0.03 (0.13)	0.20 (0.14)	0.25 (0.18)	0.16 (0.23)	0.21 (0.10) *	0.19 (0.12)	−0.29 (0.21)	0.17 (0.16)
IBN	−0.17 (0.32)	−0.29 (0.26)	−0.07 (0.41)	−0.90 (0.31) **	0.53 (0.64)	−0.42 (0.47)	−0.33 (0.26)	−0.15 (0.23)	0.80 (0.64)	−0.28 (0.34)
PM	0.07 (0.14)	0.08 (0.13)	0.06 (0.16)	0.12 (0.14)	0.34 (0.23)	−0.10 (0.20)	0.14 (0.11)	0.08 (0.11)	−0.56 (0.30)	−0.14 (0.14)
ERS	−0.12 (0.15)	0.18 (0.16)	−0.29 (0.18)	0.30 (0.16)	−0.32 (0.31)	0.16 (0.25)	0.18 (0.12)	0.06 (0.13)	0.11 (0.26)	0.005 (0.19)
IS	−0.15 (0.24)	0.14 (0.19)	−0.03 (0.31)	0.29 (0.21)	−0.86 (0.47)	0.21 (0.32)	−0.30 (0.20)	−0.31 (0.18)	−0.41 (0.51)	0.00 (0.25)
Adolescent Abuse										
PA	0.07 (0.12)	0.05 (0.10)	0.10 (0.16)	0.05 (0.08)	0.21 (0.32)	−0.22 (0.20)	−0.03 (0.06)	0.05 (0.08)	−0.00 (0.27)	0.14 (0.11)
EA	−0.17 (0.12)	0.02 (0.08)	−0.11 (0.14)	0.01 (0.05)	−0.05 (0.14)	−0.06 (0.07)	−0.06 (0.04)	−0.07 (0.04)	0.05 (0.24)	0.02 (0.06)
SA	0.31 (0.24)	−0.03 (0.07)	0.65 (0.55)	−0.04 (0.06)	0.11 (0.41)	0.24 (0.40)	0.22 (0.05) ***	−0.04 (0.06) [1]	−0.12 (0.19)	−0.03 (0.06)
Control Variables										
CM (0–12 years)	−0.03 (0.07)	−0.06 (0.07)	−0.25 (0.19)	−0.19 (0.17)	−1.06 (0.47) *	0.12 (0.28)	−0.22 (0.14)	−0.07 (0.14)	−0.13 (0.26)	−0.42 (0.20) *
Female	0.17 (0.07) *	0.23 (0.07) ***	0.25 (0.16)	0.17 (0.14)	−0.48 (0.28)	−0.19 (0.20)	−0.42 (0.12) **	−0.46 (0.12) ***	0.39 (0.24)	0.21 (0.16)
B (ref.: non-B)	−0.00 (0.07)	0.13 (0.08)	−0.20 (0.17)	−0.02 (15)	0.05 (0.23)	−0.04 (0.20)	0.00 (0.12)	0.15 (0.12)	0.50 (0.27)	−0.15 (0.17)
Poverty	0.01 (0.07)	0.04 (0.07)	−0.49 (0.20) *	−0.39 (0.22)	−0.04 (0.27)	0.12 (0.28)	0.26 (0.14)	0.13 (0.18)	−0.84 (0.44)	−0.90 (0.43) *
Outcome (16 years)										

	Prosocial Activities		Companionship		Conflict		Satisfaction		Intimacy		Total Independent Living Skills	
	FS β (SE)	**FI β (SE)**	**FS β (SE)**	**FI β (SE)**	**FS β (SE)**	**FI β (SE)**	**FS β (SE)**	**FI β (SE)**	**FS β (SE)**	**FI β (SE)**	**FS β (SE)**	**FI β (SE)**
Adolescent Neglect												
IM	0.01 (0.09)	−0.08 (0.08)	0.02 (0.08)	−0.27 (0.09) ** [2]	−0.14 (0.08)	−0.01 (0.09)	−0.15 (0.08)	−0.10 (0.08)	−0.15 (0.07) *	−0.15 (0.09)	−0.10 (0.09)	−0.08 (0.09)
IBN	−0.18 (0.21)	0.04 (0.18)	0.00 (0.22)	0.03 (0.19)	−0.32 (0.25)	−0.07 (0.20)	−0.20 (0.24)	0.02 (0.17)	−0.19 (0.22)	0.22 (0.19)	0.10 (0.25)	0.26 (0.19)
PM	−0.07 (0.08)	−0.17 (0.08) *	0.02 (0.09)	0.04 (0.09)	0.10 (0.10)	−0.02 (0.09)	0.13 (0.09)	−0.09 (0.09)	0.04 (0.08)	−0.10 (0.09)	−0.04 (0.10)	−0.10 (0.09)
ERS	0.02 (0.11)	0.09 (0.10)	−0.07 (0.10)	−0.09 (0.11)	0.01 (0.12)	0.05 (0.12)	0.05 (0.12)	−0.06 (0.10)	0.06 (0.10)	−0.04 (0.12)	−0.20 (0.12)	−0.08 (0.10)
IS	0.15 (0.17)	−0.06 (0.13)	−0.07 (0.17)	0.06 (0.12)	0.43 (0.17) *	0.20 (0.15)	0.07 (0.16)	−0.03 (0.12)	0.09 (0.16)	−0.00 (0.12)	−0.04 (0.18)	−0.29 (0.14) *
Adolescent Abuse												
PA	−0.05 (0.04)	0.01 (0.05)	−0.01 (0.07)	0.05 (0.05)	0.06 (0.07)	−0.01 (0.05)	0.04 (0.08)	0.07 (0.04)	−0.03 (0.08)	0.05 (0.06)	−0.06 (0.05)	−0.10 (0.07)
EA	0.14 (0.06) *	−0.01 (0.05)	0.03 (0.09)	−0.06 (0.05)	−0.10 (0.10)	0.05 (0.05)	0.05 (0.09)	−0.07 (0.04)	0.06 (0.09)	−0.05 (0.06)	−0.09 (0.07)	0.12 (0.07)
SA	−0.04 (0.07)	−0.02 (0.06)	−0.07 (0.07)	−0.09 (0.04) *	0.11 (0.05) *	−0.05 (0.03) [3]	−0.09 (0.04)	−0.01 (0.04)	−0.14 (0.07) *	−0.09 (0.06)	0.02 (0.06)	0.08 (0.11)

Table 4. *Cont.*

	Received Medical Check-Up		Received Dental Care		Received Needed Counseling/Therapy		Self-Rated Health		Graduated or in High School			
	FS B (SE)	FI B (SE)	FS B (SE)	FI B (SE)	FS B (SE)	FI B (SE)	FS B (SE)	FI B (SE)	FS B (SE)		FI B (SE)	
Control Variables												
CM (0–12 years)	0.02 (0.12)	0.00 (0.12)	−0.22 (0.12)	−0.07 (0.12)	−0.15 (0.11)	−0.01 (0.12)	0.01 (0.11)	−0.11 (0.13)	−0.04 (0.12)	−0.05 (0.13)	-	-
Female	−0.08 (0.10)	−0.06 (0.10)	−0.04 (0.10)	0.02 (0.10)	0.01 (0.10)	0.09 (0.10)	−0.10 (0.10)	0.29 (0.10) **	0.33 (0.10) ***	0.47 (0.09) ***	0.08 (0.05)	0.18 (0.05) ***
B (ref.: non-B)	0.01 (0.05)	0.12 (0.06) *	0.04 (0.05)	0.01 (0.05)	0.17 (0.11)	0.15 (0.06) *	0.03 (0.05)	0.04 (0.05) **	0.05 (0.06)	−0.04 (0.05)	−0.07 (0.05)	−0.03 (0.05)
Poverty	0.15 (0.11)	0.04 (0.19)	0.11 (0.11)	0.13 (0.15)	0.25 (0.12) *	0.34 (0.16) *	−0.28 (0.12) *	0.02 (0.18)	−0.10 (0.12)	−0.11 (0.14)	0.01 (0.06)	−0.01 (0.05)
Outcome (16 years)	−0.44 (0.04) ***	0.37 (0.05) ***	0.28 (0.04) ***	0.42 (0.04) ***	0.35 (0.05) ***	0.38 (0.05) ***	0.32 (0.04) ***	0.35 (0.04) ***	0.35 (0.05) ***	0.38 (0.04) ***		

Notes: Moderation is indicated by underline. B = standardized, SE = standard error, B = unstandardized, ref. = reference. FS = food secure, FI = food insecure, IM = Inadequate Monitoring, IBN = Inattention to Basic Needs, PM = Permitting Misbehavior, ERS = Exposure to Risky Situations, IS = Inadequate Support, PA = physical abuse, EA = emotional abuse, SA = sexual abuse, CM = child maltreatment, B = Black. Outcome (16) signifies the prior level of the outcome variable, when available (e.g., prosocial activities at age 16). Due to nonconvergence, models were run for each outcome individually. Model adjustments included simplifying the race variable to Black or non-Black. The childhood maltreatment variable was trimmed from the independent living model to resolve non-convergence. [1] Difference = 0.26 (0.08) $p = 0.001$. [2] Difference = 0.20 (0.08), $p = 0.013$; [3] Difference = −0.12 (0.05), $p = 0.014$. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 5. Multigroup Structural Equation Models Predicting Functional Adaptations as Moderated by Housing Stability ($N = 1003$).

	Received Medical Check-Up		Received Dental Care		Received Needed Counseling/Therapy		Self-Rated Health		Graduated or Enrolled in High School	
	SH B (SE)	UH B (SE)	SH B (SE)	UH B (SE)	SH B (SE)	UH B (SE)	SH B (SE)	UH B (SE)	SH B (SE)	UH B (SE)
Adolescent Neglect										
IM	0.07 (0.11)	0.21 (0.20)	0.05 (0.10)	0.02 (0.17)	0.12 (0.13)	0.23 (0.32)	0.17 (0.09)	0.34 (0.15) *	−0.32 (0.16) *	0.52 (0.22) * [4]
IBN	−0.29 (0.28)	−0.09 (0.42)	−0.32 (0.25)	−0.83 (0.41) *	0.06 (0.42)	−0.94 (0.89)	−0.13 (0.22)	−0.37 (0.29)	−0.66 (0.42)	0.91 (0.60)
PM	0.13 (0.14)	0.09 (0.17)	0.12 (0.13)	0.06 (0.13)	0.16 (0.19)	0.16 (0.23)	0.05 (0.10)	0.16 (0.11)	−0.12 (0.17)	−0.41 (0.20) *
ERS	0.06 (0.14)	−0.05 (0.24)	−0.09 (0.13)	0.36 (0.22)	−0.24 (0.22)	0.66 (0.44)	0.08 (0.11)	0.19 (0.16)	0.33 (0.20)	−0.46 (0.31)
IS	0.05 (0.20)	−0.17 (0.34)	0.03 (0.19)	0.46 (0.31)	−0.23 (0.29)	0.17 (0.55)	−0.32 (0.18)	−0.35 (0.23)	0.62 (0.33)	−10.02 (0.47) * [5]
Adolescent Abuse										
PA	0.09 (0.12)	−0.07 (0.22)	0.13 (0.10)	−0.04 (0.09)	−0.05 (0.10)	−0.27 (0.31)	−0.00 (0.07)	0.07 (0.07)	0.38 (0.20)	−0.08 (0.15)
EA	−0.00 (0.06)	−0.07 (0.10)	0.04 (0.06)	−0.05 (0.05)	−0.10 (0.06)	−0.04 (0.15)	−0.07 (0.04)	−0.05 (0.04)	−0.11 (0.12)	0.16 (0.11)
SA	−0.06 (0.07)	0.35 (0.42)	0.01 (0.05)	0.06 (0.07)	0.06 (0.31)	0.33 (0.49)	−0.01 (0.05)	0.02 (0.06)	−0.17 (0.11)	−0.00 (0.09)
Control Variables										
CM (0-12 years)	−0.07 (0.15)	−0.17 (0.27)	−0.16 (0.13)	−0.39 (0.24)	−0.15 (0.20)	−0.76 (0.58)	−0.18 (0.12)	−0.05 (0.19)	−0.32 (0.20)	−0.23 (0.29)
Female	0.31 (0.13) *	0.62 (0.23) **	0.28 (0.12) *	0.05 (0.16)	−0.51 (0.20) *	0.01 (0.28)	−0.39 (0.10) ***	−0.50 (0.14) **	0.51 (0.19) **	0.11 (0.21)
B (ref.: non-B)	0.11 (0.14)	0.16 (0.19)	−0.07 (0.13)	−0.08 (0.17)	−0.14 (0.17)	0.26 (0.26)	−0.03 (0.11)	0.24 (0.13)	−0.02 (0.22)	0.10 (0.21)
Poverty	0.13 (0.15)	−0.09 (0.29)	−0.44 (0.15) *	−0.37 (0.25)	−0.21 (0.24)	0.40 (0.38)	0.09 (0.12)	0.40 (0.22)	−0.78 (0.36) *	−10.28 (0.60) *
Outcome (16 years)										

Table 5. *Cont.*

	Prosocial Activities		Companionship		Conflict		Satisfaction		Intimacy		Total Independent Living Skills	
	SH β (SE)	**US β (SE)**	**SH β (SE)**	**US β (SE)**	**SH β (SE)**	**UH β (SE)**	**SH β (SE)**	**UH β (SE)**	**SH β (SE)**	**UH β (SE)**	**SH β (SE)**	**UH β (SE)**
Adolescent Neglect												
IM	−0.16 (0.07) *	0.17 (0.12) [6]	−0.07 (0.07)	−0.24 (0.11) *	−0.11 (0.06)	−0.04 (0.13)	−0.08 (0.06)	−0.19 (0.10)	−0.09 (0.07)	−0.22 (0.10) *	−0.08 (0.07)	−0.04 (0.12)
IBN	0.01 (0.18)	−0.15 (0.23)	−0.06 (0.18)	−0.13 (0.23)	−0.10 (0.18)	−0.11 (0.29)	−0.22 (0.18)	0.00 (0.25)	−0.19 (0.18)	0.38 (0.23)	0.06 (0.19)	0.44 (0.27)
PM	−0.16 (0.09)	−0.14 (0.08)	0.01 (0.09)	0.06 (0.10)	0.03 (0.08)	0.05 (0.11)	0.03 (0.08)	−0.01 (0.09)	−0.01 (0.08)	−0.08 (0.09)	0.06 (0.08)	−0.24 (0.11) [7]
ERS	−0.04 (0.09)	0.16 (0.12)	−0.15 (0.09)	0.22 (0.13)	0.02 (0.10)	−0.01 (0.17)	0.09 (0.09)	−0.13 (0.13)	0.13 (0.10)	−0.19 (0.13)	−0.16 (0.10)	−0.17 (0.13)
IS	0.11 (0.14)	−0.06 (0.19)	0.02 (0.14)	0.10 (0.17)	0.28 (0.13) *	0.21 (0.22)	0.02 (0.13)	0.13 (0.19)	0.11 (0.13)	−0.13 (0.18)	−0.16 (0.14)	−0.32 (0.21)
Adolescent Abuse												
PA	0.02 (0.05)	−0.02 (0.05)	0.07 (0.05)	−0.08 (0.07)	0.01 (0.06)	0.07 (0.06)	0.05 (0.04)	0.10 (0.08)	0.07 (0.05)	−0.03 (0.10)	−0.12 (0.04) **	−0.02 (0.10)
EA	−0.06 (0.05)	0.16 (0.07) * [8]	−0.06 (0.06)	0.02 (0.07)	0.03 (0.06)	−0.03 (0.08)	−0.09 (0.05)	−0.00 (0.06)	−0.04 (0.06)	0.07 (0.08)	0.06 (0.06)	−0.07 (0.09)
SA	−0.05 (0.07)	−0.05 (0.08)	−0.01 (0.05)	−0.13 (0.06) *	−0.01 (0.04)	−0.02 (0.05)	−0.03 (0.03)	−0.06 (0.06)	−0.02 (0.05)	−0.17 (0.08) *	0.07 (0.06)	−0.03 (0.11)
Control Variables												
CM (0–12 years)	0.09 (0.10)	−0.14 (0.16)	−0.14 (0.11)	−0.14 (0.16)	−0.11 (0.10)	0.02 (0.16)	−0.09 (0.10)	0.10 (0.16)	0.04 (0.10)	−0.22 (0.18)		
Female	−0.02 (0.09)	0.03 (0.12)	−0.11 (0.09)	−0.20 (0.11)	0.04 (0.09)	0.06 (0.12)	0.16 (0.09)	0.01 (0.12)	0.45 (0.08) ***	0.31 (0.11) **	0.16 (0.04) ***	0.09 (0.06)
B (ref.: non-B)	0.10 (0.06)	0.03 (0.06)	0.02 (0.04)	0.03 (0.06)	0.13 (0.06) *	0.22 (0.14)	0.09 (0.06)	−0.03 (0.06)	0.04 (0.04)	−0.05 (0.06)	−0.02 (0.05)	−0.08 (0.06)
Poverty	−0.07 (0.11)	−0.01 (0.19)	0.05 (0.10)	0.36 (0.18) *	0.32 (0.11) **	0.26 (0.18)	−0.21 (0.12)	−0.08 (0.19)	−0.03 (0.11)	−0.17 (0.18)	−0.03 (0.05)	0.10 (0.06)
Outcome (16 years)	0.39 (0.04) ***	0.41 (0.05) ***	0.36 (0.04) ***	0.32 (0.05) ***	0.40 (0.04) ***	0.29 (0.08) ***	.40 (0.04) ***	0.28 (0.05) ***	0.40 (0.04) ***	0.37 (0.05) ***		

Notes: Moderation is indicated by underline. B = standardized, SE = standard error, B = unstandardized, ref. = reference. SH = stable housing, US = unstable housing, IM = Inadequate Monitoring, IBN = Inattention to Basic Needs, PM = Permitting Misbehavior, ERS = Exposure to Risky Situations, IS = Inadequate Support, PA = physical abuse, EA = emotional abuse, SA = sexual abuse, CM = child maltreatment, B = Black. Outcome (16) signifies the prior level of the outcome variable, when available (e.g., prosocial activities at age 16). Due to nonconvergence, models were run for each outcome individually. Model adjustments included omitting item 20 from IBN, removing the error covariance between items 1 and 2, and simplifying the race variable to Black or non-Black. Childhood maltreatment was trimmed from the independent living model to resolve non-convergence. [4] Difference = 0.85 (0.28), $p = 0.002$; [5] Difference = 1.65 (0.57), $p = 0.004$. [6] Difference = −0.64 (0.26), $p = 0.013$; [7] Difference = 3.77 (1.77), $p = 0.033$; [8] Difference = −0.25 (0.10). $p = 0.014$. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

4. Discussion

The present study fills an important gap in the literature by examining the association between neglect and abuse during adolescence and later adaptive functioning, as well as factors that could mitigate this association. Overall, findings from this study show that neglect and abuse during adolescence impairs later adolescent adaptative functioning. We also found evidence that food security and housing stability have protective effects, mitigating many of these associations, though the directions for some effects were not as hypothesized. The results of this study provide important insights into the potential protective roles of food security and housing stability for promoting adaptive functioning among adolescents who have been maltreated.

4.1. Healthcare Receipt and Perceived Health

Our findings extend prior research that has connected child maltreatment to poorer health [15,19] to adolescent neglect and abuse types. Poverty and Inattention to Basic Needs (e.g., arranging for healthcare needs, ensuring appropriate clothing and shelter) were independently associated with lower odds of receiving dental care, consistent with research showing effects of neglect above and beyond poverty, as well as the conceptual distinction of poverty and basic needs neglect [55]. It was surprising that no adolescent neglect or abuse types were associated with receiving routine medical care or needed psychological counseling. It is important to note, however, that less than 8% reported unmet psychological healthcare needs and receiving needed psychological healthcare is confounded with having mental health challenges.

Though emotional abuse was related to lower self-rated health, sexual abuse was associated with better self-rated health among youths who experienced food security but not food insecurity. The latter finding may indicate protective effects for food security against the putative negative health impacts of sexual abuse [56]. However, it was surprising that the negative association between sexual abuse and self-rated health was not significant among adolescents who experienced food insecurity. There were also counterintuitive findings between Inadequate Monitoring and *higher* self-rated health. Moderation analyses revealed that this association was only significant among youths who experienced food security; this is consistent with the hypothesized protection of food security. Nonetheless this finding was surprising. It is possible that the temporal ordering of the relationship was reversed, such that greater parental monitoring is observed in response to poorer adolescent health, particularly among families who are food secure. This could also explain, in part, unexpected findings in the multigroup analysis showing that Inadequate Monitoring was linked to higher high school graduation when housing is unstable, but lower graduation/enrollment when housing is stable. Of note, however, this same construct was found to predict *lower* substance use in a previously published study [4]. The Inadequate Monitoring scale contains only three items of parental knowledge and interest in children's activities; unexpected findings therefore may suggest a lack of validity for the complex monitoring construct.

4.2. High School Graduation or Enrollment

Past research has shown a detrimental effect of child and adolescent maltreatment on academic outcomes [16,18,22,23]. Although adolescent maltreatment did not predict high school graduation or enrollment in the single group analysis, in the multiple group analysis, Inadequate Support was associated with lower high school graduation or enrollment for adolescents who experienced housing instability. However, this association was nonsignificant for adolescents who experienced housing stability. Consistent with our hypotheses, this may suggest a protective effect of housing stability against the negative effects of poor parental support on high school graduation or enrollment and extends evidence on the protective effects for housing stability [38].

4.3. Social Connectedness

Findings generally corroborate past research demonstrating relationships between child maltreatment and social connectedness [17,18,20,24] and extend these findings to neglect during adolescence. In line with study hypotheses, Permitting Misbehavior was associated with less involvement in prosocial activities. Emotional abuse was associated with more involvement in prosocial activities among adolescents who experienced unstable housing. It is possible that adolescents experiencing the stresses of emotional abuse and unstable housing seek out positive adult and peer support and attention through engagement in prosocial activities.

Regarding peer relationships, Inadequate Monitoring was related to less Companionship, Satisfaction, and Intimacy; sexual abuse was additionally related to less Companionship and Intimacy, and Inadequate Support was associated with more Conflict. Surprisingly though, sexual abuse was related to higher conflict with friends only when food was secure. This finding may indicate that food security promotes stability in dysfunctional peer relationships.

Consistent with our hypothesis that food security would mitigate the effects of adolescent maltreatment on peer relationships, moderation analyses revealed that the negative association between Inadequate Monitoring and Companionship was only significant among youths who experienced food insecurity. However, inconsistent with our hypotheses, Inadequate Monitoring was only associated with less involvement in prosocial activities among adolescents who experienced housing stability. These findings should be interpreted with caution though given the previously mentioned concerns about the validity of this construct.

4.4. Independent Living Skills

In line with past research [18,24], Exposure to Risky Situations, Inadequate Support and physical abuse were associated with poorer independent living skills. Moderation showed that Permitting Misbehavior was also associated with poorer independent living skills among youths who experienced unstable housing, a potential additional cost of permissiveness in an unstable environment. Emotional abuse and Inattention to Basic Needs, on the other hand, were associated with better independent living skills. Though unexpected, these findings have some precedent in the literature [19]. Neglected children have been found to have stronger adaptive functioning (problem solving, abstraction, and planning) than non-maltreated children in some research [21]. This may be related to adolescents being forced to take on adult responsibilities for their own survival.

4.5. Limitations

This paper has several limitations. The high-risk nature of the sample limits generalizability; for example, we may have found more or different moderated effects for food security and housing stability in a sample with lower poverty. Second, although we used a longitudinal design, repeated measures of most dependent variables were not available, leaving questions about temporal sequencing. Third, race and ethnicity were not measured separately in LONGSCAN, and were reported by caregivers at birth versus being reported by the youths themselves. In addition, because of low frequencies in individuals who were not Black or White individuals, our analysis combined heterogeneous subgroups. Fourth, the childhood maltreatment variable may not be sensitive enough to detect unique effects (e.g., subtype differences). Fifth, we relied on self-reported measures of adolescent maltreatment; although these have greater sensitivity than CPS reports, they are subject to self-report bias [57]. Last, given model complexity and limitations in LONGSCAN measures of social interventions, we were unable to adjust for their potential influence.

4.6. Implications

The results of this study suggest several implications for research and policy. Findings indicate the importance of maltreatment prevention for adolescents. This is currently a

notable gap in the literature and real-world practice, where prevention has overwhelmingly focused on early childhood. Evidence provided by this study suggests that concerted efforts to prevent maltreatment from occurring (or recurring) during the adolescent years may foster a strong foundation for independent adulthood.

Findings further suggest the importance of providing strength-based services to enhance the resilience of adolescents who experience neglect and abuse. Specifically, they infer that strength-based services to buffer impacts of earlier maltreatment on adaptive functioning over time might focus on supporting the basic, material needs of adolescents for food security and housing stability. These may include enhancing outreach services that support food and housing needs. For example, facilitating enrollment in government support programs such as the Supplemental Nutrition Assistance Program (SNAP) and housing voucher programs, as well as programs such as those to enhance overall family income (e.g., Temporary Aid for Needy Families, Earned Income Tax Credit) may support adaptive functioning in adolescents. However, for families living with high levels of poverty, public support programs are often not enough to fill the financial hardship gaps and many families in need may not consistently meet eligibility requirements. For example, waitlists for housing assistance are several years-long [58]. In our study sample, 52% of families reported receiving food stamps, 83% reduced/free lunches, and 27% housing subsidies, but far fewer (20%, 48%, and 12%, respectively) received these benefits consistently over the 12–18-year time period. Receipt of those benefits did not equate with food security and housing stability; therefore, greater efforts are needed. These might include advocacy to expand safety net programs and otherwise make safe housing and nutritious food more affordable and available as well as poverty reduction efforts, such as raising the minimum wage. Greater integration between child welfare and safety net systems is needed [30]. For example, some child welfare jurisdictions have partnered with housing authorities and local landlords to connect families with Housing Choice Vouchers to apartments [35].

Although our analysis demonstrates some promise for housing stability and food security to help promote adaptive functioning among maltreated youths, notable mixed findings suggest these approaches are not a panacea. Nor are they a replacement for programs focused on parent or child health. In addition, further research is needed to clarify many of the relationships examined in this analysis, to examine additional protective and risk factors that may moderate these relationships, and mediated pathways. These might include studies considering the role of housing quality as well as stability and in-depth analyses of individual adaptive functioning domains and childhood maltreatment. Future research is also needed to replicate these findings, including in light of pandemic-related changes to safety net programs, food costs, and housing markets.

5. Conclusions

This study demonstrates effects of neglect and abuse during adolescence on subsequent adaptive functioning, using a developmentally specific, multidimensional measure of neglect and controlling for prior childhood maltreatment. Findings indicate that neglect and abuse during adolescence impairs later adolescent adaptative functioning. Findings also suggest that food security and housing stability are potential protective factors that may mitigate the deleterious effects of maltreatment on adaptive functioning.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/children9030390/s1. Figure S1: Measurement model for adolescent neglect.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki. Secondary data analysis of the de-identified LONGSCAN data were determined to be non-human subjects research by the Institutional Review Board of Temple University.

Data Availability Statement: This publication utilizes data from the Longitudinal Studies of Child Abuse and Neglect, which have been provided by the National Data Archive on Child Abuse and Neglect (NDACAN), a service of the Children's Bureau, U.S. Department of Health and Human Services. Nothing herein should be construed to indicate the support or endorsement of its content by the collector of the original data, their funding agency, NDACAN, or ACF/DHHS.

Conflicts of Interest: We have no conflict of interest to disclose.

References

1. Finkelhor, D.; Turner, H.A.; Shattuck, A.; Hamby, S.L. Prevalence of childhood exposure to violence, crime, and abuse: Results from the National Survey of Children's Exposure to Violence. *JAMA Pediatr.* **2015**, *169*, 746–754. [CrossRef] [PubMed]
2. Kim, H.; Wildeman, C.; Jonson-Reid, M.; Drake, B. Lifetime prevalence of investigating child maltreatment among US children. *Am. J. Public Health* **2017**, *107*, 274–280. [CrossRef] [PubMed]
3. Peterson, C.; Florence, C.; Klevens, J. The economic burden of child maltreatment in the United States, 2015. *Child Abus. Negl.* **2018**, *86*, 178–183. [CrossRef]
4. Kobulsky, J.M.; Villodas, M.T.; Yoon, D.; Wildfeuer, R.; Steinberg, L.; Dubowitz, H. Adolescent neglect and health risk. *Child Maltreatment* **2021**. [CrossRef] [PubMed]
5. Villodas, M.T.; Morelli, N.M.; Hong, K.; Duong, J.; Evans, M.C.; Elson, D.; Rose, E.; Picci, G.; Fishbein, D. Differences in late adolescent psychopathology among youth with histories of co-occurring abuse and neglect experiences. *Child Abus. Negl.* **2021**, *120*, 105189. [CrossRef] [PubMed]
6. Yoon, D.; Shipe, S.L.; Park, J.; Yoon, M. Bullying patterns and their associations with child maltreatment and adolescent psychosocial problems. *Child. Youth Serv. Rev.* **2021**, *129*, 106178. [CrossRef]
7. Hunter, A.A.; Flores, G. Social determinants of health and child maltreatment: A systematic review. *Pediatr. Res.* **2021**, *89*, 269–274. [CrossRef]
8. Meng, X.; Fleury, M.-J.; Xiang, Y.-T.; Li, M.; D'Arcy, C. Resilience and protective factors among people with a history of child maltreatment: A systematic review. *Soc. Psychiatry Psychiatr. Epidemiol.* **2018**, *53*, 453–475. [CrossRef]
9. Masten, A.S.; Lucke, C.; MNelson, K.M.; Stallworthy, I.C. Resilience in development and psychopathology: Multisystem perspectives. *Annu. Rev. Clin. Psychol.* **2021**, *17*, 521–549. [CrossRef]
10. Mitchell, E. Adaptive functioning. In *The SAGE Encyclopedia of Lifespan Human Development*; Bornstein, M., Ed.; SAGE Publications, Inc.: Thousand Oaks, CA, USA, 2018; pp. 33–34.
11. Olsson, C.A.; McGee, R.; Nada-Raja, S.; Williams, S.M. A 32-year longitudinal study of child and adolescent pathways to well-being in adulthood. *J. Happiness Stud.* **2013**, *14*, 1069–1083. [CrossRef]
12. Peddecord, K.; Wang, W.; Wang, L.; Ralston, K.; Ly, E.; Friedman, L.; Curtis, C.R.; Sawyer, M. Adolescents' self-reported recall of anticipatory guidance provided during well-visits at nine medical clinics in San Diego, California, 2009–2011. *J. Adolesc. Health* **2016**, *58*, 267–275. [CrossRef]
13. Schulkind, L.; Sandler, D.H. The timing of teenage births: Estimating the effect on high school graduation and later-life outcomes. *Demography* **2019**, *56*, 345–365. [CrossRef]
14. Yoon, S.; Sattler, K.; Knox, J.; Xin, Y. Longitudinal examination of resilience among child welfare-involved adolescents: The roles of caregiver–child relationships and deviant peer affiliation. *Dev. Psychopathol.* **2021**, 1–10. [CrossRef]
15. Jud, A.; Landolt, M.A.; Tatalias, A.; Lach, L.M.; Lips, U. Health-related quality of life in the aftermath of child maltreatment: Follow-up study of a hospital sample. *Qual. Life Res.* **2013**, *22*, 1361–1369. [CrossRef]
16. Mielityinen, L.; Ellonen, N.; Ikonen, R.; Paavilainen, E. Examining adolescent maltreatment and connections to school engagement. *Improv. Sch.* **2021**. [CrossRef]
17. Kim-Spoon, J.; Maciejewski, D.; Lee, J.; Deater-Deckard, K.; King-Casas, B. Longitudinal associations among family environment, neural cognitive control, and social competence among adolescents. *Dev. Cogn. Neurosci.* **2017**, *26*, 69–76. [CrossRef]
18. Oshri, A.; Topple, T.A.; Carlson, M.W. Positive youth development and resilience: Growth patterns of social skills among youth investigated for maltreatment. *Child Dev.* **2017**, *88*, 1087–1099. [CrossRef]
19. Tran, N.K.; Van Berkel, S.R.; van IJzendoorn, M.H.; Alink, L.R. The association between child maltreatment and emotional, cognitive, and physical health functioning in Vietnam. *BMC Public Health* **2017**, *17*, 332. [CrossRef]
20. Alink, L.R.A.; Cicchetti, D.; Kim, J.; Rogosch, F.A. Longitudinal associations among child maltreatment, social functioning, and cortisol regulation. *Dev. Psychol.* **2012**, *48*, 224–236. [CrossRef]

21. Maguire, S.A.; Williams, B.; Naughton, A.M.; Cowley, L.E.; Tempest, V.; Mann, M.K.; Teague, M.; Kemp, A.M. A systematic review of the emotional, behavioural and cognitive features exhibited by school-aged children experiencing neglect or emotional abuse. *Child Care Health Dev.* **2015**, *41*, 641–653. [CrossRef]
22. Lim, Y.; Lee, O. Relationships between parental maltreatment and adolescents' school adjustment: Mediating roles of self-esteem and peer attachment. *J. Child Fam. Stud.* **2017**, *26*, 393–404. [CrossRef]
23. Oh, I.; Song, J. Mediating effect of emotional/behavioral problems and academic competence between parental abuse/neglect and school adjustment. *Child Abus. Negl.* **2018**, *86*, 393–402. [CrossRef]
24. Wang, L.; Qu, G.; Tang, X.; Wu, W.; Zhang, J.; Sun, Y. Child neglect and its association with social living ability: Does the resilience attenuate the association? *Psychol. Health Med.* **2019**, *24*, 519–529. [CrossRef]
25. Sawyer, S.M.; Azzopardi, P.A.; Wickremarathne, D.; Patton, G.C. The age of adolescence. *Lancet Child Adolesc. Health* **2018**, *2*, 223–228. [CrossRef]
26. Fuhrmann, D.; Knoll, L.J.; Blakemore, S.J. Adolescence as a sensitive period of brain development. *Trends Cogn. Sci.* **2015**, *19*, 558–566. [CrossRef]
27. Yoon, S.; Dillard, R.; Kobulsky, J.; Nemeth, J.; Shi, Y.; Schoppe-Sullivan, S. The type and timing of child maltreatment as predictors of adolescent cigarette smoking trajectories. *Subst. Use Misuse* **2020**, *55*, 937–946. [CrossRef]
28. Jennissen, C.A.; Evans, E.; Oral, R.; Denning, G. Child abuse and neglect experts' determination of when a child being left home alone constitutes child neglect. *Inj. Epidemiol.* **2018**, *5* (Suppl. 1), 55–62. [CrossRef]
29. Jones Harden, B.; Simons, C.; Johnson-Motoyama, M.; Barth, R. The child maltreatment prevention landscape: Where are we now, and where should we go? *Ann. Am. Acad. Political Soc. Sci.* **2020**, *692*, 97–118. [CrossRef]
30. Feely, M.; Raissian, K.M.; Schneider, W.; Bullinger, L.R. The social welfare policy landscape and child protective services: Opportunities for and barriers to creating systems synergy. *Ann. Am. Acad. Political Soc. Sci.* **2021**, *692*, 140–161. [CrossRef]
31. Ahmad, N.S.S.; Sulaiman, N.; Sabri, M.F. Food insecurity: Is it a threat to university students' well-being and success? *Int. J. Environ. Res. Public Health* **2021**, *18*, 5627. [CrossRef] [PubMed]
32. Liu, Y.; Njai, R.; Greenlund, K.; Chapman, D.; Croft, J. Relationships between housing and food insecurity, frequent mental distress, and insufficient sleep among adults in 12 U.S. States, 2009. *Prev. Chronic Dis.* **2014**, *11*, 130334. [CrossRef] [PubMed]
33. Warren, E.J.; Font, S.A. Housing insecurity, maternal stress, and child maltreatment: An application of the family stress model. *Soc. Serv. Rev.* **2015**, *89*, 9–39. [CrossRef]
34. Kotchick, B.; Whitsett, D.; Sherman, M. Food insecurity and adolescent psychosocial adjustment: Indirect pathways through caregiver adjustment and caregiver–adolescent relationship quality. *J. Youth Adolesc.* **2021**, *50*, 89–102. [CrossRef] [PubMed]
35. Chandler, C.E.; Austin, A.E.; Shanahan, M.E. Association of housing stress with child maltreatment: A systematic review. *Trauma Violence Abus.* **2020**, *23*, 1–21. [CrossRef]
36. Helton, J.; Jackson, D.; Boutwell, B.; Vaughn, M. Household food insecurity and parent-to-child aggression. *Child Maltreatment* **2019**, *24*, 213–221. [CrossRef]
37. DuMont, K.A.; Widom, C.S.; Czaja, S.J. Predictors of resilience in abused and neglected children grown-up: The role of individual and neighborhood characteristics. *Child Abus. Negl.* **2007**, *31*, 255–274. [CrossRef]
38. Clair, A. Housing: An under-explored influence on children's well-being and becoming. *Child Indic. Res.* **2019**, *12*, 609–626. [CrossRef]
39. Shankar, P.; Chung, R.; Frank, D. Association of food insecurity with children's behavioral, emotional, and academic outcomes: A. systematic review. *J. Dev. Behav. Pediatrics* **2017**, *38*, 135–150. [CrossRef]
40. Kobulsky, J.M.; Villodas, M.T.; Dubowitz, H. Psychometric properties of a self-report measure of neglect during mid-adolescence. *Child Indic. Res.* **2020**, *13*, 533–550. [CrossRef]
41. Larrabee, H.M.; Lewis, T. *Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) Assessments 0–18: User's Guide*; National Data Archive on Child Abuse and Neglect: Ithaca, NY, USA, 2016.
42. Knight, E.D.; Smith, J.B.; Martin, L.M.; Lewis, T.; The LONGSCAN Investigators. *Measures for Assessment of Functioning and Outcomes in Longitudinal Research on Child Abuse and Neglect, Volume 5: Young Adulthood (Age 18)*; LONGSCAN Coordinating Center: Chapel Hill, NC, USA, 2014.
43. Barnett, D.; Manly, J.; Cicchetti, D. Defining child maltreatment: The interface between policy and research. In *Advances in Applied Developmental Policy: Child Abuse, Child Development and Social Policy*; Cicchetti, D., Toth, S.L., Eds.; Ablex Publishing Corp.: Norwood, NJ, USA, 1993.
44. Krause, N.; Jay, G. What do global health items measure? *Med. Care* **1994**, *9*, 930–942. [CrossRef]
45. Nollan, K.A.; Wolf, M.; Ansell, D.; Burns, J.; Barr, L.; Copeland, W.; Paddock, G. Ready or not: Assessing youths' preparedness for independent living. *Child Welfare* **2000**, *79*, 159–176. [PubMed]
46. Naccarato, T.; DeLorenzo, E.; Park, A. A Rapid Instrument Review (RIR) of Independent Living Program (ILP) evaluation tools. *J. Public Child Welf.* **2008**, *2*, 253–267. [CrossRef]
47. Pearlstein, S.; Mellins, C.; Dolezal, C.; Elkington, K.; Santamaria, E.; Leu, C.; Cruz, J.; Abrams, E. Youth in transition: Life skills among perinatally HIV-infected and HIV-exposed adolescents. *J. Pediatric Psychol.* **2014**, *39*, 294–305. [CrossRef] [PubMed]
48. Furman, W.; Buhrmester, D. Children's perception of the personal relationships in their social networks. *Dev. Psychol.* **1985**, *21*, 1016–1024. [CrossRef]

49. Allison, P.; When Can You Safely Ignore Multicollinearity? Statistical Horizons. 10 September 2012. Available online: https://statisticalhorizons.com/multicollinearity (accessed on 21 December 2021).
50. Kline, R.B. *Principles and Practice of Structural Equation Modeling*, 4th ed.; The Guilford Press: New York, NY, USA, 2016.
51. Muthén, L.K.; Muthén, B.O. *Mplus User's Guide*, 8th ed.; Muthén & Muthén: Los Angeles, CA, USA, 2017; Available online: https://www.statmodel.com/download/usersguide/MplusUserGuideVer_8.pdf (accessed on 12 December 2021).
52. Hu, L.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Modeling: A Multidiscip. J.* **1999**, *6*, 1–55. [CrossRef]
53. Putnick, D.L.; Bornstein, M.H. Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Dev. Rev.* **2016**, *41*, 71–90. [CrossRef]
54. Marsh, H.W.; Lüdtke, O.; Muthén, B.; Asparouhov, T.; Morin, A.J.; Trautwein, U.; Nagengast, B. A new look at the big five factor structure through exploratory structural equation modeling. *Psychol. Assess.* **2010**, *22*, 471–491. [CrossRef]
55. Font, S.A.; Maguire-Jack, M. It's not "just poverty": Educational, social, and economic functioning among young adults exposed to childhood neglect, abuse, and poverty. *Child Abus. Negl.* **2020**, *101*, 104356. [CrossRef]
56. Petersson, C.; Swahnberg, K.; Peterson, U.; Oscarsson, M. Experience of violence and self-rated health: Do youths disclose their experiences when visiting a Youth Centre in Sweden. *Scand. J. Public Health* **2021**, *49*, 277–284. [CrossRef]
57. Kobulsky, J.M.; Kepple, N.J.; Jedwab, M. Abuse characteristics and the concordance of child protective services determinations and adolescent self-reports of abuse. *Child Maltreatment* **2018**, *23*, 269–280. [CrossRef]
58. United States Department of Housing and Urban Development. *A Picture of Subsidized Households*; Department of Housing and Urban Development: Washington, DC, USA, 2016. Available online: https://www.huduser.gov/portal/datasets/assthsg/statedata98/descript.html (accessed on 21 December 2021).

children

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Article

Mothers' Resilience: Experiences of Intimate Partner Violence Survivors at Work

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Abstract: Mothers who experience intimate partner violence can be resilient in maintaining employment during periods of abuse. The current qualitative study examines mothers' experiences of abusive workplace disruptions as well as helpful responses from workplaces. Two main research questions are addressed: 1. What ways do abusive partners use issues related to children to disrupt mothers' employment? 2. How do workplaces respond to mothers experiencing IPV? How do mothers show resilience? Mothers (n = 18) receiving services for abuse explained that abusive partners disrupted their work through compromising or withholding childcare, manipulating them through children, and jeopardizing child safety during work hours. However, mothers showed resilience when coworkers extend housing, childcare, and genuine concern for their situations. Implications for researchers, practitioners, and employers of survivors are discussed.

Keywords: intimate partner violence; qualitative research; mothers; employment

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1. Introduction

Employment instability or loss of paid work time and unemployment persists for weeks, months, and years in the lives of intimate partner violence (IPV) survivors in the United States [1–3]. In a longitudinal study of the effect of IPV on employment trajectories, researchers found that experiencing IPV relates to unemployment six years after abuse occurred among mothers [4]. IPV survivors who are mothers may be more prone to experiencing unemployment. The added responsibility of parenthood and manipulation from abusers to prioritize children over work can lead mothers to leave their jobs [5–7]. However, previous research indicates that mothers who feel supported in the workplace may show resiliency and continue to stay employed despite abuser efforts to sabotage them [2,6]. The current study expands understanding of mothers' employment instability by using a qualitative approach to clarify the effect of parenting-specific abusive workplace disruptions on employment status and the potential protective effect of workplace support from coworkers.

Literature Review

There are various typologies of IPV including forms of abuse, types of violence, and types of perpetrators [8]. The forms of abuse include physical violence, sexual violence, and psychological violence. The types of violence examine the patterns within which the violence occurs, while the types of perpetrators typology focus on factors about the perpetrators themselves [8]. In the current study, we examine a slightly different typology of IPV, in which we are examining the specific situations (work) in which abuse occurs, and specific tools (childcare and children) that abusers use to commit violence.

Abusive workplace disruptions are tactics used by abusive partners to prevent survivors from attending work and performing to their full potential. In the context of parenthood, abusive workplace disruptions include excessive contacting about children

(40.6%), sabotaging childcare arrangements (38.0%), and having to take time off work due to child-custody disputes (22.5%) [9,10]. Abuser-initiated workplace disruptions are closely related to survivors' employment instability [3,11,12]. About half of survivors (n = 133) in a study of women experiencing abuse in the last 12 months reported that they were reprimanded or lost their job during abuse periods [13]. Workplace disruptions also lead to employment instability through indirect pathways. In a Banyard and colleagues [14] study of women living in New Hampshire (n = 1079), survivors reported problems concentrating at work, working at a slower pace, and feeling exhausted at work significantly more often than women who did not experience IPV.

Motherhood poses an opportunity for abusive partners to confound victims' employment and financial stability. Several previous studies with samples of mothers find that IPV is significantly related and negatively impacts employment outcomes [3,11,15–19]. In a study comparing abusive workplace disruption tactics across multiple samples, 38% of survivors reported experiencing childcare threats and 11% reported that a partner told them "women shouldn't work outside the home" or "women who work outside the home are bad mothers" [9] (p. 749). Researchers analyzing abusive workplace disruptions with item response theory found that having childcare arrangements purposely sabotaged by abusers was a common experience among survivors [19]. Thus, employment instability is likely especially common among mothers.

Working parents face significant challenges in the United States because of the availability, hours, quality, and cost of childcare [20]. Working mothers who are survivors of IPV face additional challenges due to their experience of IPV. The high cost of childcare may be factored into a mother's decision to leave an abusive partner; that is, to the extent that the abusive partner contributes to the overall finances of the home, the survivor may be unable to separate themselves from the partner because of the inability to afford childcare on their own. Across multiple studies, survivors report that childcare assistance is a significant need [21,22].

Mothers who are IPV survivors may be reluctant to leave their children home with their abuser, for fear that the abusive partner will harm the children when the mother is not home to protect them [7]. Children of parents experiencing IPV are at significantly greater risk for child maltreatment [23]. In homes where IPV is present, children are 2.5 times more likely to experience physical abuse and 9.5 times more likely to experience psychological abuse [24].

Several researchers have explored employment experiences of IPV survivors [25,26] and about 35 known published papers have investigated survivors' employment using qualitative approaches previously (see [27]). Of these, eight focus on aspects of motherhood, intimate partner violence, and employment but none of them focus on mothers' resilience at work. In a related qualitative study utilizing the same data as the current study, but that did not focus on motherhood or resilience, subjects reported leaving work when abusive partners left young children home alone, missing work to help children emotionally recover after IPV incidents, and being unable to provide for children without employment [28]. The current study addresses the following research questions:

1. What ways do abusive partners use issues related to children to disrupt mothers' employment?
2. How do workplaces respond to mothers experiencing IPV? How do mothers show resilience?

2. Materials and Methods

This study was approved by the Institutional Review Board (IRB) of a large midwestern university and was given full consideration. The research utilized a sample of 19 clients receiving counseling services for IPV at a Midwest social services agency from 2017 to 2018. A convenience sample of participants were recruited by agency counselors by phone and in person if they met the following eligibility criteria: 18 years of age or older, English-speaking, identify as female, and currently or previously employed while experiencing

IPV. Sampling was determined to be complete when saturation was reached and additional interviews did not provide further insight into survivors' employment instability [29]. The current sample excludes one participant who did not have children.

If agency clients agreed to participate, an interview time was made by the counselor after their regularly scheduled counseling session in a private room at the agency or in a public library. The first author, a White female, who had no personal experience with IPV, conducted all semi-structured interviews. In an exercise of researcher reflexibility, the author recognized her position as both an outsider and an educated expert. She utilized engagement and interview skills obtained through her social work education to establish rapport and positively influence the relationship between interviewer and participant. All conversations started by obtaining verbal consent, agreement to record the interview, and answering any participant questions. During the subsequent 45–65 min conversations, participants responded to demographic questions and approximately 15 open-ended questions related to their experiences of employment instability. Participants received a USD 20 incentive for their time and travel.

Analysis

Audio data were transcribed by professionals approved by the IRB and uploaded to NVivo Pro 12 for Windows for analysis [30]. Two coders were used to analyze the data to enrich the quality of analysis and to avoid individual researcher bias. A constructivist paradigm framed the analysis whereby the researchers served to interpret participants' unique realities which emerge from their individual experiences and life contexts [31]. As guided by grounded theory experts [32], the following coding steps included (1) reading transcripts carefully, (2) open coding, (3) axial coding (grouping codes into categories), and, last, (4) selective coding and comparison of categories. Throughout completion of the independent coding of the data, the first and third/fourth authors met weekly to discuss codes, potential themes, and their interpretations, and questions that arose during analysis. Additionally, coding memos and an audit trail were maintained to ensure further trustworthiness of the study [33]. The final selection of themes was made in consultation after resolving the few areas where suggested themes differed.

3. Results

Descriptive statistics illustrate a homogenous sample. Interview participants had an average age of 38 (SD = 10.76) and a majority had more than a high school education (66%). Approximately two thirds of interview participants identified as White and about 11% identified as Hispanic. Participants on average had two children.

Using research questions as guidance, four major thematic categories were identified: childcare challenges; manipulation through children and parenting; child safety and wellbeing; workplace supports. Within themes, quotes from participants offer insight into mothers' experiences. See Table 1 for complete descriptions of themes.

Table 1. Themes, theme definitions, and codes.

Themes	Theme Definitions	Codes
Childcare Challenges	Abusive partners use childcare as a way to force survivors to leave work to take care of their children.	Transportation, leave work, parenting disruption.
Manipulation through Children and Parenting	Maternal responsibilities were used to make mothers feel guilty about going to work.	Guilt, maternal duty, parenting ability.
Child Safety and Wellbeing	Children were put at risk by abusive partners through threats of kidnapping or abandonment.	Danger, maternal fear, kidnapping.
Workplace Supports	Coworkers offered physical and emotional supports to mothers.	Childcare assistance, housing, listening, checking in.

3.1. Childcare Challenges

Approximately one-third of the sample reported that abusive partners used childcare as a means to make participants late to work and/or leave work early. One participant, employed as a nursing professional, explained "I had to call off for the kids when the kids were under stress . . . It was just a lot of call offs and a lot of tardiness".

Survivors expressed that abusers did not see transporting children or taking care of them during work hours as their responsibility, not even on rare occasions. One survivor explained

"I would be all ready to go, and he [abusive partner] would be lying in bed. He would say, 'Where the hell are you going?' I'm like, 'Okay. Well, this is the day that I have to be at work at 6:00 . . . '. He goes, 'I'm not taking those effing kids to daycare'".

Further, another mother who had a long commute stated she would have to pay late fees to childcare providers for not picking up the children on time:

"It was a constant stress thinking about the traffic home, and driving on the highway, and not knowing whether it was going to go or stop. Just knowing that I would not be able to call him and say, 'Hey, I'm stuck in traffic, will you please pick up the kids?'. I ended up paying extra sometimes for them at daycare".

3.2. Manipulation through Children and Parenting

Still, about one in four participants recalled that they were not able to work at all because of childcare responsibilities. Abusive partners prevented mothers from working by stating that childcare was too expensive or that the children would suffer if mothers/both parents went to work. One survivor recalled the excuses she received from her partner:

"Well, you can't work, we can't afford daycare, the kids will miss you, and what are you gonna do with the kids?".

Additionally, one participant experienced prolonged isolation and financial abuse that resulted from not working or utilizing childcare:

"For years I was a stay-at-home mom because he [partner] didn't want me to work. He wanted to take care of me and wanted me to do the motherly duties, but then I had no access to funds. I had no right to know how much money he was making. It was none of my business".

Abusive partners even manipulated children to call their mothers and beg them to leave work. One survivor explained her suspicion when her young child left her a voicemail: "Mommy, I really miss you. Can you please come home? I'm going, 'You're three years old. You do not do this on your own'".

To exacerbate situations, abuse partners continued to use children to manipulate and scare mothers even after they separated. One survivor recalled her abusive partner ruined her confidence to provide for her children by saying "You'll never get custody. You're a bad mom, you don't have a job, you don't have this and that".

3.3. Child Safety and Well-Being

As primary caregivers, participants who experience violence in their homes struggle to keep their children safe. Concerns of children's safety and well-being was mentioned by about 20% of participants. One survivor explained the difficulty of lying to coworkers to keep her daughter safe. She told her coworkers:

"'Well, I've gotta pick my daughter up. I don't have nobody to watch her', and it was just like that wasn't the truth. I had somebody to watch her, but I didn't trust where he [abuser] was gonna take her cuz he has something' to do, but it wasn't work. It was whatever he wanted to do".

Other survivors had abusive partners that threatened harm or neglect to children if mothers did not leave work. One survivor with two young children remembered her partner's frightening words and actions:

"'You leave, I'm gonna leave the kid.' I'm like, 'You're not gonna leave my kid. I have to go back to work.' No, he left my kids home alone so I had to go back".

Similarly, survivors were afraid that if they did not leave work that abusers might kidnap or take their children. This fear was present for one survivor:

"I just was to the point where I was just so scared like, where is he gonna take my baby? Then I get off work and not know where she's at. I would leave early cuz I'm like, 'I gotta get my baby'".

3.4. Workplace Supports

Coworkers, managers, and employers did offer support to mothers who were experiencing IPV. Specifically, supports included watching children, talking through safety plans, offering a safe place to stay, and regularly checking in. These supports were reported by about 30% of the sample and contributed to the resilience of mothers in terms of continuing to work through periods of abuse.

Some coworkers took a very active role in protecting mothers and their children. One participant recalled help from her supervisor: "She offered actually for a place for me to stay. Like for me and my kids to move in with her until I figure things out". Additionally, a participant mentioned that her coworker would watch her children on days off, not charging the survivor for babysitting.

More commonly however, survivors shared that coworkers would help de-escalate stressful situations involving abusive partners and check in with survivors. One mother stated

"Honestly, she [coworker] just listened and she wanted to make sure that I was safe and that my daughter was safe. We only had one kid the first time around. She really just did a lot of regular check ins".

4. Discussion

Previous research has found irregularity in the effect of IPV on employment outcomes as well as the longevity of employment instability for survivors [1,17]. The current study sought to explore the ways in which abusers use children to sabotage employment among mothers as well as to understand how mothers show resilience with workplace support. We found that IPV among mothers causes unique challenges that impacts their ability to work.

While childcare is a concern for all working parents, for survivors this is even more challenging [19]. Mothers in the current study reported that their abusive partner was unwilling to assist with logistics of childcare in any way. Childcare centers typically follow standard work schedules and charge exorbitant fees to parents who are late to pick up their children. Participants in this study emphasized how difficult it was to meet their required work schedules while also meeting the requirements of childcare drop-off and pick-up. Mothers in the study sometimes had to weigh the demands of these two systems, having to decide whether they could afford to leave work early and face the consequences of the employer, or afford the fees imposed by the childcare center.

Within the typologies of IPV examined for the current study, we found that abusers use childcare as a tool to commit violence against their partners. Specifically, the study found that abusers use childcare as a justification to prevent mothers from working at all, pointing to the high cost of childcare as referenced in previous literature [20]. In doing so, they limit the survivor's contact with others who may be supportive to them and make them financially dependent on the abuser. Financial abuse is a significant problem within the context of IPV. In a review of quantitative studies (n = 46), researchers found that most studies only ask one or two questions to survivors about financial abuse and so it is difficult to determine prevalence, but financial abuse is often correlated with physical and psychological abuse [32]. Additionally, survivors who are not working are less able to leave the violent relationship.

We found that abusers also use threatened or implied violence or neglect of children in order to wield power and control over their partners. Mothers reported fearing leaving their children home with the abusive partner, which supports previous research suggesting that this is a problem for working mothers who are survivors [7]. Because child maltreatment

and IPV commonly co-occur [23,24], there is a significant risk to children. In addition to concern about violence against the children, mothers also reported abusers threatening to kidnap children or refusing to supervise children. In addition to the harm caused to mothers, the violence and threat of violence to children is also harmful to child development. This finding builds on related literature [12,15–17,28] by illustrating that survivors are solely responsible for the safety of their children.

Abusers used the children themselves as a tool against the mother while she was working. Mothers reported the child calling them while they were at work to tell them that they missed them and wanted them to come home. This manipulation may contribute to mothers leaving work early, being distracted at work, or even experiencing disciplinary action at work for receiving too many personal phone calls. Interestingly, in contrast to a previous qualitative study of mothers, there was no mention of substance abuse from abusive partners around children being a concern [25].

Although the IPV situation contributed to stress and disruptions to employment, mothers in the sample displayed resilience. They were committed to keeping their children safe and worked hard to maintain their employment, despite challenging circumstances. Some mothers reported that their workplaces provided supports to them that were helpful. Coworkers and supervisors talked through safety plans with survivors, offered them a place to stay, and provided a listening ear to them. There was not mention of other survivors in the workplace recognizing signs of IPV and stepping in, as has been reported in related literature [25,28]. Workplaces can support survivors further by providing education and training to employees about IPV and how to support each other. Informally, coworkers have been found to counter abusive behavior by showing concern, asking if survivors are okay/safe, or offering to make phone calls to access resources [28].

4.1. Limitations

The current study expands upon employment instability concepts and addresses questions of maternal caregiving and financial stability during intimate partner violence experiences. However, limitations of the current study exist within the data source and analysis. Interview data is limited because it is not representative of all survivors' employment experiences. Specifically, the sample reflects a group of women who volunteered to participate, had some type of education after high school, largely identified as White and non-Hispanic, experienced IPV requiring professional treatment, and volunteered to participate in the study. Further, both researchers of the data may have exerted bias during the coding process based on feminist ideals and individual privileges.

4.2. Implications

Employers have a responsibility to protect employees from harm during work hours and that includes IPV. Workplaces that help survivors work consistently over time not only financially protect survivors but also avoid costs of employee turnover and absence. Given qualitative findings, survivors likely need time off from work to physically and emotionally recover from abuse as well as to provide for their children. If policies such as the Family Medical Leave Act (ACT) could be adapted to cover incidents of IPV, survivors could take needed time off from work without risk of being fired and losing their families' financial livelihood.

Research on the interventions for employment instability among IPV survivors is needed. To start, the employment services offered to IPV survivors are largely focused on financial well-being, such as Moving Ahead through Financial Management or asset building with Individual Development Accounts [34]. However, these programs are not focused on employment. While one known evidence-based practice exists (i.e., ACCESS; Advancing Career Counseling and Employment Support for Survivors of Domestic Violence) [35], it is limited in generalizability and accessibility. Further, none of these interventions focus on mothers who are struggling to care for their children. As researchers continue to develop interventions and sector-specific support, we recommend that service providers

support mothers at work by utilizing safety planning or helping them to enforce state-level protections [36].

5. Conclusions

Clarifying mothers' employment experiences and resiliency while enduring partner abuse is a significant contribution of the study. Childcare, manipulation through children, and child safety emerged as significant concerns of women who experienced IPV. Thus, at the practitioner level, advocates need to implement workplace safety planning and connect survivors with human resource services. Further, policymakers need to extend housing and childcare funding to mothers experiencing intimate partner violence as they are key in keeping survivors working. Last, instead of treating IPV as a "private matter", employers need to take responsibility for employees' safety and wellbeing so that women may gain financial independence from abusive partners.

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Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to the risk of identification.

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References

1. Stylianou, A.M. Economic Abuse Experiences and Depressive Symptoms among Victims of Intimate Partner Violence. *J. Fam. Violence* **2018**, *33*, 381–392. [CrossRef]
2. Swanberg, J.E.; Macke, C.; Logan, T. Intimate Partner Violence, Women, and Work: Coping on the Job. *Violence Vict.* **2006**, *21*, 561–578. [CrossRef] [PubMed]
3. Tolman, R.; Rosen, D. Domestic Violence in the Lives of Women Receiving Welfare: Mental Health, Substance Dependence, and Economic Well-Being. *Violence Against Women* **2001**, *7*, 141–158. [CrossRef]
4. Showalter, K.; Yoon, S.; Logan, T. The Employment Trajectories of Survivors of Intimate Partner Violence. *Work Employ. Soc.* **2021**. [CrossRef]
5. Hooker, L.; Samaraweera, N.Y.; Agius, P.A.; Taft, A. Intimate partner violence and the experience of early motherhood: A cross-sectional analysis of factors associated with a poor experience of motherhood. *Midwifery* **2016**, *34*, 88–94. [CrossRef] [PubMed]
6. Showalter, K.; Maguire-Jack, K.; Yang, M.-Y.; Purtell, K.M. Work Outcomes for Mothers Experiencing Intimate Partner Violence: The Buffering Effect of Child Care Subsidy. *J. Fam. Violence* **2018**, *34*, 299–308. [CrossRef]
7. Swanberg, J.E.; Logan, T.K. Domestic Violence and Employment: A Qualitative Study. *J. Occup. Health Psychol.* **2005**, *10*, 3–17. [CrossRef]
8. Ali, P.A.; Dhingra, K.; McGarry, J. A literature review of intimate partner violence and its classifications. *Aggress. Violent Behav.* **2016**, *31*, 16–25. [CrossRef]
9. Brush, L.D. Work-Related Abuse: A Replication, New Items, and Persistent Questions. *Violence Vict.* **2002**, *17*, 743–757. [CrossRef]
10. Wathen, C.N.; MacGregor, J.C.; MacQuarrie, B.J. The impact of domestic violence in the workplace: Results from a pan-Canadian survey. *J. Occup. Environ. Med.* **2015**, *57*, e65. [CrossRef]

11. Beck, J.G.; Clapp, J.; Jacobs-Lentz, J.; McNiff, J.; Avery, M.; Olsen, S.A. The Association of Mental Health Conditions with Employment, Interpersonal, and Subjective Functioning after Intimate Partner Violence. *Violence Against Women* **2014**, *20*, 1321–1337. [CrossRef] [PubMed]
12. Meisel, J.; Chandler, D.; Rienzi, B.M. Domestic Violence Prevalence and Effects on Employment in Two California TANF Populations. *Violence Against Women* **2003**, *9*, 1191–1212. [CrossRef]
13. Perrin, N.A.; Yragui, N.L.; Hanson, G.C.; Glass, N. Patterns of Workplace Supervisor Support Desired by Abused Women. *J. Interpers. Violence* **2010**, *26*, 2264–2284. [CrossRef]
14. Banyard, V.L.; Moynihan, M.M. Variation in bystander behavior related to sexual and intimate partner violence prevention: Correlates in a sample of college students. *Psychol. Violence* **2011**, *1*, 287–301. [CrossRef]
15. Browne, A.; Salomon, A.; Bassuk, S.S. The impact of recent partner violence on poor women's capacity to maintain work. *Violence Against Women* **1999**, *5*, 393–426. [CrossRef]
16. Burlaka, V.; Grogan-Kaylor, A.; Savchuk, O.; Graham-Bermann, S.A. The relationship between family, parent, and child characteristics and intimate-partner violence (IPV) among Ukrainian mothers. *Psychol. Violence* **2017**, *7*, 469–477. [CrossRef]
17. Crowne, S.S.; Juon, H.-S.; Ensminger, M.; Burrell, L.; McFarlane, E.; Duggan, A. Concurrent and Long-Term Impact of Intimate Partner Violence on Employment Stability. *J. Interpers. Violence* **2010**, *26*, 1282–1304. [CrossRef]
18. Staggs, S.L.; Riger, S. Effects of intimate partner violence on low-income women's health and employment. *Am. J. Community Psychol.* **2005**, *36*, 133–145. [CrossRef]
19. Showalter, K.; Bosetti, R. The IPV-WDA: Developing an Abusive Workplace Disruptions Assessment Using Item Response Theory. *J. Fam. Violence* **2021**, 1–11. [CrossRef]
20. Sandstrom, H.; Giesen, L.; Chaudry, A. *How Contextual Constraints Affect Low-Income Working Parents' Child Care Choices*; Urban Institute: Washington, DC, USA, 2012.
21. Dichter, M.E.; Rhodes, K.V. Intimate Partner Violence Survivors' Unmet Social Service Needs. *J. Soc. Serv. Res.* **2011**, *37*, 481–489. [CrossRef]
22. Eisenman, D.P.; Richardson, E.; Sumner, L.A.; Ahmed, S.R.; Liu, H.; Valentine, J.; Rodríguez, M. Intimate Partner Violence and Community Service Needs Among Pregnant and Postpartum Latina Women. *Violence Vict.* **2009**, *24*, 111–121. [CrossRef] [PubMed]
23. Pu, D.F.; Rodriguez, C.M. Spillover and Crossover Effects: Mothers' and Fathers' Intimate Partner Violence, Parent-Child Aggression Risk, and Child Behavior Problems. *Child Maltreat.* **2021**, *26*, 420–430. [CrossRef] [PubMed]
24. Zolotor, A.J.; Theodore, A.D.; Coyne-Beasley, T.; Runyan, D.K. Intimate Partner Violence and Child Maltreatment: Overlapping Risk. *Brief Treat. Crisis Interv.* **2007**, *7*, 305–321. [CrossRef]
25. MacGregor, J.C.D.; Oliver, C.L.; MacQuarrie, B.J.; Wathen, C.N. Intimate Partner Violence and Work: A Scoping Review of Published Research. *Trauma Violence Abus.* **2019**, *22*, 717–727. [CrossRef] [PubMed]
26. Lloyd, S. The effects of domestic violence on women's employment. *Law Policy* **1997**, *19*, 139–167. [CrossRef]
27. MacGregor, J.C.D.; Naeemzadah, N.; Oliver, C.L.; Javan, T.; MacQuarrie, B.J.; Wathen, C.N. Women's Experiences of the Intersections of Work and Intimate Partner Violence: A Review of Qualitative Research. *Trauma Violence Abus.* **2020**, *23*, 224–240. [CrossRef]
28. Showalter, K.; McCloskey, R.J. A Qualitative Study of Intimate Partner Violence and Employment Instability. *J. Interpers. Violence* **2020**, *36*, NP12730–NP12755. [CrossRef]
29. Creswell, J.W.; Poth, C.N. *Qualitative Inquiry and Research Design: Choosing among Five Approaches*; Sage: New York, NY, USA, 2017.
30. QSR International Pty Ltd. *NVivo Qualitative Data Analysis Software*; Version 12; QSR International Pty Ltd.: Doncaster, Australia, 2018.
31. Mills, J.; Bonner, A.; Francis, K. The Development of Constructivist Grounded Theory. *Int. J. Qual. Methods* **2006**, *5*, 25–35. [CrossRef]
32. Corbin, J.; Strauss, A. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 3rd ed.; SAGE Publications, Inc.: Thousand Oaks, CA, USA, 2012.
33. Creswell, J.W.; Miller, D.L. Determining Validity in Qualitative Inquiry. *Theory Pract.* **2000**, *39*, 124–130. [CrossRef]
34. Hahn, S.A.; Postmus, J.L. Economic Empowerment of Impoverished IPV Survivors. *Trauma Violence Abus.* **2013**, *15*, 79–93. [CrossRef]
35. Chronister, K.M.; McWhirter, E.H. Applying Social Cognitive Career Theory to the Empowerment of Battered Women. *J. Couns. Dev.* **2003**, *81*, 418–425. [CrossRef]
36. Swanberg, J.E.; Ojha, M.U.; Macke, C. State Employment Protection Statutes for Victims of Domestic Violence. *J. Interpers. Violence* **2011**, *27*, 587–619. [CrossRef] [PubMed]

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The Influence of Family Bonding, Support, Engagement in Healthcare, on PrEP Stigma among Young Black and Latino Men Who Have Sex with Men: A Path Analysis

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Abstract: This study employs the ecodevelopmental theory to examine the influence of mother and father bonding, family engagement in healthcare, and family support on PrEP stigma among BLMSM. We used a cross-sectional sample from wave five of the Healthy Young Men (HYM) study, with a survey sample of 399 participants aged 16–24 years. We conducted two-path analyses to test multiple hypotheses: (1) mother/father bonding is associated with an increase in family engagement in healthcare; (2) family engagement in healthcare is associated with family social support; and (3) family social support is associated with PrEP stigma. Family social support was negatively correlated with PrEP stigma ($r = -0.15$; $p < 0.001$). The findings show that families either led by a Black/Latino father or mother have a significant impact on the sexual health-seeking behavior of BLMSM and their perception of HIV and PrEP.

Keywords: HIV; PrEP; adolescents; families; stigma; MSM

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1. Introduction

Although pre-exposure prophylaxis (PrEP) proves efficacious in reducing HIV transmission, not all populations benefit from the advancement equally [1,2]. Black and Latino men who have sex with men (BLMSM) have lower rates of access and uptake of PrEP compared with their white counterparts [3–6]. Among MSM qualifying for a PrEP prescription in 2019, Black and Latino men showed 8% and 14% prescription rates, respectively, compared with white men at 63% [7]. Meanwhile, BLMSM continue to be disproportionately infected by HIV, with Black and Latino MSM representing 37% and 30% of MSM with new HIV diagnoses in 2018, respectively, compared with white MSM of 27% [8].

Social and structural factors have impacted PrEP uptake among BLMSM. These factors are structural health care barriers, such as lack of access, insurance status, and discrimination/racism. Social factors emanating from homophobia, HIV stigma, and additional personal elements within the cultural/community context have also contributed to low PrEP use [5,6,9–11]. Stigma continues to create challenges to PrEP uptake. Stigma is the social process of ascribing "negative" perceptions or disapproval to a specific individual or personal attribute. Stigma could result in actions such as discrimination against persons with such "spoilt" identities or supposed "negative" qualities [5,12]. In certain Black and Latino communities, the notion that PrEP is meant exclusively for gay men reduces the interest of PrEP for BLMSM if they are concealing their sexual identity or disassociating

from homosexuality [5,10]. Sexual orientation concealment and/or disassociation from homosexuality in many cases are due to fear of negative consequences within the family unit. Improvement in family relationships and parental bonding may extend the reach of PrEP among adolescents [13,14].

Parental bonding is a subjective experience of affection from a parent towards a child. The core tenet of the bond is the perceived feeling of "love" expressed in parental behavior [15–17]. There is a dearth of literature on parental bonding in BLMSM and its effects on their PrEP attitudes, stigma, and use and perceptions of stigma. However, previous studies associate child–parent communication to current PrEP use and the perceived lack of parental support of PrEP use to low interest in initiating PrEP [14–17]. Parental bonding or parental communication may improve many sexual health outcomes, such as the age of sexual debut, number of sexual partners, reduction in HIV risk behaviors, and the acquisition of other sexually transmitted infections [15–17]. For example, adolescents who talk to their parents about condoms are more likely to use them [18]. However, findings show some inconsistency in the role of family and HIV prevention behaviors with mother support positively predicting condom use compared with a negative prediction by father bonding [15–17,19]. Hence, more research is needed to understand the role of parental bonding and other familial factors in reducing HIV and PrEP-related stigma.

To address the gaps in knowledge surrounding this area, this study used the ecodevelopmental theory to examine how mother and father bonding, family engagement in healthcare, and family support influence PrEP stigma among BLMSM and fills a critical gap in the literature on the same. We hypothesized the following:

Hypothesis 1 (H1). *Mother and Father Bonding will predict Family Sexual Health.*

Hypothesis 2 (H2). *Family Sexual Health will predict Family Social Support.*

Hypothesis 3 (H3). *Family Social Support will predict PrEP Stigma.*

Ecodevelopmental Theory

The ecodevelopmental theory guided this study to investigate how the family context (i.e., mother bonding, father bonding, and family engagement in healthcare) influences PrEP stigma among BLMSM. Based on Bronfenbrenner's social-ecological model, the theory frames the social ecology of an individual in the context of four interrelated systems: microsystem, mesosystem, exosystem, and macrosystem [20,21]. To date, the ecodevelopmental theory has been useful in framing the influence of family factors on HIV attitudes, HIV testing, and social support [15–17]. Furthermore, the ecodevelopmental theory stresses how family functioning and interactions within the family contribute to youth risk or serve as a protective mechanism through a developmental lens [22].

In understanding how stigma influences HIV prevention behaviors such as PrEP, it is critical to recognize the intersecting identities of BLMSM and the potential operation of these identities in the family context. Intersectionality can complement and enhance the ecodevelopment theory, as intersecting stigmas may be critical drivers of PrEP-related stigma among BLMSM [23]. While both ecodevelopment theory and intersectionality research enhance our understanding of oppression and disparities in public health and the family context, these theoretical frameworks can jointly highlight the importance of family and health and how to reduce stigma around PrEP and HIV.

2. Methods

2.1. Procedures

This secondary analysis used wave five data from the Healthy Young Men's (HYM) cohort study, a longitudinal study conducted with a sample (n = 498) of MSM of color. The HYM research aims to prevent and reduce HIV acquisition among MSM of color by investigating barriers and protective factors that contribute to their engagement in care. Young

men who were HIV negative (n = 448) and positive (n = 50) were eligible to participate in the study. Inclusion criteria were: (1) between the ages of 16 to 24 years; (2) assigned as male at birth; (3) self-identified as gay, bisexual, or uncertain about their sexual orientation; (4) reported a sexual experience with a man within the last 12 months; (5) self-identified as of African American/Black, Hispanic/Latino, or multiracial ethnicity; and (6) resided in Los Angeles city or county with no plans on moving for at least six months.

Described in a meticulous manner [24], the study procedures included both venue (e.g., bars, coffee shops, and parks) and social media-based (e.g., Facebook, Instagram, and Grindr). Participants were recruited in Los Angeles, California, and the surrounding cities/counties. There were 1371 people screened for the study, and among those, 40% (550) were eligible to participate. Respondents were asked to participate in data collection at baseline and follow-up every 6 months. Participants were asked to contact their interviewer monthly (e.g., text message, phone call, or Snapchat). In return, they would receive a USD 7 monthly incentive (the additional USD 42 added to their data collection incentive) [24]. They were provided written informed consent during a face-to-face recruitment event, and each person received USD 65 for their study visit. This study received Institutional Review Board approval from the Children's Hospital, Los Angeles.

2.2. Measures

The outcome variable for this study was PrEP stigma and was measured by an 11-item, 5-point Likert scale, with values ranging from 1 (strongly disagree) to 5 (strongly agree), with a higher score indicating lower stigma (α = 0.84). Sample items provided here were in response to the prompt, stating, "Please decide how much you agree with the following statements: (1) "I think people should take PrEP." (2) "Having sex with someone on PrEP is risky", and (3) "People have different opinions about PrEP."

PrEP attitudes were measured by a 3-item, 5-point Likert scale with values ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores reflecting positive attitudes towards PrEP (α = 0.83). A sample item stated, "I think people should take PrEP" [25].

Family social support was measured using a 4-item Likert scale (ranging from 1 (strongly disagree) to 4 (agree)), asking the respondents to agree or disagree with the following: (1) "My family tries to help", (2) "I can talk about my problems with my family", (3) "My family is willing to help me make decisions", and (4) "I get the emotional help and support I need from family". Family Social Support (FSS) scores were created by averages across item responses (α = 0.91). Mother and father bonding were two separate measures created using a 2-item scale (ranging from 0 = no, 1 = yes), asking about participants' receiving love and support from their mother and father. Sample items included (1) "Would you say this woman/man was loving?" and (2) "Would you say this woman/man was very supportive?". The scores were achieved by averaging across item responses, and the Cronbach's alpha for fathers was α = 0.76 and mothers α = 0.80.

Family engagement in healthcare was measured by two items, consisting of 5-point Likert-type questions, with values ranging from 1 (strongly disagree) to 5 (strongly agree) and a higher score indicating more family engagement in healthcare (α = 0.70). A sample item includes "When I was growing up, my parent(s) or guardian(s) made sure I had regular check-ups with my doctor".

2.3. Statistical Analysis Plan

All analyses were conducted on observations inclusive of non-missing data for the outcome of PrEP stigma. Table 1 presents the sample characteristics of Black and Latino MSM (n = 498). Table 2 shows the bivariate correlations between the predictors and the outcome variable (PrEP stigma). Tables 3 and 4 present the standardized and unstandardized results of path analysis. Two path analyses were used to examine the associations between mother and father bonding history, history of family healthcare, family social support, and PrEP stigma. The model fit was considered good if the $\chi 2$ value was non-significant,

comparative fit index (CFI) 0.95, Tucker–Lewis index (TLI) 0.95, and the root mean square error of approximation (RMSEA) was ≤0.06 (adequate if ≤0.08). The Akaike information criterion (AIC) and Bayesian information criterion (BIC) were utilized to compare the fit between the models. These fit indices were assessed as generated path models. The Bollen–Stine bootstrap procedures with 6000 bootstraps resampled were also used to assess the consistency of the proposed model with the sample data, which was indicated by the results with a *p*-value greater than 0.05. A mean score of the scale items was generated for participants with non-missing data for survey scales. All analyses were conducted using STATA 17.

Table 1. Sample Characteristics (*n* = 399).

Variable	Frequency (%)
Age, in years (mean, (SD))	22 (2.01)
Race	
Latino	250 (59%)
Black	174 (41%)
Education	
College graduate and above	282 (22%)
Some college/AA	631 (50%)
High school/AA	239 (19%)
9th–12th	36 (3%)
Employment	
I am not working at this time	43 (10%)
Yes, part-time	172 (38%)
Yes, full-time	123 (27%)
Not working at this time and NOT looking	20 (4%)
Not working at this time but looking for work	84 (19%)
Sexual Orientation	
Homosexual (gay or bisexual)	334 (76%)
Heterosexual (straight)	1 (0.22)
Bisexual	74 (17%)
Other same sex (e.g., MSM)	20 (4%)
Pansexual	11 (2%)
Unsure/questioning	4 (0.89%)
Other—please specify	2 (0.45)
Do not know	2 (0.45)
In the last 30 days, how often did you use a condom during ANAL receptive sex?	
0–25% of the time	98 (36%)
26–50% of the time	30 (11%)
51–75% of the time	33 (12%)
76–99% of the time	39 (14%)
100% of the time	70 (26%)
In the last 30 days, how often did you use a condom during ANAL insertive sex?	
0–25% of the time	113 (39%)
26–50% of the time	35 (12%)
51–75% of the time	20 (7%)
76–99% of the time	42 (14%)
100% of the time	82 (28%)
PrEP Use	
Yes	56 (14%)
No	343 (86%)

Table 2. Bivariate Correlations on PrEP Stigma (n = 399).

PrEP Stigma	1					
PrEP attitudes	−0.41 ***	1				
Family social support	−0.15 ***	0.07	1			
Family engagement in healthcare	−0.04 *	0.03 *	0.21 ***	1		
History of mother bonding	0.01	0.01	0.34 ***	0.13 *	1	
History of father bonding	−0.02	0.06	0.40 ***	0.04	0.50 ***	1
Mean	4	3.62	5	7.01	0.81	0.66
SD	1.1	0.69	1.49	2.2	0.29	0.36
Range	2.0–8.0	2.0–5	1.0–7.0	2.0–11.0	0.0–1.0	0.0–1.0

$p < 0.05$ *, $p < 0.001$ ***.

Table 3. Path Analysis Mother Bonding on PrEP Stigma (n = 399).

Observed	B	95% CI	SE	β
Direct Effects				
Family engagement in healthcare Mother bonding	0.44	0.02, 0.85	0.21	0.11 **
Family social support Family engagement in healthcare	4.05	0.29, 7.80	1.91	3.27 **
PrEP stigma Family social support	−0.11	−0.18, −0.04	−0.04	−0.15 **
Indirect Effects				
Family social support				
Mother bonding	1.78 ***	1.29, 2.26	0.24	
PrEP stigma				
Family engagement in healthcare	−0.45	−0.96, 0.06	0.26	
Mother bonding	−0.20 *	−0.33, −0.05	0.07	

$p < 0.05$ *, $p < 0.01$ **, $p < 0.001$ ***.

Table 4. Path Analysis Father Bonding on PrEP Stigma (n = 245).

Observed	B	95% CI	SE	β
Direct Effects				
Family engagement in healthcare Father bonding	0.35	10.01, 0.71	0.18	0.09
Family social support Family engagement in healthcare	5.27	0.08, 10.47	2.64	4.25 **
PrEP stigma Family social support	−0.11	−0.18, −0.04	0.04	−0.15 **
Indirect Effects				
Family social support				
Father bonding	1.86 ***	1.37, 2.34	0.25	
PrEP stigma				
Family engagement in healthcare	−0.58	−1.27, 0.10	0.35	
Father bonding	−0.20 *	−0.35, −0.06	0.07	

$p < 0.05$ *, $p < 0.01$ **, $p < 0.001$ ***.

2.4. Sample Characteristics

Table 1 provides sample characteristics of participants in the HYM study. The study sample consisted of 399 MSM color between the ages of 18 to 29. The mean age was 22 during wave 5. Most of the sample self-identified as Latinx (59%), followed by 41% as African American. Seventy-six percent self-identified as gay, 17% bisexual, 4% MSM, 2%

pansexual, 1% heterosexual, and approximately 1% unsure or questioning. Additionally, 27% of the participants reported working full time. Nineteen percent reported not working but looking for work. Twenty-six percent of the individuals stated that they use a condom during receptive anal sex all the time, and 28% said that they use a condom as the insertive partner all the time. Most of the sample (86%) reported not using PrEP.

Overall, approximately 50% of BLMSM experienced some form of PrEP stigma. Generally, 72% harbored positive attitudes towards PrEP, and 71% reported having family support. Moreover, only 63% of the sample reported their family being engaged in healthcare. Most of the sample reported having strong bonds with their mothers (89%), and 66% reported strong bonds with their fathers.

2.5. Bivariate Correlations

Table 2 presents the bivariate correlations between the criteria and outcome variables. PrEP attitudes were negatively correlated with PrEP stigma (r = −0.41; $p < 0.001$). Family social support was negatively correlated with PrEP stigma (r = −0.15; $p < 0.001$). Family engagement in healthcare was negatively associated with PrEP stigma (r = −0.04; $p < 0.05$) and positively associated with PrEP attitudes (r = 0.03; $p < 0.05$) and family social support (r = 0.21; $p < 0.001$). History of mother bonding was positively associated with family social support (r = 0.34; $p < 0.001$) and family engagement healthcare (r = 0.13; $p < 0.05$). History of father bonding was positively correlated with family social support (r = 0.40; $p < 0.001$) and mother bonding (r = 0.50; $p < 0.001$).

2.6. Path Analysis

2.6.1. Mother Bonding

The model demonstrated a good overall model fit for the sample data ($\chi 2 = 71.0$ (6), $p = 0.67$; CFI = 0.99; TLI = 0.99; RMSEA = 0.01; AIC = 45; and BIC = 46). Table 3 lists the unstandardized and standardized results for mother bonding (Figure 1) ($n = 399$). Results indicated that a history of mother bonding was statistically significant and directly linked to family engagement in healthcare ($\beta = 0.13$; $p = 0.011$). Family engagement in healthcare was significant and directly linked to family social support ($\beta = 2.67$; $p < 0.011$). Family social support was significant and negatively associated with PrEP stigma ($\beta = -0.15$; $p < 0.010$). Mother bonding was significant and indirectly associated with family social support ($\beta = 1.78$; $p < 0.001$). Lastly, mother bonding was significant and indirectly linked with PrEP stigma ($\beta = -0.20$; $p < 0.001$) (Figure 2).

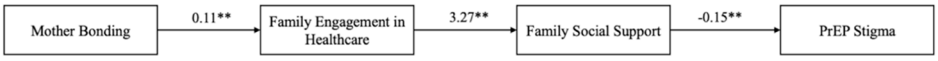

Figure 1. Direct pathways to reduction in PrEP stigma through mother bonding, ($n = 399$). Note: standardized path coefficients presented. ** $p < 0.01$.

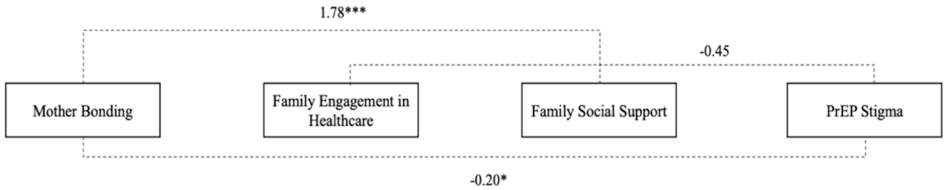

Figure 2. Indirect pathways to reduction in PrEP stigma ($n = 399$) mother bonding. Note: standardized path coefficients presented. * $p < 0.05$; *** $p < 0.001$.

2.6.2. Father Bonding

The model demonstrated a good overall fit for the sample data ($\chi 2 = 77.65$ (6), $p = 0.99$; CFI = 0.99; TLI = 0.99; RMSEA = 0.01; AIC = 46; and BIC = 47). Table 3 shows the unstandardized and standardized results for father bonding (Figure 3) ($n = 245$). Family engagement in healthcare was significant and directly associated with family social support

(β = 4.25; $p < 0.01$). Family social support was significant and negatively linked with PrEP stigma (β = −0.15; $p < 0.001$). Father bonding was significant and indirectly associated family social support (β = 1.86; $p < 0.001$). In addition, father bonding was significant and indirectly associated with PrEP stigma (β =−0.20; $p < 0.05$) (Figure 4).

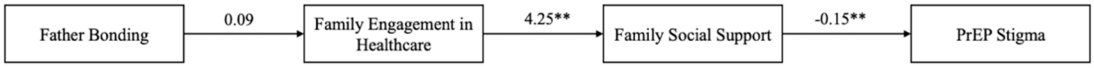

Figure 3. Pathways to PrEP stigma through father bonding (n = 245). Note: standardized path coefficients presented. ** $p < 0.01$.

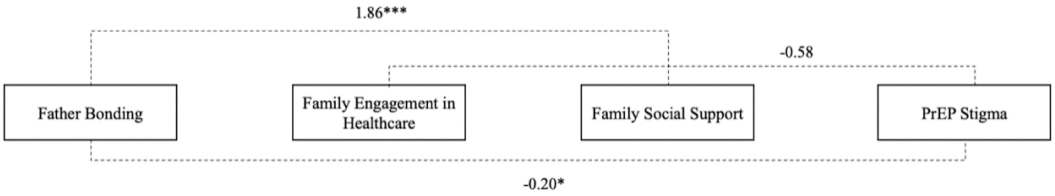

Figure 4. Indirect pathways to reduction in PrEP stigma (n = 399) through father bonding. Note: standardized path coefficients presented. * $p < 0.05$; *** $p < 0.001$.

3. Discussion

The purpose of this study was to use the ecodevelopment theory to examine the impact of family-level factors on PrEP stigma among BLMSM. Despite the low PrEP use among BLMSM and the significant public health implications, few studies have examined the contextual factors associated with mother and father bonding, family engagement in healthcare, and family social support on PrEP stigma [13–17], making our study novel and relevant. Overall, our findings highlighted that the influence of the familial microsystem is pronounced in modifying PrEP stigma. Results also indicated that mother and father bonding predicted family engagement in healthcare, which in turn predicted family social support and reduction in PrEP stigma. These findings allow for a more nuanced understanding of the extent to which family-level factors may affect PrEP stigma, which holds implications for the health and well-being of BLMSM.

Studies examining the effects of the ecodevelopmental theory in the family context on BLMSM health, HIV, and stigma are limited [26]. Ecodevelopmental theory postulates that youth are embedded in an interrelated and interconnected context [26], and researchers have focused primarily on the family microsystem. These study findings demonstrate the importance of family factor influences on PrEP stigma among BLMSM. This is significant because our study expands the current state of the science by indicating the importance of the family and its dynamics within a developmental framework. Our research findings suggest that the family context contributes to engagement in healthcare, social support, and reduction in HIV stigma. Additionally, in this study, both mothers and fathers are critical to reducing PrEP stigma. Utilizing the ecodevelopment theory allows further understanding of the role and need of parents and families as support in reducing PrEP stigma and increasing uptake among these populations, as indicated in the three-study hypothesis.

Our study results indicated that mother bonding both positively predicted family engagement in healthcare but not for father bonding (Figure 1), which is consistent with prior literature that parental bonding influences communication, self-esteem, positive health outcomes, and positive attitudes towards HIV prevention behaviors [13–17]. The presence of family constitutes an important source of psychological stability for individuals who need healthcare [27], in this case, BLMSM disproportionately affected by HIV, who can use PrEP. Our results underscore the importance of mothers being involved in their son's healthcare and understanding their roles in ensuring their children learn the importance of visiting a healthcare provider at early stages in life. Mothers have opportunities to continue to nurture their bond by engaging their sons around sexual health communication, the

importance of HIV/STD testing, condom use as a family, or using a healthcare provider. Even though father bonding was not significant with family healthcare engagement, this allows researchers to explore the father's role in their son's healthcare and how we can further engage them in this process. This is critical because families who share bonds improve mental health and support while engaging in healthcare and reducing the stress and stigma around certain topics such as HIV.

The path analyses indicated that family engagement in healthcare was associated with family social support. Past research has shown that family engagement and support in care are essential for optimal health outcomes [27]. Additionally, families play a significant role in promoting health and wellness [27], which is critical for BLMSM, who are disproportionately affected by HIV and less likely to use PrEP. Moreover, one study indicated that black males consistently visited the doctor because their fathers always engaged in healthcare [28]. This is a form of socialization and a tangible expression of the Black male influence through role modeling of healthy behaviors, which can help improve the health and well-being of BLMSM [27,29]. BLMSM who have a history of family engagement in healthcare may live in healthy environments. They may have the support needed to understand the importance of routine care [29]. Through understanding the importance of routine care and family social support, they may have positive experiences with their providers who can provide essential and accurate information on HIV testing and PrEP, reducing their stigmatizing views towards PrEP and HIV.

Our study findings indicated that family social support in both path analyses (mother and father) was independently associated with a reduction in PrEP stigma. This is an important finding because PrEP stigma has been linked to lower PrEP interest, intentions, comfort discussing PrEP with a provider, and uptake [10,11,28]. Previous literature has found that higher levels of support increase HIV testing and PrEP use [13–17]. As parents are critical to the well-being of BLMSM, increased attention is needed to family-based HIV prevention, such as efforts to integrate parent–son discussions regarding PrEP, as parents often serve as gatekeepers to biomedical intervention and can function as a support system [28]. Engaging parents in HIV prevention may reduce PrEP stigma. This finding further disproves the perceived belief among the youth that parents will not support the utilization of PrEP. There are mixed findings indicating that father bonding will impede healthcare usage, thus, highlighting that it is essential to bond with parents regardless of their being mothers or fathers.

Surprisingly, our results indicated that mother and father bonding was indirectly associated with reducing PrEP stigma. This is critical as PrEP stigma minimizes the likelihood of engagement in PrEP [10,11]. However, if we can increase parents' awareness of PrEP and the importance of their sons using PrEP through education, we may reduce their stigmatizing views on HIV and PrEP. This is an opportunity for health educators, researchers, and practitioners to talk with parents about HIV prevention and care as a continuum. It will then help underscore the importance of PrEP and may lead to an overall reduction in stigma around PrEP. As noted in our findings, parental bonding with their sons is the first step in removing stigma.

Although our study findings contribute to the literature on family social support and PrEP stigma, there are several limitations. The analysis was conducted using secondary data, so we were dependent on the pre-existing measures to determine variables related to family context. Additionally, the landscape for the availability and administration of PrEP (as an oral medication or as an injectable) is ever changing. We are unsure how the availability of PrEP may or may not influence its uptake in the future. The data analyzed were cross sectional, and we cannot predict changes in family dynamics, including divorce or single parenthood, from the data. Future studies should examine the longitudinal impact of family bonding and how it changes over time in different household settings. We plan to augment our research findings by examining the differences between household types based on socioeconomic factors and demographics such as single parenthood.

4. Conclusions

The purpose of our ecodevelopmental study was to examine family-level factors on PrEP stigma among BLMSM. Based on our findings, there is an urgent need to optimize HIV outcomes by including the family unit in Black and Latino HIV prevention. Utilizing the family unit and providing comprehensive resources to increase HIV prevention awareness may reduce stigma around PrEP and encourage use.

Attention to family dynamics and leveraging the strengths of BLMSM may help reduce PrEP stigma and negative attitudes towards PrEP. Much bio-behavioral research focuses on risk factors associated with PrEP [11]; however, to optimize HIV prevention outcomes for BLMSM, we need to include the family unit as a means of support in HIV prevention. Family-based interventions have been proven efficacious in HIV prevention [13]. Research should consider the benefits that PrEP offers in addition to HIV protection (e.g., reduced HIV anxiety, increased sexual autonomy, and enhanced comfort with serodiscordant relationships), which could help to reshape PrEP messaging and delivery and, more importantly, reduce stigma.

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References

1. Khurana, N.; Yaylali, E.; Farnham, P.G.; Hicks, K.A.; Allaire, B.T.; Jacobson, E.; Sansom, S.L. Impact of improved HIV care and treatment on PrEP effectiveness in the United States, 2016–2020. *JAIDS J. Acquir. Immune Defic. Syndr.* **2018**, *78*, 399–405. [CrossRef]
2. Fonner, V.A.; Dalglish, S.L.; Kennedy, C.E.; Baggaley, R.; O'reilly, K.R.; Koechlin, F.M.; Grant, R.M. Effectiveness, and safety of oral HIV preexposure prophylaxis for all populations. *AIDS* **2016**, *30*, 1973–1983. [CrossRef] [PubMed]
3. Elopre, L.; Kudroff, K.; Westfall, A.O.; Overton, E.T.; Mugavero, M.J. The right people, right places, and right practices: Disparities in PrEP access among African American men, women and MSM in the Deep South. *JAIDS J. Acquir. Immune Defic. Syndr.* **2017**, *74*, 56–59. [CrossRef] [PubMed]
4. Goedel, W.C.; King, M.R.; Lurie, M.N.; Nunn, A.S.; Chan, P.A.; Marshall, B.D. Effect of racial inequities in preexposure prophylaxis use on racial disparities in HIV incidence among men who have sex with men: A modeling study. *JAIDS J. Acquir. Immune Defic. Syndr.* **2018**, *79*, 323–329. [CrossRef] [PubMed]
5. Lelutiu-Weinberger, C.; Golub, S.A. Enhancing PrEP access for Black and Latino men who have sex with men. *JAIDS J. Acquir. Immune Defic. Syndr.* **2016**, *73*, 547–555. [CrossRef] [PubMed]
6. Nieto, O.; Brooks, R.A.; Landrian, A.; Cabral, A.; Fehrenbacher, A.E. PrEP discontinuation among Latino/a and Black MSM and transgender women: A need for PrEP support services. *PLoS ONE* **2020**, *15*, e0241340. [CrossRef] [PubMed]
7. Centers for Disease Control and Prevention. Monitoring Selected National HIV Prevention and Care Objectives by Using HIV Surveillance Data—United States and 6 Dependent Areas, 2019. HIV Surveillance Supplemental Report. 2019; p. 26. Available online: http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html (accessed on 1 October 2021).
8. Centers for Disease Control and Prevention. *Diagnoses of HIV Infection in the United States and Dependent Areas, 2019*; HIV Surveillance Report 2021; Centers for Disease Control and Prevention: Atlanta, GA, USA, 2019; p. 32.
9. Lindsey, M.A.; Sheftall, A.H.; Xiao, Y.; Joe, S. Trends of suicidal behaviors among high school students in the United States: 1991–2017. *Pediatrics* **2019**, *144*, e20191187. [CrossRef] [PubMed]
10. Calabrese, S.K. Understanding, contextualizing, and addressing PrEP stigma to enhance PrEP implementation. *Curr. HIV/AIDS Rep.* **2020**, *17*, 579–588. [CrossRef]

11. Eaton, L.A.; Kalichman, S.C.; Price, D.; Finneran, S.; Allen, A.; Maksut, J. Stigma and conspiracy beliefs related to Preexposure Prophylaxis (PrEP) and interest in using PrEP among Black and White men and transgender women who have sex with men. *AIDS Behav.* **2017**, *21*, 1236–1246. [CrossRef] [PubMed]
12. Golub, S.A. PrEP stigma: Implicit and explicit drivers of disparity. *Curr. HIV/AIDS Rep.* **2018**, *15*, 190–197. [CrossRef] [PubMed]
13. Flores, D.D.; Meanley, S.P.; Wood, S.M.; Bauermeister, J.A. Family characteristics in sex communication and social support: Implications for emerging adult men who have sex with men's PrEP engagement. *Arch. Sex. Behav.* **2020**, *49*, 2145–2153. [CrossRef] [PubMed]
14. Moskowitz, D.A.; Macapagal, K.; Mongrella, M.; Pérez-Cardona, L.; Newcomb, M.E.; Mustanski, B. What if my dad finds out?: Assessing adolescent men who have sex with men's perceptions about parents as barriers to PrEP uptake. *AIDS Behav.* **2020**, *24*, 2703–2719. [PubMed]
15. Boyd, D.T.; Quinn, C.R.; Aquino, G.A. The inescapable effects of parent support on black males and HIV testing. *J. Racial Ethn. Health Disparities* **2020**, *7*, 563–570. [CrossRef]
16. Boyd, D.T.; Threats, M.; Winifred, O.; Nelson, L.E. The association between African American father–child relationships and HIV testing. *Am. J. Men's Health* **2020**, *14*, 1557988320982702. [CrossRef] [PubMed]
17. Boyd, D.T.; Quinn, C.R.; Jones, K.V.; Beer, O.W. Suicidal ideations and attempts within the family context: The role of parent support, bonding, and peer experiences with suicidal behaviors. *J. Racial Ethn. Health Disparities* **2021**, 1–10. [CrossRef]
18. Hadley, W.; Brown, L.K.; Lescano, C.M.; Kell, H.; Spalding, K.; DiClemente, R.; Donenberg, G. Parent–adolescent sexual communication: Associations of condom use with condom discussions. *AIDS Behav.* **2009**, *13*, 997–1004. [CrossRef]
19. Coleman, C.L. A qualitative analysis of family support among older seropositive African American MSM. *J. Cult. Divers.* **2018**, *25*, 82–86.
20. Bronfenbrenner, U. *The Ecology of Human Development: Experiments By Nature and Design*; Harvard University Press: Cambridge, MA, USA, 1979.
21. Szapocznik, J.; Coatsworth, J.D. An Ecodevelopmental Framework for Organizing the Influences on Drug Abuse: A Developmental Model of Risk and Protection. In *Drug abuse: Origins & Interventions*; American Psychological Association: Washington, DC, USA, 1999; pp. 331–366.
22. Nathanson, M.; Baird, A.; Jemail, J. Family functioning and the adolescent mother: A systems approach. *Adolescence* **1986**, *21*, 827–841. Available online: https://pubmed.ncbi.nlm.nih.gov/3825665 (accessed on 30 September 2021). [PubMed]
23. Quinn, K.G. Applying an intersectional framework to understand syndemic conditions among young Black gay, bisexual, and other men who have sex with men. *Soc. Sci. Med.* **2019**, 112779. [CrossRef]
24. Kipke, M.D.; Kubicek, K.; Akinyemi, I.C.; Hawkins, W.; Belzer, M.; Bhandari, S.; Bray, B. The healthy young men's cohort: Health, stress, and risk profile of Black and Latino young men who have sex with men (YMSM). *J. Urban Health* **2020**, *97*, 653–667. [CrossRef] [PubMed]
25. Mustanski, B.; Ryan, D.T.; Hayford, C.; Phillips, G.; Newcomb, M.E.; Smith, J.D. Geographic and individual associations with PrEP stigma: Results from the RADAR cohort of diverse young men who have sex with men and transgender women. *AIDS Behav.* **2018**, *22*, 3044–3056. [CrossRef] [PubMed]
26. Córdova, D.; Heinze, J.E.; Mistry, R.; Salas-Wright, C.P.; Zimmerman, M.A. Ecodevelopmental trajectories of family functioning: Links with HIV/STI risk behaviors and STI among Black adolescents. *Dev. Psychol.* **2016**, *52*, 1115–1127. [CrossRef] [PubMed]
27. Marrs, J.; Cossar, J.; Wroblewska, A. Keeping the family together and bonding: A father's role in a perinatal mental health unit. *J. Reprod. Infant Psychol.* **2014**, *32*, 340–354. [CrossRef]
28. Brooks, R.A.; Nieto, O.; Landrian, A.; Donohoe, T.J. Persistent stigmatizing and negative perceptions of preexposure prophylaxis (PrEP) users: Implications for PrEP adoption among Latino men who have sex with men. *AIDS Care* **2019**, *31*, 427–435. [CrossRef]
29. Cené, C.W.; Johnson, B.H.; Wells, N.; Baker, B.; Davis, R.; Turchi, R. A narrative review of patient and family engagement: The "foundation" of the medical home. *Med. Care* **2016**, *54*, 697–705. [CrossRef] [PubMed]

children

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Article

The Mental Health of Black Youth Affected by Community Violence: Family and School Context as Pathways to Resilience

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Abstract: Black youth who experience community violence occupy multiple environments with varying levels of influence on how they display resiliency to prevent adverse mental health outcomes. Considering the recent rise of mental health concerns (i.e., increase in suicidal outcomes) among Black youth, along with the abundance of research illustrating the detrimental impact of community violence, more research is needed to examine how different environmental factors (e.g., family and school) shape how youth protect their mental health while displaying resiliency navigating community violence. The purpose of this study was to examine how family and school contexts predict Black youths' ability to display resiliency to navigate community violence and prevent adverse mental health outcomes. This study utilized a path analysis to examine the associations between parent relationships, parent bonding, school climate, resilience to adverse community experiences, community violence, and mental health among 548 Black adolescents in Chicago. Findings highlight that parent relationships, parent bonding, and school climate influence the association between resilience to community violence and mental health outcomes among Black youth. Implications for mental health practice and policy among Black youth are discussed.

Keywords: mental health; community violence; families; black youth; resilience

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1. Introduction

Today, Black adolescents in the United States grapple with unique contextual and structural hurdles specific to their generation, including the rise in racial unrest due to police brutality against Black people, terrorism, crime, racism, poverty, and a global pandemic [1–4]. Generally, adolescent development is a stage that is characterized by unique stressors to their mental health [5]. However, mental health struggles of Black youth in the United States have been a cause for even greater concern. Among adolescents in the United States, suicide is the second leading cause of death [6] and among Black youth, recent research indicates a significant spike in the rate of suicide for Black children and adolescents [6].

Black youth often experience community and neighborhood factors (e.g., neighborhood poverty) that disproportionately put them at risk of being exposed to contextual factors that can have detrimental effects on their psychological wellbeing [7–9]. Specifically, research demonstrates that Black youth are more likely to live in low income and under-resourced communities that puts them at risk of being exposed to community violence in their neighborhoods [10–14]. Moreover, researchers have found community violence to be associated with detrimental mental health outcomes for youth [15–17].

Unfortunately, despite the current evidence that highlights the detrimental impacts of community violence for Black youth, research that examines Black youth's resilience

in navigating community violence, specifically as it relates to their mental health, is limited [18]. Focusing on the environmental context of Black youths' resilience dealing with community violence is of the upmost importance because research highlights that not only does community violence negatively impact their personal mental health, but the repeated exposure to community violence has significant impacts on youths' familial relationships as well as their school experiences [19].

Research highlights the importance of considering the family context of Black youth when assessing their ability to successfully navigate community violence [18]. Specifically, research demonstrates that parent support can mitigate future acts of violence for male youth who have witnessed community violence [20]. Further, family support can be a significant protective factor for youth who have been victims of community violence [21]. However, family dynamics that involve high levels of stress and instability can lead to youth who do not rely on family support when dealing with community violence [21].

In addition to general family dynamics and parent support, literature has highlighted parent bonding as an important factor to consider when investigating how youth cope with community violence. A review conducted by Ozer and colleagues [22] demonstrated that close and warm relationships with parents was a protective factor for both internalizing and externalizing symptoms among youth exposed to community violence. However, there is research which indicates the effectiveness of parent bonding is impacted by levels of exposure to community violence [23]. Specifically, greater community violence exposure has a negative effect on the protective mechanism of parent bonding. Importantly, research illustrates that youth who are exposed to higher levels of community violence have more negative perceptions of their parent [24].

With respect to school experiences and academic outcomes, research has also demonstrated that youth who are exposed to community violence are at higher risk for several lower levels of academic achievement [25]. Additionally, exposure to community violence can lead youth to display disciplinary issues in school that may likely be associated with polyvictimization, i.e., trauma, and thus lead them to involvement with law enforcement and court-related delinquency [26,27]. The study carried out by Borofsky and colleagues [28] demonstrated that community violence negatively impacted school engagement over time. Overall, previous literature emphasizes the importance of considering both the school and family context when considering community violence among Black youth.

2. The Present Study

As highlighted in the introduction, the context of community violence and its impact on developmental outcomes in the lives of Black youth is not a sequestered phenomenon. Their experiences are instead embedded within networks of relationships—relationships that occur within multiple environments with varying positions of influence. Given that, we used ecodevelopment theory to frame this study. Specifically, ecodevelopment offers a useful way to conceptualize how Black youth interact within different relationships based on the role of factors associated with their growth and development or lack thereof. Further, it elucidates risk but especially protective factors that function during adolescence [29]. Ecodevelopment theory is based on the creation of social ecology, which notes that youth develop based on conditional effects from four interconnected systems: (1) the microsystem (i.e., parent conversations on sexual health and drug use), (2) the mesosystem (i.e., how peers are monitored by their parents), (3) the exosystem (i.e., parent support systems), and (4) the macrosystem (i.e., culture and cultural shifts) in which they are positioned [30,31]. In addition, ecodevelopment theory suggests that youth interactions are influenced by these outer systems and the impact of their actions and views and form the matching risk and/or protective factors, including their relationships. This theory is important to center Black adolescent health outcomes due to their social status across these systems based on parent–child communication among other factors as a family system [32].

Subsequently, proposed relationships between parents and youth, school climate resilience, violence exposure, and mental health must be considered in context with multiple

dimensions of influence. The present study examines how the family and school contexts influence how Black youth display resilience to protect their mental health when grappling with community violence. The present study fills a gap in the literature by examining how environmental contexts (e.g., family and school) influence how Black youth display resiliency to navigate community violence and prevent detrimental mental health outcomes. This study hypothesizes: (1) strong parent relationships will be associated with resilience to adverse experiences to community violence; (2) higher levels of parent bonding will be associated with resilience to adverse experiences to community violence (3) parent relationships will be associated with school climate; (4) and school climate will be associated with mental health.

3. Method

The data for this study come from the parent study, the Resilience Project collected in 2013–2014, a study examining the risk and protective mechanisms related to sexual behaviors of Black adolescents living in four urban neighborhoods of concentrated poverty in Chicago: Englewood, Woodlawn, Kenwood, and South Shore. Youth were recruited from three high schools, one youth church group, two community youth programs, and four public venues (e.g., parks and fast-food venues). The response rate for this study was 87% and the total participants for the study were 548 Black adolescents, ages 12 to 17. These participants were recruited from low-income communities consisting predominantly of Black residents where the average annual median income ranged from USD 24,049 to USD 35,946, which is below the Chicago city average of USD 43,628. The percentage of single-mother households in these areas ranged from 28.9% to 32.3%, with the city average being 13.9%.

To recruit adolescents, flyers with information regarding the study were posted at schools, community programs, and churches, where the school principals, leaders of church groups, and youth programs had permitted the researchers to recruit participants for the study. Participants were required to have both parent consent and youth assent to participate in the study. Youth who returned consent forms signed by a parent or guardian were enrolled in the study. Youth recruited in public venues were only asked to participate if a parent was present to provide consent. Trained research assistants introduced the study to all potential participants recruited from the locations with a detailed letter describing the study along with parent consent forms.

Participants recruited from schools, community programs, and churches were given a questionnaire at those respective locations. Youth who were recruited in public venues were given questionnaires in quiet spaces at or near those venues. In such instances, questionnaires were only administered to youth if a parent or a guardian was present to provide consent and the questionnaire could be immediately administered. The questionnaire took approximately 45 min to complete, after which the youth participant was given a USD 10 cash compensation. The University Institutional Review Board of the last author who collected the data approved the study.

3.1. Measures

The outcome variable for this study was *Mental Health* that assessed behaviors using the Brief Symptom Inventory [33,34] and contains 18 items about mental health symptoms during the past seven days (e.g., nervousness or shakiness inside, spells of terror or panic, thoughts of ending your life). Response options were based on a five-point scale (not at all, a little bit, moderately, quite a bit, or extremely). A composite mental health score was calculated by summing the responses for the 18 items. Cronbach's alpha was $\alpha = 0.92$ (range 0 to 61).

School Climate assessed school engagement. School Climate was assessed by 5 items from the modified School Bonding Scale [35]. For example, items included, "how much do you like school?" and "how much do you try in school?" Cronbach's alpha was acceptable ($\alpha = 0.92$) (range = 0–4).

Parent Bonding was measured using a 4-item scale, and the respondents were asked questions such as "how close do you feel to your father?" and "how close do you feel to your mother." The response categories ranged from 1 = not at all to 5 = very much, and higher scores indicated an increase in parent–child relationships. The Cronbach's alpha for this scale was 0.75 (range = 1–5) [36].

Parent Relationships was measured using a 7-item scale, and the items have been used in prior research [37–39]. Study respondents were asked questions such as "how disappointed would your parents be if you did not graduate from high school" and "how well do your parents know how you spend money?" The response categories ranged from 1 = not at all to 5 = very much, and higher scores indicated an increase in parent–child relationships. The Cronbach's alpha for this scale was 0.86 (range = 1–5).

Resilience to Adverse Community Experiences to Violence (RACV) was assessed by utilizing an 10-item scale, from the Exposure to Violence Probe [40]. Participants responded to items such as "I try to attend school regularly, so that I can graduate and get out of my community", "I try to work hard in an activity that may help me to get out of my community", and "I try to work hard in school, so that I can get out of my community". The response categories ranged from 1 = never to 4 = very often, and higher scores indicated an increase in resilience to adverse community experiences to violence. The Cronbach's alpha for this scale was 0.75 (range = 1–4).

Community Violence was assessed by a single item, and asked respondents "I just accept that there is crime and violence my community" The response categories ranged from 1 = never to 4 = very often, and higher scores indicated an increase in parent–child relationships.

3.2. Statistical Analysis

All analyses were conducted on observations that included non-missing data for the outcome, mental health. Statistical tests of association were conducted between measures described in the "Section 3", including the outcome variable. Table 1 presents the descriptive statistics for this study. A bivariate correlation was conducted between the study variables (Table 2). Next, a path analysis (Table 3) examined the associations between RACV, parent bonding, parent relationships, community violence, school climate, and mental health (Figure 1, direct paths) and Figure 2 represents the path analysis with only the indirect paths. For the model generated for this study, the model fit was considered good if the χ^2 value was non-significant, comparative fit index (CFI) > 0.95, Tucker–Lewis's index > 0.95 (TLI), the root mean square error of approximation was $\leq$0.06 (adequate if $\leq$0.08) (RMSEA). The Akaike information criterion (AIC) and Bayesian information criterion (BIC) were used to compare the fit between the models. These fit indices were assessed as path models were generated. The Bollen–Stine bootstrap procedures with 6000 bootstrap resamples were also used to assess the consistency of the proposed model with the sample data. All analyses were carried out using STATA 17, and all statistical tests of significance accounted for the effect of weighting.

Table 1. Sample Characteristics (N = 636).

Variable	Frequency	%
Gender		
Male	290	45%
Female	346	54%
Age		
12–14	118	19%
15–17	428	67%
18–22	89	14%
Government assistance		
Yes	476	76%
No	154	24%
Sexual orientation		

Table 1. *Cont.*

Heterosexual	475	81%
Gay	25	4%
Bisexual	59	10%
Pansexual	7	1%
Transgender	2	0.34%
Other	14	2.40%
Living in the Household		
Two parents	194	31%
Single mother	357	56%
Single father	24	4.0%
Grandfather	24	4.0%
Grandmother	94	15%
Brothers	326	51%
Sisters	324	50%
Legal guardian	54	8.0%
Adoptive Parent	6	0.01%
Other Relative	98	16%

Table 2. Bivariate Correlations on Mental Health (N = 548).

Mental Health	1					
School Climate	−0.14 *	1				
Parent Relationships	−0.11 **	0.42 ***	1			
Parent bonding	−0.14 **	0.34 ***	0.56 ***	1		
RACV	0.10	0.23 ***	0.13 *	0.07 **	1	
Community Violence	0.11 **	−0.03	−0.02	0.01	0.31 ***	1
Mean, (SD)	11.86 (12.41)	14.68 (4.16)	3.89 (0.28)	3.85 (1.06)	1.29 (0.58)	1.42 (1.06)
Range	0–61	0–20	0–5	0–5	0–3	0–3

$p < 0.05$ *, $p < 0.01$ **, $p < 0.001$ ***.

Table 3. Path Analysis on Mental Health (N = 548).

Observed	B	95% CI	SE	β
Direct Effects				
Structural				
School Climate				
Parent Bonding	0.46 ***	0.10, 0.82	0.18	0.12 *
Parent Relationships	1.39 ***	0.97, 1.81	0.21	0.30 ***
RACV				
School Climate	0.46 **	0.02, 0.07	0.02	0.32 **
Community Violence				
RACV	0.62 ***	0.46, 0.78	0.08	0.33 ***
Mental Health	−0.42 ***	−0.67, −0.17	0.12	
Community Violence	1.22 **	0.26, 2.18	0.49	0.11 *
Parent Bonding	−1.42 *	−2.60, −0.24	0.60	−0.12 *
Parent Relationships	−0.29 ***	−1.67, 1.08	0.70	−0.02
Indirect Effects				
Community Violence				
School Climate	0.03 **	0.01, 0.05	0.01	
Parent Bonding	0.01 *	−0.00, 0.03	0.01	
Parent Relationships	0.04 *	0.01, 0.07	0.02	
Mental Health				
School climate	0.03	−0.00, 0.07	0.02	
RACV	0.76 **	0.13, 1.39	0.32	
RACV				
Parent Bonding	0.02	0.00, 0.04	0.01	
Parent Relationships	0.06 **	0.02, 0.11	0.02	

$p < 0.05$ *, $p < 0.01$ **, $p < 0.001$ ***.

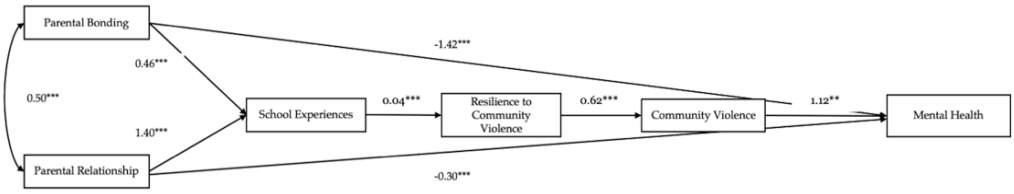

Figure 1. Simplified conceptual path model of mental health pathways, direct effects (single-headed arrows). $p < 0.01$ **, $p < 0.001$ ***.

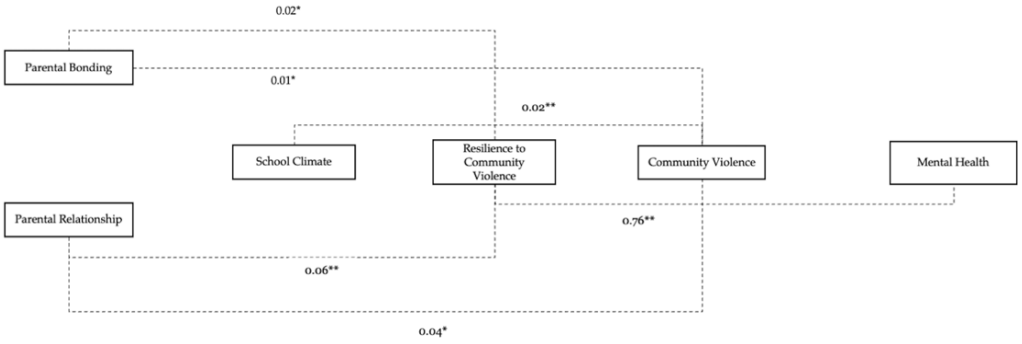

Figure 2. Conceptual path model of mental health pathways, indirect effects (broken arrows). $p < 0.05$ *, $p < 0.01$ **.

4. Results

4.1. Descriptive Statistics

Among the 636 participants, 44.6% were male and 54.4% were female, and the mean age was 15.46 years (SD = 1.12, range 12–17). Slightly more than three-fourths (74.7%) of the overall sample qualified for free or reduced school lunch, which indicates that most participants resided in low-income households. Approximately 56% of the participants lived in a single parent household. Approximately 70% reported that the climate in their school was positive. Among Black youth, 62% reported having positive relationships with their parents and 70% indicated they were working hard in school to leave their community. Lastly, approximately 20% of the sample reported mental health symptoms.

4.2. Bivariate Correlations

Table 2 provides bivariate correlations between the primary study variables and the outcome variable of mental health. The results of the Pearson correlation indicated that there was a significant and negative association between school climate ($r = -0.14$, $p < 0.05$) and mental health, i.e., depression symptoms. There were negative relationships between parent relationships and mental health ($r = -0.11$, $p < 0.01$) and positive relationships with school climate ($r = 0.2$, $p < 0.001$). RACV was positively correlated with school climate ($r = 0.23$, $p < 0.001$) and positively correlated with parent relationships ($r = 0.13$, $p < 0.001$).

4.3. Path Analysis

We conducted path analysis and the model demonstrated a good overall model fit for the sample data ($\chi^2 = 5.53(6)$, $p = 0.76$; CFI = 0.95; TLI = 0.95; RMSEA = 0.01; AIC = 99; BIC = 100). Table 3 depicts the unstandardized and standardized results for Parent Relationships, i.e., mother bonding (N = 548). Figure 1 presents the path model (direct effects) with standardized coefficients on significant paths. Results showed that parent bonding ($\beta = 0.46$; $p < 0.001$) and parent relationships ($\beta = 1.39$; $p < 0.001$) directly predicted school experiences. Our results also indicated that school experiences directly predicted RACV ($\beta = 0.46$; $p < 0.01$). RACV directly influenced community violence ($\beta = 0.62$; $p < 0.001$). Community violence ($\beta = 1.22$; $p < 0.001$), parent bonding ($\beta = -1.42$; $p < 0.001$), and parent relationships ($\beta = -0.29$; $p < 0.001$) all directly associated with mental health.

Figure 2 shows the indirect effects of the path analysis. School climate (β = 0.03; $p < 0.01$), parent bonding (β = 0.01; $p < 0.05$), and parent relationships (β = 0.04; $p < 0.001$) indirectly influences community violence. RACV is indirectly associated with mental health (β = 0.76; $p < 0.01$). Lastly, parent relationships (β = 0.06; $p < 0.01$) indirectly influenced RACV.

5. Discussion

The primary aim of this study was to examine Black youths' resilience in the face of community violence and its connection to parent relationships, school climate, and mental health. Findings from our study indicate that the influence of parent relationships and school climate are prominent regarding the mental health of Black adolescents.

Parent relationships and parent bonding are positively associated with school climate. Findings highlight a significant and negative association between Black adolescents' parent relationships and school climate. Considering most of the participants qualified for free or reduced lunch, this finding could be linked to Black adolescents in this study sample experiencing strain associated with their parents' lack of financial means, which could influence their experiences in school. A previous study conducted by Hopson and Lee [41] found family poverty was negatively associated with grades and behavior in school. However, the same study found students from impoverished families who perceived a positive school climate reported positive grades. This finding further emphasizes the importance of schools to consider the youth's family context. Given this study result, the second hypothesis was partially supported by our analysis.

School Climate is positively associated with RACV. In our study, school climate was positively correlated with RACV. Consequently, school experiences as well as academic outcomes reflect the climate of the school setting overall. Youth who are exposed to community violence are at higher risk for poorer academic outcomes [25]. This is further aligned with the strong link between community violence and youth law-breaking behavior in school associated with trauma and other mental health issues, which can lead to law enforcement involvement and subsequent court involvement [26,27]. Overall, previous literature emphasizes the importance of considering both the school and family context when considering community violence among Black youth. This finding notes the need for school personnel to be educated about trauma and community violence as well as its impact on Black youth in the school and community context.

RACV is positively associated with community violence. We also found that RACV directly influenced community violence in our path analysis. Similar to our other study results regarding RACV and community violence, this study finding provides greater empirical understanding about an understudied area for Black youth [19]. Given this was a direct relationship, resilience reflects a construct that needs to be further explored as a protective mechanism, especially for youth who have histories of violence exposure.

Community violence is positively associated with mental health—parent relationships and parent bonding are negatively associated with mental health. Our study findings indicate relationships among community violence, parent bonding, and parent relationships all directly associated with mental health. This is useful as the finding contributes to the scant literature addressing the environmental context of Black youth and their resilience. Further, this finding is noteworthy because it highlights the direct association with their personal mental health as well as the impact of persistent community violence exposure on youths' familial relationships [19].

RACV indirectly influences mental health. We noted that RACV is indirectly associated with the mental health of Black youth. Although adolescent development is known to be a point in life that is characterized by unique stressors regarding their mental health, Black youth experience challenges and difficulties that require greater concern. Most recently, severe mental health issues, such as suicide, have spiked among Black youth and children, suggesting an even more dire situation that needs to be addressed [6].

Parent relationships indirectly influence RACV. Literature suggests that the repeated exposure to community violence has significant impacts on youth familial relationships as well as their school experiences [19]. Our results suggest that higher levels of parent relationships were indirectly associated with resilience to adverse experiences to community violence. This was a surprising result and did not support the first hypothesis that resilience would directly predict parent relationship.

School Climate is negatively associated with mental health. Findings illustrate significant associations between Black adolescent's experiences in school and their mental health. This finding is consistent with previous studies highlighting school climate is associated with the mental health of students [42]. Given this study result, the third hypothesis was supported by our analysis.

Parent relationships indirectly positively associated with mental health. Our findings suggest there were negative relationships between parent relationships and Black adolescents' mental health. The evidence surrounding parent relationships and mental health among Black youth has been mixed in this area. Some scholars noted no statistical differences in depression based on the CES-D scale among Black youth living in public housing given their relationships with their parents [43]. However, other scholars report parent support could have an adverse impact on Black youths' mental health. Specifically, if Black adolescents' parents experience psychological distress, (i.e., substance misuse, incarceration, or posttraumatic stress disorder (PTSD), their mental health is more likely to worsen. Therefore, it is important for providers to enrich communication with parents and encourage them to observe when their children express feelings of sadness as well as irritability that may often mask depressive symptoms [43].

Resilience is indirectly associated with school climate. The indirect effect of Black adolescents' resilience was positively associated with school climate, which is opposite of the finding related to parent relationships and school climate. Here, adolescents were able to thwart the adversity caused by community violence that resulted in a favorable increase in their school experiences. Past research suggests that living in communities where they experienced violence, over policing along with others forms of racial discrimination were assuaged by Black adolescents' resilience. Moreover, the findings from this study provide further evidence that the school context can be a potential protective factor for Black youth [44].

6. Limitations

This study and its findings should be interpreted with the consideration of several limitations. First, the data were collected at one point in time, as cross-sectional data, so we cannot draw any temporal or causal inferences for conclusions. Second, the study focus was specific and concentrated on Black adolescents in four communities in Chicago, IL that are in concentrated poverty with high rates of community violence. Though these characterizations may align with more indicated populations—those who may be homeless or detained/incarcerated, the study findings are not necessarily generalizable to other groups of Black youth outside of this geographical location, including other urban settings. Third, the data for this study were collected several years ago, so there may have been some areas of progress made in terms of mental health services for this population, including parent relationships and dynamics, which is a limitation in this study. However, the data allowed us to investigate some of these parent–youth relationships and how they influence Black youth mental health.

Future research should seek to examine the simultaneous effects of the independent and sequential effects of community violence to statistically investigate the interaction effects between these constructs that may play an important role in how they are associated with Black adolescents' mental health and wellbeing. Further, more empirical investigations need to be conducted with Black youth to develop a better understanding about resilience and its role among Black youth. There should also be a concerted effort to oversample understudied populations, such as adolescents who self-identify as a sexual minority, and

the role of parent communication and support given the presence of adversity and isolation they experience [45]. Lastly, future research should seek to investigate the relationships among parent–child relationships, community violence, and mental health in a national representative sample of Black families.

Despite the study's limitations, the strengths of our study lie in the use of a unique sample of Black youth in Chicago communities who have been adversely affected by social disadvantage, racism, and the lack of social capital as a unique lens to assess the mental health equity of Black adolescents. Research on positive youth development underscores that youthhood is more than risk factors and includes intertwined experiences with resiliency, strengths, and protective factors. Thus, this study adds to the knowledge base to inform prevention and intervention efforts that could serve to enhance parents and schools' knowledge base about enhancing the resilience among Black adolescents to promote their mental health wellness.

7. Practice and Policy Implications

Our findings have significant implications for practice and policy associated with the mental health of Black youth. There are important practice implications related to prevention, treatment, and intervention. The direct and indirect relationships between resilience and parent–child relationships suggest that parents may be affected by community violence in different ways from their children. Recent violence prevention work based on the World Health Organization/CDC violence prevention framework has focused on cultivating best practices to develop safe, stable, and nurturing relationships between youth and their parents/caregivers [26]. This is an innovative approach that may be helpful for practitioners looking for targeted assessments and specialized services for Black youth in urban communities impacted by violence that include the parents and caregivers. Moreover, practice efforts that include parents and/or caregivers should be prioritized to incorporate pathways to healing that may curtail future parent stress and distress and thus promote resilience of Black adolescents.

Policies that "do no harm" and promote self-sufficiency are warranted, starting with violence prevention efforts that cut to the heart of the matter—poverty. Many families struggle to make ends meet and this struggle has been further exacerbated by the COVID-19 pandemic [2]. There is a need for individual and agency interaction through coalitions to organize and manage interagency, multi-disciplinary, and community-wide collaboration, and update systemic policies toward community violence prevention and intervention. Consequently, youth need services that will reduce their difficulties and enhance their strengths. Policymakers have the power to fund these initiatives, but providers could advocate with these adolescents and shape a different narrative about them and their lives.

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References

1. Fine, A.D.; Donley, S.; Cavanagh, C.; Cauffman, E. Youth perceptions of law enforcement and worry about crime from 1976 to 2016. *Crim. Justice Behav.* **2020**, *47*, 564–581. [CrossRef]
2. Gaylord-Harden, N.; Adams-Bass, V.; Bogan, E.; Francis, L.; Scott, J.; Seaton, E.; Williams, J. *Addressing Inequities in Education: Considerations for Black Children and Youth in the Era of COVID-19*; Statement of the Evidence, Society for Research in Child Development (SRCD): Ann Arbor, MI, USA, 2020. Available online: https://www.srcd.org/research/addressing-inequities-education-considerations-black-children-and-youth-era-covid-19 (accessed on 19 December 2021).
3. Heard-Garris, N.; Boyd, R.; Kan, K.; Perez-Cardona, L.; Heard, N.J.; Johnson, T.J. Structuring poverty: How racism shapes child poverty and child and adolescent health. *Acad. Pediatr.* **2021**, *21*, S108–S116. [CrossRef] [PubMed]
4. Zeiders, K.H.; Umaña-Taylor, A.J.; Carbajal, S.; Pech, A. Police discrimination among Black, Latina/x/o, and White adolescents: Examining frequency and relations to academic functioning. *J. Adolesc.* **2021**, *90*, 91–99. [CrossRef] [PubMed]
5. Blakemore, S.J.; Mills, K.L. Is adolescence a sensitive period for sociocultural processing? *Annu. Rev. Psychol.* **2014**, *65*, 187–207. [CrossRef]
6. Lindsey, M.A.; Sheftall, A.H.; Xiao, Y.; Joe, S. Trends of suicidal behaviors among high school students in the United States: 1991–2017. *Pediatrics* **2019**, *144*, e20191187. [CrossRef] [PubMed]
7. Hurd, N.M.; Stoddard, S.A.; Zimmerman, M.A. Neighborhoods, social support, and african American adolescents' mental health outcomes: A multilevel path analysis. *Child Dev.* **2013**, *84*, 858–874. [CrossRef]
8. Kwate, N.O.; Goodman, M.S. Cross-sectional and longitudinal effects of racism on mental health among residents of Black neighborhoods in New York City. *Am. J. Public Health* **2015**, *105*, 711–718. [CrossRef]
9. Sampson, R.J.; Morenoff, J.D.; Raudenbush, S. Social anatomy of racial and ethnic disparities in violence. *Am. J. Public Health* **2005**, *95*, 224–232. [CrossRef]
10. Caldwell, C.H.; Assari, S.; Breland-Noble, A.M. The epidemiology of mental disorders in African American children and adolescents. In *Handbook of Mental Health in African American Youth*; Springer International Publishing: New York, NY, USA, 2016; pp. 3–20. [CrossRef]
11. Marrast, L.; Himmelstein, D.U.; Woolhandler, S. Racial and ethnic disparities in mental health care for children and young adults. *Int. J. Health Serv.* **2016**, *46*, 810–824. [CrossRef]
12. McMahon, S.D.; Todd, N.R.; Martinez, A.; Coker, C.; Sheu, C.-F.; Washburn, J.; Shah, S. Aggressive and prosocial behavior: Community violence, cognitive, and behavioral predictors among urban African American youth. *Am. J. Community Psychol.* **2013**, *51*, 407–421. [CrossRef]
13. Quinn, C.R.; Beer, O.W.; Boyd, D.T.; Tirmazi, T.; Nebbitt, V.; Joe, S. An assessment of the role of parental incarceration and substance misuse in suicidal planning of African American youth and young adults. *J. Racial Ethn. Health Disparit.* **2021**, 1–13. [CrossRef] [PubMed]
14. Sargent, E.; Zahniser, E.; Gaylord-Harden, N.; Morency, M.; Jenkins, E. Examining the effects of family and community violence on African American adolescents: The roles of violence type and relationship proximity to violence. *J. Early Adolesc.* **2020**, *40*, 633–661. [CrossRef]
15. Mazza, G.; Overstreet, S. Children and adolescents exposed to community violence: A mental health perspective for school psychologist. *Sch. Psychol. Rev.* **2000**, *29*, 86–102. [CrossRef]
16. Harding, D.J. *Living the Drama: Community, Conflict, and Culture among Inner-City Boys*; University of Chicago Press: Chicago, IL, USA, 2010.
17. Carswell, S.B.; Hanlon, T.E.; O'Grady, K.E.; Watts, A.M.; Pothong, P. A Preventive Intervention Program for Urban African American Youth Attending An Alternative Education Program: Background, Implementation, and Feasibility. *Educ. Treat. Child.* **2009**, *32*, 445–469. Available online: http://www.ncbi.nlm.nih.gov/pubmed/20054423 (accessed on 19 December 2021).
18. Woods-Jaeger, B.; Siedlik, E.; Adams, A.; Piper, K.; O'Connor, P.; Berkley-Patton, J. Building a contextually relevant understanding of resilience among African American youth exposed to community violence. *Behav. Med.* **2020**, *46*, 330–339. [CrossRef] [PubMed]
19. Mohammad, E.T.; Shapiro, E.R.; Wainwright, L.D.; Carter, A.S. Impacts of family and community violence exposure on child coping and mental health. *J. Abnorm. Child Psychol.* **2014**, *43*, 203–215. [CrossRef] [PubMed]
20. Brookmeyer, K.A.; Henrich, C.C.; Schwab-Stone, M. Adolescents who witness community violence: Can parent support and prosocial cognitions protect them from committing violence? *Child Dev.* **2005**, *76*, 917–929. [CrossRef]
21. Jain, S.; Cohen, A.K. Fostering resilience among urban youth exposed to violence: A promising area for interdisciplinary research and practice. *Health Educ. Behavior.* **2013**, *40*, 651–662. [CrossRef]
22. Ozer, E.J.; Lavi, I.; Douglas, L.; Wolf, J.P. Protective factors for youth exposed to violence in their communities: A review of family, school, and community moderators. *J. Clin. Child Adolesc. Psychol.* **2017**, *46*, 353–378. [CrossRef] [PubMed]
23. Salzinger, S.; Feldman, R.S.; Rosario, M.; Ng-Mak, D.S. Role of parent and peer relationships and individual characteristics in middle school children's behavioral outcomes in the face of community violence. *J. Res. Adolesc.* **2011**, *21*, 395–407. [CrossRef] [PubMed]
24. Lynch, M.; Cicchetti, D. Links between community violence and the family system: Evidence from children's feelings of relatedness and perceptions of parent behavior. *Family Process.* **2002**, *41*, 519–532. [CrossRef] [PubMed]
25. Ruiz, L.D.; McMahon, S.D.; Jason, L.A. The role of neighborhood context and school climate in school-level academic achievement. *Am. J. Community Psychol.* **2018**, *61*, 296–309. [CrossRef]

26. Abdul-Adil, J.; Suárez, L.M. The urban youth trauma center: A trauma-informed continuum for addressing community violence among youth. *Community Ment. Health J.* **2022**, *58*, 334–342. [CrossRef] [PubMed]
27. Ford, J.D.; Delker, B.C. Polyvictimization in childhood and its adverse impacts across the lifespan: Introduction to the special issue. *J. Trauma Dissoc.* **2018**, *19*, 275–288. [CrossRef] [PubMed]
28. Borofsky, L.A.; Kellerman, I.; Baucom, B.; Oliver, P.H.; Margolin, G. Community violence exposure and adolescents' school engagement and academic achievement over time. *Psychol. Violence* **2013**, *3*, 381–395. [CrossRef]
29. Prado, G.; Huang, S.; Maldonado-Molina, M.; Bandiera, F.; Schwartz, S.J.; de la Vega, P.; Hendricks Brown, C.; Pantin, H. An empirical test of ecodevelopmental theory in predicting HIV risk behaviors among Hispanic youth. *Health Educ. Behav.* **2010**, *37*, 97–114. [CrossRef]
30. Bronfenbrenner, U. *Ecological Systems Theory*; Jessica Kingsley Publishers: London, UK, 1992.
31. Szapocznik, J.; Coatsworth, J.D. An ecodevelopmental framework for organizing the influences on drug abuse: A developmental model of risk and protection. In *Drug Abuse: Origins & Interventions*; American Psychological Association: Washington, DC, USA, 1999; pp. 331–366.
32. Murry, V.M.; Lippold, M.A. Parenting practices in diverse family structures: Examination of adolescents' development and adjustment. *J. Res. Adolesc.* **2018**, *28*, 650–664. [CrossRef]
33. Derogatis, L.R. *Brief Symptom Inventory (BSI) Administration, Scoring, and Procedures Manual*; NCS Pearson. Inc.: Bloomington, MN, USA, 1993.
34. Voisin, D.R.; Patel, S.; Hong, J.S.; Takahashi, L.; Gaylord-Harden, N. Behavioral health correlates of exposure to community violence among African American adolescents in Chicago. *Child. Youth Serv. Rev.* **2016**, *69*, 97–105. [CrossRef]
35. Fleming, C.B.; Catalano, R.F.; Haggerty, K.P.; Abbott, R.D. Relationships between level and change in family, school, and peer factors during two periods of adolescence and problem behavior at age 19. *J. Youth Adolesc.* **2010**, *39*, 670–682. [CrossRef]
36. Boyd, D.T.; Ramos, R.S.; Whitfield, D.L.; Threats, M.; Adebayo, O.W.; Nelson, L.E. A Longitudinal Study on the Influence of Sibling Support and HIV Testing Among Black Youth. *J. Racial Ethn. Health Disparit.* **2022**, 1–8. [CrossRef]
37. Boyd, D.T.; Threats, M.; Winifred, O.; Nelson, L.E. The association between African American father–child relationships and HIV testing. *Am. J. Mens Health* **2020**, *14*, 1557988320982702. [CrossRef]
38. Boyd, D.T.; Quinn, C.R.; Jones, K.V.; Beer, O.W. Suicidal ideations and attempts within the family context: The role of parent support, bonding, and peer experiences with suicidal behaviors. *J. Racial Ethn. Health Disparit.* **2021**, 1–10. [CrossRef] [PubMed]
39. Granger, T.A.; Cook, P.F.; Ramos, G. Adolescent peer and parent relationships into emerging adulthood. *West. J. Nurs. Res.* **2020**, *42*, 90–96. [CrossRef] [PubMed]
40. Stein, M.B.; Walker, J.R.; Hazen, A.L.; Forde, D.R. Full and partial posttraumatic stress disorder: Findings from a community survey. *Am. J. Psychiatry* **1997**, *154*, 1114–1119. [CrossRef] [PubMed]
41. Hopson, L.M.; Lee, E. Mitigating the effect of family poverty on academic and behavioral outcomes: The role of school climate in middle and high school. *Child. Youth Serv. Rev.* **2011**, *33*, 2221–2229. [CrossRef]
42. Aldridge, J.M.; McChesney, K. The relationships between school climate and adolescent mental health and wellbeing: A systematic literature review. *Int. J. Educ. Res.* **2018**, *88*, 121–145. [CrossRef]
43. Lu, W.; Lindsey, M.A.; Irsheid, S.; Nebbitt, V.E. Psychometric properties of the CES-D among Black adolescents in public housing. *J. Soc. Soc. Work. Res.* **2017**, *8*, 595–619. [CrossRef]
44. Morris, K.S.; Seaton, E.K.; Iida, M.; Lindstrom Johnson, S. Racial Discrimination Stress, School Belonging, and School Racial Composition on Academic Attitudes and Beliefs among Black Youth. *Soc. Sci.* **2020**, *9*, 191. [CrossRef]
45. Lacy, C.; Jacques, K.; Pennathur, K. Resilience factors that help mitigate systemic risk factors among African American youth. In *Global Encyclopedia of Public Administration, Public Policy, and Governance*; Springer: Berlin/Heidelberg, Germany, 2021. [CrossRef]

children

MDPI

Article

The Influence of Sociodemographic Factors on Mobile Device Use among Young Children in Putrajaya, Malaysia

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Abstract: Technology is evolving rapidly around the world, and the use of mobile devices is increasing every day. Today, everyone owns a mobile device, including young children. Parents provide and allow young children to use mobile devices for various purposes. Due to the fact of these circumstances, children begin to become comfortable with the use of mobile devices, and they are prone to excessive use. Therefore, the purpose of this study was to examine the influence of sociodemographic factors on excessive mobile device use among young children. Sociodemographic variables, including the child's gender, the child's age when starting to use a mobile device, the parent's educational level, household income, type of application used, and the purpose of giving a mobile device to the child, were selected as predictive factors. A cross-sectional survey study design with a quantitative approach was conducted. A simple random sampling technique was employed, and a total of 364 parents completed the adapted questionnaire, namely, the Problematic Mobile Phone Use Scale (PMPUS). Data were statistically analyzed using descriptive and binary logistic regression analysis. The findings revealed that gender, age of the child when starting to use mobile devices, and purpose of parents providing mobile devices significantly contributed to 77.7% of the variance to make children users with a problem. However, the parent's educational level, household income, and type of application did not significantly contribute to the problem of mobile device use. Later, this study discusses the research implication, limitation, and recommendation for future research based on the finding.

Keywords: mobile device; young children; gadget

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1. Introduction

Mobile devices with internet access are a vital tool for every individual regardless of social background due their functions that can facilitate daily life. By using a mobile device, tasks can be managed from home without having to meet others. This situation leads to changes in the way humans communicate, interact, and accomplish daily routines. As a result, human contact is diminishing as the opportunity to interact face to face is also reduced [1,2]. Today, everyone uses mobile devices for various purposes such as gaming, web surfing, social media, and online chats including children [3]. The use of mobile devices among young children is increasing every year [4,5]. This scenario had raised awareness among experts about the negative impact of the excessive use of mobile devices on children's development. Furthermore, young children are exposed to online activities and mobile device content [6–9].

It is suggested that the use of mobile devices by children be properly monitored by parents to avoid excessive use. Parents should implement strict rules in controlling the duration and purpose of use [10,11]. Today, children prefer to sit alone and preoccupy themselves with activities on mobile devices. They tend to spend more time interacting

with digital screens rather than playing, interacting face to face, and being active [10,12]. If this scenario is not handled carefully, children may forget the fun of playing with family and friends. Meanwhile, play has proven to be effective in stimulating children's development across domains. Furthermore, poor quality time spent with family members and friends causes weakened family bonds [10,13,14], contributing to behavioral problems [15,16] and poor social–emotional competence [17,18], social communication, and social interaction skills [15,18–20].

Interpersonal skills involve children's communication with others, which should involve eye communication, body position and movements, facial gestures and expressions, voice intonation, language, and listener interaction [21]. Scholars have emphasized the negative impact of mobile devices on children's interpersonal skills [22] as they lack opportunities to socialize with peers and family. Consequently, children have difficulty conveying the information that is in their minds. Without socializing, children cannot practice communication and interaction skills. Children are reported to have difficulty with eye contact, gestures, facial expressions, and voice intonation [23]. This, when prolonged, can cause children's communication process to be stunted at an early age, which, in turn, invites verbal skill problems [20,24].

A previous study found that there was a significant relationship between the duration of mobile device use with psychosocial effects and children's interaction with peers in preschool [25]. Children who use mobile devices for a longer period are often associated with behavioral problems in self-regulation [26] and have attention problems [27,28]. These children are prone to unstable emotional outbursts, exhibit impulsive behavior, experience emotional disturbances, become aggressive and misbehave [24], and have limited interaction with peers at school [25,29].

Moreover, excessive use of mobile devices also contributes to poor social–emotional competence among young children due to the poorly nurtured stimuli [18,30]. Furthermore, online games encourage children to be individualistic and more likely to be selfish and less cooperative. If such personalities are adapted in real life, then children are less tolerant in society. They will also find it difficult to accept defeat or failure if participating in a competition and will try to dominate the competition. Children who are overly dependent on mobile devices are more likely to be angry, restless, and uncomfortable when they are unable to access the devices [31,32]. In addition, excessive mobile device use leads to a lack of prosocial behaviors in young children. Children are reported to have difficulty with daily interactions, cooperative skills, lack of empathy, and not helping others [15,27].

Other than negative effects, the proper use of mobile devices and technology will lead to positive outcomes that benefit children. Some studies stated the positive effects of mobile device use on educational attainment [30,33–36]. The use of mobile devices in the classroom can help attract and engage children in learning activities [30,34]. In addition, mobile devices help enhance children's learning motivation [35] and promote active involvement in the classroom [36,37]. In addition, mobile device use provides a positive effect in promoting healthy social–emotional development among young children [38].

Despite the positive and negative effects of mobile device use on young children's development, it is vital to identify the predictive factors that contribute to this situation. In Malaysia, there has been limited research conducted on mobile device use among young children [39,40], especially on identifying predictive factors. The existing research focuses more on the impact of mobile device use on young children's communication [39], social–emotional development [38–40], physical activity [41], and eye health [42,43]. Therefore, this study aimed to examine the predictive factors that contribute to excessive mobile device use among young children.

2. Literature Review and Hypothesis Development

This research aimed to determine the contribution of the predictive factors to excessive mobile device use among young children. Sociodemographic variables, including the child's gender, the child's age when starting to use a mobile device, the parent's educational

level, household income, type of applications used, and the purpose of giving a mobile device to the child, were selected as predictive factors. These variables were selected based on previous studies [3,21,32,44–47].

Several studies reported a significant positive association between girls and problematic mobile device usage [48–55]. Contrasting this, several studies documented a significant positive association between boys and problematic mobile device usage [56] or revealed higher scores in boys than in girls [32,44,45,57]. Yet, some studies show gender is not a predictive factor of problematic use of mobile devices [3,58,59]. Girls and boys have different preferences for mobile device activities [48]. Girls likely spend time on learning activities [31], communication, and social networking applications [44,60]. Meanwhile, boys are keener on video gaming and television viewing [44,48].

The parent's educational level significantly contributes to problematic mobile device use as reported in [53,58,61,62]. Parents with lower educational levels tend to allow their children to spend extra time on a mobile device compared to parents with higher educational levels [22,62–65]. Parents with higher educational levels are more aware and tend to guide their children on the appropriate period of use [63,66] and suitable apps and websites to access [64,67]. Contrary to this, several studies reported there was no effect of the parent's educational level on problematic mobile device use [44,58].

Household income is a crucial aspect in influencing an individual's life, as well as young children. There are many things that parents can provide to their children with money, including personal mobile devices and internet access. Having a mobile device makes it difficult for parents to monitor usage, which, in turn, contributes to excessive use. Because of this, many studies have reported that children with high household incomes are prone to problematic mobile device use [68–71]. However, [44,58] reported that there was no effect of household income on problematic mobile device use.

Existing studies have reported that there is a significant relationship between frequent types of application usage with excessive mobile device use. Children that used a mobile device for entertainment purposes, such as for playing games [11,72–74], viewing television [75], and communication [76,77], were more likely to be problematic users. Meanwhile, children that used a mobile device for educational-related purposes were not problematic users [74]. However, there are limited studies examining the relationship between children's ages when they start using a mobile device, the purpose of giving mobile devices to children, and problematic mobile device use.

The Malaysian National Population and Family Development Board [78] reported that 78.3% of parents in Klang Valley allow their children to own mobile devices. In addition, the report stated that 50.1% of those children spend more than three hours per day on a mobile device, and 29% are problematic users. Even more worrying is that parents provide and allow children to use mobile devices to keep them inactive for parents to easily conduct housework, to calm children whenever they are throwing tantrums, and to control children's behavior if they are in someone else's house or in a restaurant.

Considering the inconsistent findings and limited data from previous research, the predictive factors of excessive mobile device use in Malaysia are questionable. Thus, the predictive factors for the Malaysian population may be different from those reported in other populations. Therefore, the following hypothesis was proposed in this study:

Hypothesis 1 (H1): *Sociodemographic factors significantly contribute to excessive mobile device use among young children*.

3. Materials and Methods

3.1. Study Design

This study employed a cross-sectional survey study design with a quantitative approach. The design and approach of this research were chosen as data could be obtained quickly for a large study sample size.

3.2. Participants

A total of 364 respondents participated in this study. A total of 51.6% (n = 188) of the children were girls, and 48.4% (n = 176) were boys. In terms of age, 51.1% (n = 186) of the children were 5 years old, and 48.9% (n = 178) were 6 years old. In addition, approximately 53.3% (n = 194) of parents were aged 36 years and above, 45.9% (n = 167) were aged between 26 and 35 years, and 0.8% (n = 3) were aged 25 years and below. Regarding the level of education, 35.7% (n = 130) of parents had a bachelor's degree, 25.0% (n = 91) had a certificate, 21.4% (n = 78) had a diploma, and 17.9% (n = 65) had a postgraduate degree. In this study, a certificate refers to a person with a Malaysian Certificate of Education (SPM). In Malaysia, citizens will sit for the Malaysian Certificate of Education examination in the final year of high school. A citizen who fulfills the SPM requirements will be awarded a certification. Meanwhile, a diploma refers to the tertiary education program attended by citizens after receiving an SPM. The duration for a diploma education is three years.

Furthermore, information on household income was also collected to ensure the child participants for this study came from each economic group. In Malaysia, economic status is divided into three categories, namely, the Top 20 (T20), Middle 40 (M40), and Bottom 40 (B40) [79]. T20 refers to Malaysian citizens earning more than MYR 9620 per month (approximately USD 2287.86). This group makes up 20% of the population in Malaysia. M40 refers to a middle-class group with a monthly household income ranging from MYR 4360 to MYR 9616 (approximately USD 1036.91–2286.91). This group makes up 40% of the population in Malaysia. Meanwhile, B40 refers to a group of citizens earning less than MYR 4360 for a monthly (approximately USD 1036.91) household income. This group makes up 40% of the population in Malaysia. Approximately 36.0% (n = 131) of the children came from the M40 group, 33.2% (n = 121) from the T20 group, and 30.8% (n = 112) from the B40 group. Table 1 presents the demographic information on the children and their families.

Table 1. Demographic information on the children and their families.

Variables	Categories	*n* (%)
Children's Characteristics		
Gender	Male	176 (48.4)
	Female	188 (51.6)
Age (years)	5	186 (51.1)
	6	178 (48.9)
Family Characteristics		
Age (years)	25 and below	3 (0.8)
	26–35	167 (45.9)
	36 and above	194 (53.3)
Household income	T20	121 (33.2)
	M40	131 (36.0)
	B40	112 (30.8)
Level of education	Certification	91 (25.0)
	Diploma	78 (21.4)
	Bachelor's degree	130 (35.7)
	Master's/doctoral degree	65 (17.9)

An analysis was performed to gather information on mobile device use by children. In this study, 72.8% (n = 265) of the children were smartphone users, and 27.2% (n = 99) of the children were tablet users. Approximately 83.2% (n = 303) of the children started using a mobile device at the age of 3 years old and below, and 16.8% (n = 61) started at the age of 4–6 years old. Regarding the types of application, 80.5% (n = 293) of the children used mobile devices for entertainment purposes such as playing games, web surfing, listening to music, or watching videos. Meanwhile, 19.5% (n = 71) of children used mobile devices for educational-related purposes. Analysis of the item, namely, mobile device ownership, showed that 78.8% (n = 287) of the children used their parents' devices, 11.8% (n = 43) of

the children used other family members' devices, and only 9.3% (n = 34) of the children had their own devices. Parents were also asked about the purposes of providing mobile devices to their children. Approximately 34.1% (n = 124) of parents allowed them to use it for educational purposes, 32.7% (n = 119) of parents responded that they allowed them to use it to make their child sit still, 22.5% (n = 82) of parents allowed their children to use it to be up-to-date with technology, and 10.7% (n = 39) of parents provided mobile devices to avoid and to calm down tantrums. Table 2 presents detailed information on the uses of mobile devices.

Table 2. Mobile device usage information.

Variables	Categories	*n* (%)
Types of device	Smartphone	265 (72.8)
	Tablet	99 (27.2)
Age at start of use (years)	3 and below	303 (83.2)
	4–6	61 (16.8)
Type of application	Education	71 (19.5)
	Entertainment	293 (80.5)
Ownership	Self-owned	34 (9.3)
	Parents	287 (78.8)
	Family members	43 (11.8)
The purpose of providing a mobile device	Sit still	119 (32.7)
	Tantrums	39 (10.7)
	Education	124 (34.1)
	Technology updates	82 (22.5)

3.3. Procedure

Before the data collection process, an application to conduct a study was made to the ethics committee from the Faculty of Education, Universiti Kebangsaan, Malaysia. The approval was received on 9 October 2019. Later, a letter of permission to distribute the questionnaire was given to the owner of the early childhood center. This study was conducted in Putrajaya, Malaysia, due to the diverse backgrounds of the population in terms of education levels and household income. According to data from the Department of Statistics Malaysia, there were 6200 children aged five to six years residing in Putrajaya in 2020. The sample size was estimated using a table from [80]. Based on the table, the actual sample size for this study was 364. A simple random sampling technique was employed in the data collection process. Questionnaires together with an information consent letter were distributed to parents through the school, and a total of 364 questionnaires were collected with a 100% return rate.

3.4. Instrument

This study used a questionnaire for the data collection process. The questionnaire consisted of two sections, namely, demographic information of the participants and the mobile devices use scale. The items for the mobile device use scale sections were adapted from previous research that used the Problematic Mobile Phone Use Scale (PMPUS) [81]. The original instrument consisted of four subdimensions with 26 items and was distributed to university students. The four subdimensions were deprivation, adverse outcomes, control problems, and interaction avoidance. Deprivation evaluates feelings such as anxiousness or uneasiness when the mobile device is not available or not in a usable state; adverse outcomes assess the negative effect of mobile device use on an individual's daily life; control problems measure an individual's ability to control their use of mobile devices; interaction avoidance determines the communication preferences either via online or face-to-face interactions [81]. The original instrument consisted of eight items that measure deprivation (labeled D1, D2, D3, D4, D5, D6, D7 and D8), seven items that measure adverse outcomes (labeled AO9, AO10, AO11, AO12, AO13, AO14 and AO15), six items that measure control problems (labeled as CP16, CP17, CP18, CP19, CP20, and CP21), and five

items that measure interaction avoidance (labeled as IA22, IA23, IA24, IA25 and IA26). The items were measured using a five-point Likert-type scale, and the response options were: 1 = not appropriate at all; 2 = rarely appropriate; 3 = somewhat appropriate; 4 = fairly appropriate; 5 = completely appropriate.

Cross-cultural adaptation guidelines were applied by taking into account the translation process and cultural appropriateness [82,83]. The translation process aimed to ensure that the instrument was acceptable and relevant for use by the Malaysian population [84–86]. The instrument was translated into the Malay language by a Malay–English speaker. Then, two linguists examined the semantic equivalence of the instrument between the original version and the Malaysian version. Later, a back-translation procedure was performed by a Malay–English speaker who did not know the original version of the instrument. The back-translation process took two weeks. The development of this instrument is explained in Sections 3.4.1 and 3.4.2, and the list of adapted items is outlined in Appendix A.

3.4.1. Validity and Reliability

Three experts in early childhood education, psychology, and family counseling evaluated the content validity, culture, and age appropriateness of the adapted version of the PMPUS. A focus group discussion session was conducted with all experts, and they recommended that eight items be removed due to the fact of issues such as irrelevance and repetition. Five items were identified as not appropriate for use with children aged five-to-six years. Moreover, the experts also agreed that it would be difficult for parents to observe the following behavior in children: "my child feels insecure without a mobile device" (D4); "my child will feel lonely without a mobile device" (D7); "my child will feel lost without a mobile device" (D8); "my child is always checking mobile devices" (CP18); "my child wants to use a mobile device again immediately after they stop it" (CP21). Item IA26 (i.e., "my child would rather make friends through social media than real life") was also removed. Experts pointed out that the majority of children in Malaysia aged five to six still do not own social media accounts.

Furthermore, experts also suggested that two items be removed due to the fact of repetition. One of the items was "my child is too busy using a mobile device, which interferes with his daily routine" (AO9). The experts agreed that this question was also asked in AO10 to AO13, which asked about children's mealtimes, sleep habits, and learning activities, referring to their daily routine. The second item removed was "my child is busy using a mobile device so that he is less sociable with the people around him" (AO15). According to experts, this item has the same meaning as the item "my child would rather spend time with a mobile device than hang out with people around him" (AO14). Both items measured children's social interactions and communication with people around them. In addition, the experts also commented on the sentence structure so as to enhance comprehension and clarity. All comments were taken into account to improve the quality of the items. Then, the content validity index (CVI) was calculated using the formula in [87]. The CVI value for this instrument was 0.90. According to [88], a CVI $\geq$ 0.80 is acceptable.

Initially, the adapted version of the PMPUS consisted of 18 items with a five-point Likert scale and the responses 1 = never, 2 = rarely, 3 = sometimes, 4 = very often, and 5 = always. The Likert scale responses were altered to ensure they were appropriate for the items and participants completing the questionnaire. Compared to the original version, which could be completed by the respondents themselves, this adapted version was prepared to be completed by the parents. Moreover, it was impossible to distribute questionnaires to children aged five-to-six years due to the fact of their lack of comprehensibility. However, the constructs were retained to be the same as the original instrument. The scores were calculated based on the response from the respondent for each item. The minimal score was 18, and the maximum score was 90. An increasing score showed that the person's level of problematic mobile device use was rising [81]. Later, total scores were calculated, and four user categories were determined based on cut-off points as performed in [21], considering the 95th, 80th, and 15th percentiles. Four categories were established, namely,

casual user, regular user, at-risk user, and problematic user. Table 3 presents information on the user categories, percentiles, and scores ranges.

Table 3. User categories and scores ranges.

User Categories	Percentile	Score Ranges
Casual user	Below 15th	18–24
Regular user	15th to below 80th	25–45
At-risk user	80th to below 95th	46–55
Problematic user	95th or above	56–90

Item reliability measures were performed using Cronbach's alpha. The Cronbach's alpha values obtained ranged from 0.899 to 0.909. Overall, the Cronbach's alpha value for the adapted version of the PMPUS was $\alpha = 0.904$. This demonstrated that the adapted instrument had a good degree of internal consistency. Detailed analysis of each item showed higher scores in items CP17 "my child uses a mobile device beyond the set period" ($M = 2.431$, $SD = 1.028$) and CP20 "my child will look for a mobile device as soon as he wakes up" ($M = 2.586$, $SD = 1.026$). Table 4 presents the mean, standard deviation (SD), and Cronbach's alpha values of the items.

Table 4. Descriptive analysis and internal consistency of items via Cronbach's alpha coefficients.

Items	*M*	*SD*	Cronbach's Alpha Value if the Item is Removed
D1	2.286	0.982	0.904
D2	2.176	0.957	0.901
D3	2.258	0.939	0.903
D5	2.211	0.879	0.901
D6	1.550	0.761	0.899
AO10	2.160	0.997	0.905
AO11	1.830	0.911	0.905
AO12	1.717	0.833	0.902
AO13	1.750	0.772	0.898
AO15	1.945	0.904	0.906
CP16	2.264	0.969	0.909
CP17	2.431	1.028	0.899
CP19	1.876	0.874	0.900
CP20	2.586	1.026	0.912
IA22	1.931	0.752	0.905
IA23	1.631	0.678	0.907
IA24	2.184	0.931	0.909
IA25	1.720	0.730	0.907

M = mean; *SD* = standard deviation.

3.4.2. Demographic Information

The demographic information of the respondents consisted of three sub-sections, namely, child characteristics, family characteristics, and mobile device information. A total of ten items were asked based on three sub-sections: child's gender, child's age, parent's age, household income, parent's level of education, types of mobile devices, child's age at the start of mobile device usage, frequent types of applications used, and the purpose of the mobile device's provision.

3.5. Analysis

The analysis was conducted using SPPS® version 26.0 for Windows™ (IBM Corporation, New York, NY, USA). Descriptive statistical analysis was performed to collect information on the frequency, mean, standard deviation, and mode. Inferential statistical analysis used binary logistic regression to examine the influence of demographic variables, namely, gender, the child's age when starting to use a mobile device, parent's level of education, household income, types of mobile devices, types of applications, and the purpose of

providing mobile devices to the child. The four categories of mobile device users were transformed into two groups to enable binary logistic regression to be carried out as suggested in [32,45]. This was performed by considering the sum of the at-risk users and problematic users as users with a problem. Meanwhile, the sum of the casual users and regular users was considered as users without a problem. Before data analysis, a data-screening process was conducted to ensure the data were clean and free from errors [89].

4. Results

4.1. Exploratory Factor Analysis (EFA)

Exploratory factor analysis was employed, and the principal axis factoring method with varimax rotation was performed to compute the underlying structure of the 18 items of the adapted instrument. Bartlett's test of sphericity (χ^2 = 3023.030, p = 0.000) indicated that the variables were correlated highly enough to provide a reasonable basis for factor analysis. Meanwhile, the Kaiser–Meyer–Olkin measure of 0.909 indicated adequate items for each factor. Four factors were studied based on the number of the constructs, namely, deprivation (Factor 1), adverse outcomes (Factor 2), interaction avoidance (Factor 3), and control problems (Factor 4). After rotation, the first factor accounted for 16.46% of the variance, the second factor accounted for 14.50%, the third factor accounted for 13.11%, and the fourth factor accounted for 9.60%. Table 5 presents the items and factor loadings for the rotated factors, with a loading less than 0.30 excluded to improve clarity.

Table 5. Factor loading from the principal axis factor analysis with varimax rotation for a four-factor solution and adapted PMPUS (n = 364).

Items	Factor Loading				Communality
	1	2	3	4	
AO12	0.764				0.657
AO13	0.738				0.659
AO11	0.733				0.631
AO10	0.525				0.525
AO15	0.443				0.480
D2		0.792			0.720
D3		0.760			0.653
D1		0.756			0.652
D6		0.588			0.510
D5		0.573			0.507
IA22			0.754		0.691
IA25			0.656		0.517
IA23			0.628		0.557
IA24			0.494		0.390
CP17				0.549	0.368
CP16				0.475	0.364
CP20				0.459	0.382
CP19				0.449	0.400
Eigenvalues	2.962	2.611	2.360	1.729	
% of variance	16.457	14.504	13.109	9.603	

4.2. User Categories

The result showed that 64.3% (n = 234) of the children were regular users with an average score of 35.46 (SD = 5.33). In addition, 17.6% (n = 64) of the children were at-risk users with an average score of 48.59 (SD = 2.34). Moreover, 14.8% (n = 54) of the children were casual users with an average score of 21.52 (SD = 2.13). Problematic users were represented by 3.3% (n = 12) of the children with an average score of 59.50 (SD = 2.72). Table 6 presents detailed information on the analysis of user categories.

Table 6. Percentage of users based on category.

User Categories	*n*	%	*M*	*SD*
Casual users	54	14.8	21.52	2.13
Regular users	234	64.3	35.46	5.33
At-risk users	64	17.6	48.59	2.34
Problematic users	12	3.3	59.50	2.72

M = mean; *SD* = standard deviation.

4.3. Predictive Sociodemographic Factors of Mobile Device Use

The four categories of mobile devices users were transformed into two groups, namely, users without a problem and users with a problem. This was performed by joining the existing categories. The at-risk users and problematic users combined to form a group of users with a problem (20.9%).+ Meanwhile, casual users and regular users combined to form a group of users without a problem (79.1%). Binary logistic regression was performed to assess the effect of gender, child's age when starting to use a mobile device, parent's level of education, household income, types of mobile devices, types of applications, and the purposes of providing mobile devices to the child on the likelihood that children become users with a problem.

The model containing all predictors was statistically significant χ^2 (7, n = 364) = 33.20, p = 0.002, indicating that the model was able to distinguish between users with a problem and users without a problem. The model explained between 8.7% (Cox and Snell *R* square) and 13.6% (Nagelkerke *R* squared) of the variance in mobile device use and classified 77.7% of cases correctly. The Hosmer–Lemeshow tested the null hypothesis in which the predictions made by the model fitted perfectly with the observed group membership. A Chi-square statistic was computed by comparing the observed frequencies with those expected under the linear model. The chi-square value was 3.564 with p = 0.894. A non-significant chi-square indicates that the data fit the model well.

As shown in Table 7, three independent variables made unique statistically significant contributions to the model, namely, gender, the child's age at start of use of a mobile device, and the purposes of providing mobile devices to the child. Boys were 0.470 times more likely to become users with a problem than girls. Meanwhile, children introduced to mobile devices at an earlier age were more likely to become users with a problem (0.262 times). The purpose of providing mobile devices to make the children sit still was 1.142 times, which may make children become users with a problem. Based on the binary logistic analysis, the regression equation model for this study was:

Table 7. Binary logistic regression analysis for potential factors for problematic users.

Independent Variables	β	SE	Wald	df	*p*	Odds Ratio	95% for OR	
							Lower	Upper
Gender	−0.755	0.280	7.288	1	0.007 **	0.470	0.272	0.813
Age	−1.341	0.500	7.179	1	0.007 **	0.262	0.098	0.698
Education			2.530	3	0.470			
Certification	−0.568	0.401	2.011		0.156	0.567	0.258	1.242
Diploma	−0.547	0.423	1.672		0.196	0.579	0.252	1.326
Bachelor's	−0.362	0.470	0.592		0.442	0.696	0.277	1.750
Income			1.822	2	0.402			
B40	−0.497	0.371	1.791		1.181	0.608	0.294	1.260
M40	−0.278	0.432	0.413		0.520	0.758	0.325	1.767
Types of	0.114	0.319	0.127	1	0.721	1.121	0.600	2.094
Application	0.206	0.366	0.318	1	0.573	1.229	0.600	2.517
Purpose			10.334	3	0.016 **			
Tantrums	1.142	0.428	7.122		0.008 **	3.1354	1.354	7.254
Education	−0.237	0.350	0.456		0.499	0.789	0.397	1.569
Technology	0.80	0.376	0.045		0.832	1.083	0.519	2.260
Constant	−1.141	0.705	0.040		0.841	0.868		

Mobile Devices Users = −1.141 + (−0.755) gender + (−1.341) age when starting to use mobile device + (1.142) the purposes of providing mobile devices to the children.

5. Discussion

This study showed that the use of mobile devices among young children in Putrajaya may not be alarming. with the number of users for each category as follows: casual users = 14.8% (n = 54), regular users = 64.3% (n = 234), at-risk users = 17.6% (n = 64), and problematic users = 3.3% (n = 12). Meanwhile, the cumulative percentage of users without a problem was 79.1% (n = 288) and users with problem was 20.9% (n = 76). Although the percentage of users with a problem could be considered small, it should be given attention. It is possible that the percentage of users with a problem will increase without proper monitoring and guides provided.

These findings contrast with the current scenario in other countries. Scholars reported that children's dependence on mobile devices has increased in the last three-to-four years, especially for primary school children in developed countries [90,91]. This difference may exist due to the status as a developed country, which leads to accessibility to high technology infrastructure [5], as it experienced a technological revolution earlier than developing countries such as Malaysia. It is reported that the usage of mobile devices among children below eight years old increased from 34% in 2011 to 72% in 2013 [92].

In addition, user categories were also closely related to children's environment involving their microsystems such as parents and siblings. This study can infer that the use of mobile devices among young children in Putrajaya is still under control. Parents play a role in creating a conducive environment for the use of the mobile device by providing guidance and instruction to children. The use of mobile devices by children needs to be properly controlled by parents, especially the duration and purpose of use so that children's development takes place holistically [91–94]. In addition, it helps children avoid using mobile devices excessively.

Children who always use a mobile device will begin to feel comfortable using it without socializing with others [95]. Therefore, this characteristic was similar to the impulsive-antisocial pathway pattern as described in the model of Mobile Phone Use Problem Patterns. This characteristic is related to individuals with mobile phone use problems. They have impulsive actions and low self-control power, which, in turn, results in the use of the device not being well-controlled.

The results of the binary logistic regression analysis showed that three out of seven independent variables of demographic factors had a significant influence on children's mobile devices use. The three independent variables were gender, the child's age when starting to use mobile devices, and the purpose of the parent providing a mobile device to the child. A total of 13.6% of the variance in becoming problematic users was explained by gender, age, and purpose. The remaining 86.4% contributed to other factors.

Based on the results of the analysis, gender had a significant influence on patterns of mobile device use. Boys were more likely to be problematic users with a factor of -0.755. This finding is consistent with other studies [44,46,60,96,97] that reported boys were more prone to excessive mobile device use, while several studies reported the opposite [45,74]. However, the majority of these studies were conducted on adolescent and adult populations. Boys and girls have different preferences in using mobile devices. Boys spend more time on mobile devices to play games and girls use them for social media [44,60]. These preferences explain the differences in the findings in this research. In Malaysia, children aged five to six rarely have social media accounts. Therefore, girls did not use mobile device for a longer duration than boys.

This study also found that the age of children introduced to mobile devices contributed significantly to user with problem with a factor of -1.341. Children who are exposed and allowed to use their mobile devices earlier will be susceptible to becoming users with problem. Children's dependence on mobile devices will increase as they become more comfortable with it and less interested in making social connections with peers or family members [23]. In addition, children will see mobile devices as their source of happiness.

The purpose of parents providing mobile devices to their children to make their children sit still significantly contributed to users with problem with a factor of 1.142.

Meanwhile, other purposes did not significantly contribute to users with problem. In Malaysia, it is common for parents to provide mobile devices to their children while having mealtimes at the dining table. The purpose is to make sure the children sit still while waiting for the food to be served. Some of them continue to use a mobile device while eating.

This study also showed that the parent's level of education did not significantly contribute to the problem of mobile device use. This suggested that children have the same patterns of mobile device use despite having parents from different educational level backgrounds. This finding contradicts previous studies [69,98–100] that indicated that the highest level of parental education contributed to users with a problem. Putrajaya is an administrative district of the Malaysian government, and the majority of its residents are government employees. As employees, parents in this study had to use computers and technology daily. They can be classified as parents knowledgeable about technology. Therefore, they can monitor, support, and guide their children to use mobile devices and technology positively. In this modern era, everyone can find information about the advantages and disadvantages of excessive mobile device use through the internet. Knowledgeable parents can assist their children in selecting age-appropriate and developmentally appropriate applications that can benefit children [101]. Children who receive positive guidance about mobile device use tend to have positive perceptions towards the use of technology in daily life [47,62,102–106].

The results of binary logistic regression showed that household income did not significantly contribute to excessive mobile device use. This finding explained that children exhibit similar patterns of mobile device use regardless of their family's economic status. This is contrary to previous research [68,70,71,107–109] reporting that household income significantly contributed to excessive mobile device use. Typically, high-income parents can afford to provide mobile devices together with internet access for their children. Availability and accessibility to a mobile device and the internet make children more vulnerable to excessive use of mobile devices.

However, the research findings provided a different explanation. In Malaysia, mobile devices can be purchased at low prices and also provide the facility to download applications for free with the availability of the internet. Because of this, every family can provide mobile devices for use by their children. However, an internet subscription is relatively expensive, and some families cannot afford to subscribe to Wi-Fi at home or have unlimited internet access on their mobile devices [109]. Internet access limitations cause children to only be able to access certain applications and, thus, reduce their interest in mobile devices.

5.1. Implications

The preventive measure should take into consideration to ensure the percentage of users with a problem is not increased. This can be achieved by taking into account the sociodemographic factors that proved to significantly contribute to the excessive mobile device use in this study. Therefore, this subtopic discusses the implications of this study. The findings of this study can be used as additional information in drafting a guideline on the mobile device used specifically for young children by the government and stakeholders. The information on the positive relationship between the child's gender, the child's age when starting to use a mobile device, and the purposes of giving a mobile device to the child with excessive mobile device use could be included in the guidelines. In addition, the guideline may propose a suitable age range to introduce and allow children to use the mobile device.

Then, the information on the guidelines could be conveyed to the parents, community, and early childhood educators through an awareness campaign at the national level. Thereby, parents will be more alert regarding the suitable age to introduce the mobile device to their children, did not use a mobile device as calming object whenever their children throw a tantrum, and give more attention to a boy who uses a mobile device than a girl. In addition, parents should also provide a balance of activities children's daily so that they can grow holistically.

5.2. Limitations and Scope of Future Research

Even though this study was conducted with meticulous detail, some limitations still exist. Firstly, there are limitations regarding the location and sample selection. This study involves 364 participants who reside in Putrajaya. Putrajaya is the administrative center of the government of Malaysia and considered an urban area. Moreover, the majority of its residents are government servants. Thus, it is suggested that future studies involve parents and children from all states in Malaysia including suburban and rural areas, and parents from various fields of employment. Thereby, the finding could be generalised to the Malaysian population.

In addition, it is recommended that a future study take into account the race information of the participant. Malaysia is a multiracial country, and every family from a different race is practicing different norms and values in their daily life including the way of raising a child. It could be interesting to investigate the differences in mobile device practices based on race factors. A previous study from Singapore reported Malay and Indian children occupy significantly more time on mobile device activity compared to Chinese children [110]. Therefore, future studies may address the differences in the way parents provide guidance and monitor their children's mobile device use. The positive aspect of guiding and monitoring could be useful and applicable for other parents.

Secondly, regarding the validity and reliability of the items in the adapted version of the Problematic Mobile Phone Use Scale (PMPUS). This research examines the validity and reliability of the items by performing exploratory factor analysis (EFA) and determining the value of the content validity index and Cronbach's alpha. Therefore, a future study can broaden the item assessment by performing Rasch analysis and confirmatory factor analysis (CFA). Rasch analysis is an advanced approach used to enhance the accuracy of instruments development, monitor instrument quality, and compute participants' performances [111]. Meanwhile, confirmatory factor analysis was used to verify the number of underlying dimensions of the instrument and the pattern of item–factor relationships. Rasch analysis will provide comprehensive information on items properties, and confirmatory factor analysis will reveal to what extent the subdimension measures the variables.

Thirdly, this study employed a cross-sectional research design, and data were collected using a questionnaire. Although the data collected are credible to explain the causal relationship between the variables, the data may not be able to explain the reason for such a relationship existing [112]. This issue can be overcome by employing a mixed-method research design and collecting quantitative and qualitative data. Qualitative data from interviews and observation may help in providing useful information and explanation of the effects of sociodemographic factors on mobile device usage.

Lastly, this study only examines the direct relationship between sociodemographic factors and excessive mobile device use of young children. However, future study may include the potential mediator variables in order to provide more meaningful findings. The mediator variables will reveal how the mediator affects the strength of the relationship between sociodemographic factors and excessive mobile device use. The potential mediator variable that can be applied is the period of using a mobile device.

6. Conclusions

This study investigated the category of mobile device users among young children in Putrajaya, Malaysia. In addition, this study also examined the influence of sociodemographic factors, namely, gender, the child's age when starting to use a mobile device, parent's level of education, monthly household income, frequent types of applications, and the purpose of giving mobile devices to young children. The findings of this study show that the majority of participants were regular users, followed by the at-risk user, casual user, and problematic user. Analysis of the influences of sociodemographic factors revealed that gender, age of children when starting to use mobile devices, and the purpose of providing mobile devices to children contributed significantly to excessive mobile use by young children. Based on the findings of this study, parents should create a healthy

environment on a mobile device by providing guidance and monitoring the duration and content of the applications used by children. Next, these sociodemographic factors can be taken into account when planning for intervention or guidance programs on mobile device use, especially for young children.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki and approved by Faculty of Education, Universiti Kebangsaan Malaysia (UKM FND/P93570).

Informed Consent Statement: Informed consent was obtained from all the subjects involved in the study.

Data Availability Statement: The data presented in this study are available upon request from the corresponding author. The data are not publicly available due to the risk of the identification of study participants.

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Appendix A

Table A1. Adapted Version of PMPUS.

D1. My child will be restless if the mobile device he is using does not have an internet connection
D2. My child will be restless if the mobile device he is using runs out of battery
D3. My child will be agitated if the mobile device he is using lags
D5. My child seems unhappy if not given a mobile device
D6. My child finds it difficult to sleep if not given a mobile device
AO10. My child is busy using mobile devices that it interrupts his mealtime routine
AO11. My child is busy using mobile devices that interferes with his sleep routine
AO12. My child is busy using mobile devices that he has trouble completing preschool homework
AO13. My child is busy using mobile devices that he has trouble focusing on learning
AO15. My child is busy using mobile devices that it affects his interaction with the people around him
CP16. My child would have a tantrum if the mobile device he was using was taken away
CP17. My child is using a mobile device beyond the set period
CP19. My child uses a mobile device for more than two hours a day
CP20. My child will look for a mobile device as soon as he wakes up
IA22. My child would rather spend time with a mobile device than hang out with the people around him
IA23. My child prefers to have conversations using a mobile device, rather than face to face
IA24. My child prefers to use a mobile device alone
IA25. My child prefers to play game using a mobile device than play with friends

References

1. Noorshahira, M.F.; Mohd Yusof, A.; Mohd Azul, M.S. The level of tolerance sanctioning children using by parents lead to Nomophobia: Early age gadgets exposure. *Int. J. Arts Sci.* **2016**, *9*, 615–622.
2. Harris, B.; Regan, T.; Schueler, J.; Fields, S. Problematic mobile phone and smartphone use scales: A systematic review. *Front. Psychol.* **2020**, *11*, 672. [CrossRef]
3. Sohn, S.Y.; Rees, P.; Wildridge, B.; Kalk, N.J.; Carter, B. Prevalence of problematic smartphone usage and associated mental health outcomes amongst children and young people: A systematic review, meta-analysis and grade evidence. *BMC Psychiatry* **2019**, *19*, 356. [CrossRef]
4. Ilhm, J. Social implications of children's smartphone addiction: The role of support networks and social engagement. *J. Behav. Addict.* **2018**, *7*, 473–481. [CrossRef]
5. Statista. Available online: https://www.statista.com/topics/840/smartphones/#dossierKeyfigures (accessed on 31 December 2021).
6. Chaudron, S.; Di Giola, R.; Gemo, M. *Young Children (0–8) and Digital Technology, a Qualitative Study across Europe*; European Commission: Luxembourg, 2018. [CrossRef]
7. Marsh, J. Young children's play in online virtual worlds. *J. Early Child. Res.* **2010**, *8*, 23–39. [CrossRef]
8. Marsh, J. Unboxing' videos: Co-construction of the child as cyberflaneur. *Discourse: Stud. Cult. Politics Educ.* **2015**, *37*, 369–380. [CrossRef]
9. Nikken, P.; Jansz, J. Developing scales to measure parental mediation of young children's internet use. *Learn. Media Technol.* **2013**, *39*, 250–266. [CrossRef]
10. Sergi, K.; Gatewood, R.; Elder, A.; Xu, J. Parental perspectives on children's use of portable digital devices. *Behav. Inf. Technol.* **2017**, *36*, 1148–1161. [CrossRef]
11. Cha, S.-S.; Seo, B.-K. Smartphone use and smartphone addiction in middle school students in Korea: Prevalence, social networking service and game use. *Health Psychol. Open* **2018**, *5*, 2055102918755046. [CrossRef] [PubMed]
12. Miller, G. The smartphone psychology manifesto. *Perspect. Psychol. Sci.* **2012**, *7*, 221–237. [CrossRef] [PubMed]
13. Plowman, L.; McPake, J.; Stephen, C. The technologisation of childhood. Young children and technology in the home. *Child. Soc.* **2010**, *24*, 63–74. [CrossRef]
14. Radesky, J.S.; Eisenberg, S.; Kistin, C.J.; Gross, J.; Block, G.; Zuckerman, B.; Silverstein, M. Overstimulated consumers or next-generation learners? Parent tensions about child mobile technology use. *Ann. Fam. Med.* **2016**, *14*, 503–508. [CrossRef]
15. Alif, L.; Lara, F.; Sofia, H. Influence of gadget usage and parent involvement to children's prosocial behavior. *J. Ilm. Pendidik. Dan Pembelajaran* **2018**, *2*, 174–179.
16. Chen, L.; Yan, Z.; Tang, W.; Yang, F.; Xie, X.; He, J. Mobile phone addiction levels and negative emotions among Chinese young adults: The mediating role of interpersonal problems. *Comput. Hum. Behav.* **2016**, *55*, 856–866. [CrossRef]
17. Hinkley, T.; Verbestel, V.; Ahrens, W.; Lissner, L.; Molnar, D.; Moreno, L.A.; Pigeot, I.; Pohlabeln, H.; Reisch, L.; Russo, P.; et al. Early childhood electronic media use as a predictor of poorer well-being a prospective cohort study. *Jama Pediatrics* **2014**, *168*, 485–492. [CrossRef]
18. Kuss, D.J.; Lopez-Fernandez, O. Internet addiction and problematic internet use: A systematic review of clinical research. *World J. Psychiatry* **2016**, *6*, 143. [CrossRef]
19. Chen, X. Culture, Peer Interaction, and Socioemotional Development. *Child Dev. Perspect.* **2011**, *6*, 27–34. [CrossRef]
20. Genc, Z. Parents' perceptions about the mobile technology use of preschool aged children. *Procedia Soc. Behav. Sci.* **2014**, *146*, 55–60. [CrossRef]
21. Chow, S.L.; Leung, G.M.; Ng, C.; Yu, E. A screen for identifying maladaptive internet. *Int. J. Ment. Health Addict.* **2009**, *7*, 324–332. [CrossRef]
22. Claesdotter-Knutsson, E.; Andre, F.; Fridh, M.; Delfin, C.; Hakansson, A.; Lindström, M. Gender-based differences and associated factors surrounding excessive smartphone use among adolescents: Cross-sectional study. *JMIR Paediatr. Parent.* **2021**, *4*, e30889. [CrossRef]
23. Wu, Z.; Hu, B.Y.; Fan, X.; Zhang, X. The associations between social skills and teacher-child relationships: A longitudinal study among Chinese preschool children. *Child. Youth Serv. Rev.* **2018**, *88*, 582–590. [CrossRef]
24. Chonchaya, W.; Pruksananonda, C. Television viewing associates with delayed language development. *Acta Paediatr.* **2008**, *97*, 977–982. [CrossRef] [PubMed]
25. Hamzah, H.; Alexander, L.K. Gadget usage: Trends and its relationship with psychosocial adjustment among pre-schoolers in Malaysia. *Int. J. Stud. Child. Women Elder. Disabl.* **2018**, *5*, 93–99.
26. Inoue, S.; Yorifuji, T.; Kato, T.; Sanada, S.; Doi, H.; Kawachi, I. Children's media use and self-regulation behavior: Longitudinal associations in a nationwide Japanese study. *Matern. Child Health J.* **2016**, *20*, 2084–2099. [CrossRef]
27. Swing, E.L.; Gentile, D.A.; Anderson, C.A.; Walsh, D.A. Television and video game exposure and the development of attention problems. *Pediatrics* **2010**, *126*, 214–221. [CrossRef]
28. Christakis, D.A.; Zimmerman, F.J.; DiGiuseppe, D.L.; McCarty, C.A. Early television exposure and subsequent attentional problems in children. *Pediatrics* **2004**, *113*, 708–713. [CrossRef]
29. Conners, N.A.; McKelvey, L. Social outcomes associated with media viewing habits of low-income preschool children. *Early Educ. Development* **2011**, *22*, 256–273. [CrossRef]

30. Van Deursen, A.J.A.M.; Bolle, C.L.; Hegner, S.M.; Kommers, P.A.M. Modeling habitual and addictive smartphone behavior. *Comput. Human Behavior* **2015**, *45*, 411–420. [CrossRef]
31. Lee, H.; Kim, J.W.; Choi, T.Y. Risk factors for smartphone addiction in Korean adolescents: Smartphone use patterns. *J. Korean Med. Sci.* **2017**, *32*, 1674–1679. [CrossRef]
32. Park, J.H.; Park, M. Smartphone use patterns and problematic smartphone use among preschool children. *PLoS ONE* **2021**, *16*, e0244276. [CrossRef]
33. Mira Adila, M.S.; Noor Hafizah, H.; Sulfeeza, M.D. Impact of ICT and electronic gadget among young children in education: A conceptual model in Zulikha. In Proceedings of the 6th International Conference on Computing & Informatic, Kedah, Malaysia, 21–22 November 2018.
34. Twining, P.; Evans, D.; Cook, D.; Ralston, J.; Selwood, I.; Jones, A.; Underwood, J.; Dillon, G.; Scanlon, E.; Heppell, S.; et al. *Tablet PCs in Schools: Case Study Report*; Becta: Coventry, UK, 2005.
35. Olson, J.; Codde, J.; de Maagd, K.; Tarkelson, E.; Sinclair, J.; Yook, S.; Egidio, R. *An Analysis of e-Learning Impacts & Best Practices in Developing Countries with Reference to Secondary School Education in Tanzania*; Michigan State University: East Lansing, MI, USA, 2011.
36. Anderson, J. IT, e-learning and teacher development. *Int. Educ. J.* **2005**, *5*, 1–14.
37. Fiorini, M. The effect of home computer use on children's cognitive and non-cognitive skills. *Econ. Educ. Rev.* **2010**, *29*, 55–72. [CrossRef]
38. Osman, Z. Children's emotional development using Didi & Friends songs. *Natl. J. Early Child. Educ.* **2016**, *5*, 49–60.
39. Joginder Singh, J.; Mohd Azman, F.N.S.; Sharma, S.; Razak, R.A. Malaysian parents' perception of how screen time affects their children's language. *J. Child. Media* **2021**, *15*, 588–596. [CrossRef]
40. Abdullah, N.N.; Mohamed, S. Problems of mobile device use among young children. In Proceedings of the Malaysia International Convention on Education Research and Management, Kuala Lumpur, Malaysia, 25 August 2020.
41. Mustafa, N.; Rusali, R.; Ramos, A.A.; Ghazali, J.; Mohd Shukri, N.A. The gadget generation: Boy mass index and duration of physical activity and screen-viewing among preschoolers in Kuantan, Pahang. *Malays. J. Public Health Med.* **2020**, *20*, 116–122.
42. Tan, S.Y.; Safinaz, M.K. Impact of screen time on refractive status in children aged 3 to 6 years. *Malays. J. Ophthalmol.* **2021**, *3*, 89–90.
43. Mizhanim, M.S.; Ng, P.L.; Sally, T.P.R.; Norlaili, A. Does screen time affect eye health? Preliminary comparative findings from the Standard Patient Evaluation of Eye Dryness (SPEED) and the Ocular Surface Disease Index (OSDI) questionnaires among young. In Proceedings of the 23rd Medical & Health Research Week, Kuala Lumpur, Malaysia, 16–27 August 2021.
44. Fischer-Grote, L.; Kothgassner, O.D.; Felnhofer, A. Risk factors for problematic smartphone use in children and adolescents: A review of existing literature. *Neuropsychiatrie* **2019**, *33*, 179–190. [CrossRef]
45. De-Sola, J.; Talledo, H.; Rodrigurez de Fonseca, F.; Rubio, G. Prevalence of problematic cell phone use in an adult population in Spain as assessed by the Mobile Phone Problem Use Scale (MPPUS). *PLoS ONE* **2017**, *12*, e0181184. [CrossRef]
46. Son, H.; Park, S.; Han, G. Gender differences in parental impact on problematic smartphone use among Korean adolescents. *Int. J. Environ. Res. Public Health* **2021**, *18*, 443. [CrossRef]
47. Chiang, J.T.; Chang, F.C.; Lee, K.W.; Hsu, S.Y. Transitions in smartphone addiction proneness among children: The effect of gender and use patterns. *PLoS ONE* **2019**, *14*, e0217235. [CrossRef]
48. Cocorada, E.; Maican, C.I.; Cazan, A.M.; Maican, M.A. Assessing the smartphone addiction risk and its associations with personality traits among adolescents. *Child Youth Serv. Rev.* **2018**, *93*, 345–354. [CrossRef]
49. Randler, C.; Wolfgang, L.; Matt, K.; Demirhan, E.; Horzum, M.B.; Besoluk, S. Smartphone addiction proneness in relation to sleep and morningness-eveningness in German adolescents. *J. Behav. Addict.* **2016**, *5*, 465–473. [CrossRef] [PubMed]
50. Choliz, M. Mobile-phone addiction in adolescent: The test of mobile phone dependence (TMD). *Prog. Health Sci.* **2012**, *22*, 33–45.
51. Emirtekin, E.; Balta, S.; Sural, I.; Kircaburun, K.; Griffiths, M.D.; Billieux, J. The role of childhood emotional maltreatment and bodyimage dissatisfaction in problematic smartphone use among adolescents. *Psychiatry Res.* **2019**, *271*, 634–639. [CrossRef]
52. Lee, S.J.; Lee, C.; Lee, C. Smartphone addiction and application usage in Korean adolescents: Effects of mediation strategies. *Soc. Behav. Personal. Int. J.* **2016**, *44*, 1525–1534. [CrossRef]
53. Lopez-Fernandez, O.; Losada-Lopez, J.L.; Honrubia-Serrano, M.L. Predictors of problematic internet and mobile phone usage in adolescents. *Aloma Rev. De Psicol.* **2015**, *33*, 49–58. [CrossRef]
54. Seo, D.G.; Park, Y.; Kim, M.K.; Park, J. Mobile phone dependency and its impacts on adolescents' social and academic behaviors. *Comput. Hum. Behav.* **2016**, *63*, 282–292. [CrossRef]
55. Yang, Y.S.; Yen, J.Y.; Ko, C.H.; Cheng, C.P.; Yen, C.E. The association between problematic cellular phone use and risky behaviors and low self-esteem among Taiwanese adolescents. *BMC Public Health* **2010**, *10*, 217. [CrossRef]
56. De Pasquale, C.; Sciacca, F.; Hichy, Z. Smartphone addiction and dissociative experience: An investigation in Italian adolescents aged between 14 and 19 years. *Int. J. Psychol. Behav. Anal.* **2015**, *1*, 109. [CrossRef]
57. Soni, R.; Upadhyay, R.; Jain, M. Prevalence of smart phone addiction, sleep quality and associated behaviour problems in adolescents. *Int. J. Res. Med. Sci.* **2017**, *5*, 515–519. [CrossRef]
58. Ayar, D.; Bektas, M.; Bektas, I.; Kudubes, A.A.; Ok, Y.S.; Altan, S.S.; Celik, I. The effect of adolescents' internet addiction on smartphone addiction. *J. Addict. Nurs.* **2017**, *28*, 210–214. [CrossRef] [PubMed]

59. Lee, E.J.; Ogbolu, Y. Does parental control work with smartphone addiction? A cross-sectional study of children in South Korea. *J. Addict. Nurs.* **2018**, *29*, 128–138. [CrossRef] [PubMed]
60. Chen, B.; Liu, F.; Ding, S. Gender differences in factors associated with smartphone addiction: A cross-sectional study among medical college students. *BMC Psychiatry* **2017**, *17*, 341. [CrossRef]
61. Sanchez-Martinez, M.; Otero, A. Factors associated with cell phone use in adolescents in the community of Madrid (Spain). *Cyberpsychology Behav.* **2009**, *12*, 131–137. [CrossRef] [PubMed]
62. Roser, K.; Schoeni, A.; Foerster, M.; Roosli, M. Problematic mobile phone use of Swiss adolescents: Is it linked with mental health or behaviour? *Int. J. Public Health* **2016**, *61*, 307–315. [CrossRef]
63. Hesketh, K.; Ball, K.; Crawford, D.; Campbell, K.; Salmon, J. Mediators of the relationship between maternal education and children's TV viewing. *Am. J. Prev. Med.* **2007**, *33*, 41–47. [CrossRef]
64. Shirley, S.A.; Kumar, S.S. Awareness and attitude among parents of primary school students towards screen time in children. *Int. J. Contemp. Pediatrics* **2020**, *7*, 107. [CrossRef]
65. De Craemer, M.; Verloigne, M.; Ghekiere, A.; Loyen, A.; Dargent-Molina, P.; Brug, J.; Lien, N.; Froberg, K.; Wedderkopp, N.; Chastin, S.; et al. Changes in children's television and computer time according to parental education, parental income and ethnicity: A 6-year longitudinal EYHS study. *PLoS ONE* **2018**, *7*, 1–13. [CrossRef]
66. Gebremariam, M.K.; Altenburg, T.M.; Lakerveld, J.; Andersen, L.F.; Stronks, K.; Chinapaw, M.J.; Lien, N. Associations between socioeconomic position and correlates of sedentary behaviour among youth: A systematic review. *Obes. Rev.* **2015**, *16*, 988–1000. [CrossRef]
67. Alvarez, M.; Torres, A.; Rodriguez, E.; Padilla, S.; Rodrigo, M.J. Attitudes and parenting dimensions in parents' regulation of internet use by primary and secondary school children. *Comput. Educ.* **2013**, *67*, 69–78. [CrossRef]
68. Mangan, E.; Leavy, J.E.; Jancey, J. Mobile device use when caring for children 0–5 years: A naturalistic playground study. *Health Promot. J. Aust.* **2018**, *29*, 337–343. [CrossRef]
69. Nikken, P.; Schols, M. How and why parents guide the media use of young children. *J. Child Fam. Stud.* **2015**, *24*, 3423–3435. [CrossRef] [PubMed]
70. Dimmick, J.; Feaster, J.C.; Hoplamazian, G.J. News in the inter-stices: The niches of mobile media in space and time. *New Media Soc.* **2011**, *13*, 23–39. [CrossRef]
71. Oulasvirta, A.; Rattenbury, T.M.L.; Raita, E. Habits make smartphone use more pervasive. *Pers. Ubiquitous Comput.* **2012**, *16*, 105–114. [CrossRef]
72. Walsh, S.P.; White, K.M.; Cox, S.; Young, R.M. Keeping in constant touch: The predictors of young Australians' mobile phone involvement. *Comput. Hum. Behav.* **2011**, *27*, 333–342. [CrossRef]
73. Liu, C.H.; Lin, S.H.; Pan, Y.C.; Lin, Y.H. Smartphone gaming and frequent use pattern associated with smartphone addiction. *Medicine* **2016**, *95*, e4068. [CrossRef] [PubMed]
74. Jeong, S.H.; Kim, H.; Yum, J.Y.; Hwang, Y. What type of content are smartphone users addicted to? SNS vs. games. *Comput. Hum. Behav.* **2016**, *54*, 10–17. [CrossRef]
75. Mohammadbeigi, A.; Absari, R.; Valizadeh, F.; Saadati, M.; Sharifimoghadam, S.; Ahmadi, A.; Mokhtari, M.; Ansari, H. Sleep quality in medical students; the impact of over-use of mobile cell-phone and social networks. *J. Res. Health Sci.* **2016**, *16*, 46–50. [CrossRef]
76. Lopez-Fernandez, O.; Kuss, D.J.; Romo, L.; Morvan, Y.; Kern, L.; Graziani, P.; Rousseau, A.; Rumpf, H.-J.; Bischof, A.; Gässler, A.-K.; et al. Self-reported dependence on mobile phones in young adults: A European cross-cultural empirical survey. *J. Behav. Addict.* **2017**, *6*, 168–177. [CrossRef]
77. Haug, S.; Castro, R.P.; Kwon, M.; Filler, A.; Kowatsch, T.; Schaub, M.P. Smartphone use and smartphone addiction among young people in Switzerland. *J. Behav. Addict.* **2015**, *4*, 299–307. [CrossRef]
78. Free Malaysia Today. Available online: https://www.freemalaysiatoday.com/category/bahasa/2019/11/28/hampir-80-ibu-bapa-lembah-klang-benarkan-anak-guna-gajet/ (accessed on 31 December 2021).
79. Department of Statistic Malaysia. Available online: https://www.dosm.gov.my (accessed on 31 December 2021).
80. Krejcie, R.V.; Morgan, D.W. Determining sample size for research activities. *Educ. Psychol. Meas.* **1970**, *30*, 607–610. [CrossRef]
81. Pamuk, M.; Atli, A. Development of a Problematic Mobile Phone Use Scale for University Students: Validity and Reliability Study. *J. Psychiatry Neurol. Sci.* **2016**, *29*, 49–59. [CrossRef]
82. Brislin, R.W. Back-translation for cross-cultural research. *J. Cross-Cult. Psychol.* **1970**, *1*, 185–216. [CrossRef]
83. Epstein, J.; Santo, R.M.; Guillemin, F. A review of guidelines for cross-cultural adaptation of questionnaires could not bring out a consensus. *J. Clin. Epidemiol.* **2014**, *68*, 435–441. [CrossRef] [PubMed]
84. Pereira-Lima, K.; Silva-Rodrigues, A.P.C.; Marucci, F.A.F. Cross-cultural adaptation and psychometric assessment of Brazilian-Portugese version of resident questionnaire. *PLoS ONE* **2018**, *13*, e0203531. [CrossRef] [PubMed]
85. Gjersing, L.; Caplehorn, J.R.M.; Clausen, T. Cross-cultural adaptation of research instruments: Language, setting, time and statistical considerations. *BMC Med. Res. Methodol.* **2010**, *10*, 13. [CrossRef]
86. Herdman, M.; Fox-Rushby, J.; Badia, X. A model of equivalence in the cultural adaptation of HRQoL instruments: The universalist approach. *Qual. Life Res.* **1998**, *7*, 323–335. [CrossRef] [PubMed]
87. Polit, D.F.; Beck, C.T. The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Res. Nurs. Health* **2006**, *25*, 489–497. [CrossRef]

88. Davis, R.A. A cognitive-behavioral model of pathological internet use. *Comput. Hum. Behav.* **2001**, *17*, 187–195. [CrossRef]
89. Pallant, J. *SPSS Survival Manual: A Step-by-Step Guide to Data Analysis Using IBM SPSS*, 7th ed.; Open University Press: Berkshire, UK, 2020; pp. 43–50.
90. Choi, D.; Kim, M. Development of youth digital citizenship scale and implication for educational setting. *Educ. Technol. Soc.* **2018**, *27*, 155–171.
91. Gold, J. *Screen-Smart Parenting: How to Find Balance and Benefit in Your Child's Use of Social Media, Apps, and Digital Devices*; The Guilford Press: New York, NY, USA, 2015.
92. Zero to Eight: Children's Media Use in America 2013. Available online: https://www.commonsensemedia.org/zero-to-eight-2013-infographic (accessed on 31 December 2021).
93. Hendricks, C. Ten ways to help parents navigate technology with children. *Child. Libr. J. Assoc. Libr. Serv. Child.* **2015**, *13*, 36–37. [CrossRef]
94. Veldhuis, L.; Van Grieken, A.; Renders, C.M.; HiraSing, R.A.; Raat, H. Parenting style, the home environment, and screen time of 5-year-old children; the 'be active, eat right' study. *PLoS ONE* **2014**, *9*, 1–9. [CrossRef] [PubMed]
95. Kim, H.J.; Min, J.Y.; Min, K.B.; Lee, T.J.; Yoo, S. Relationship among family environment, self-control, friendship quality, and adolescents' smartphone addiction in South Korea: Findings from nationwide data. *PLoS ONE* **2020**, *13*, 1–13. [CrossRef] [PubMed]
96. Lee, H.; Seo, M.J.; Choi, T.Y. The effect of home-based daily journal writing in Korean adolescents with smartphone addiction. *J. Korean Med. Sci.* **2016**, *31*, 764–769. [CrossRef] [PubMed]
97. Lopez-Fernandez, O.; Honrubia-Serrano, M.; Frexia-Blanxart, M. Spanish adaptation of the mobile phone problem use scale for adolescent population. *Adicciones* **2012**, *24*, 123–130. [CrossRef] [PubMed]
98. Wu, C.S.T.; Fowler, C.; Winsome, Y.Y.L.; Ho, T.W.; Charmaine, H.M.W.; Alice, Y.L. Parenting approaches and digital technology use of preschool age children in a Chinese community. *Ital. J. Pediatrics* **2014**, *40*, 44. [CrossRef]
99. Padilla, S.; Rodriguez, E.; Alvarez, M.; Torres, A.; Suarez, A.; Rodrigo, M.J. The influence of the family educational scenario on internet use of primary and secondary school children. *J. Study Educ. Dev.* **2015**, *38*, 402–434. [CrossRef]
100. Csibi, S.; Griffiths, M.D.; Demetrovics, Z.; Szabo, A. Analysis of problematic smartphone use across different age groups within the components model of addiction. *Int. J. Ment. Health Addict.* **2019**, *19*, 616–631. [CrossRef]
101. Chiong, C.; Shuler, C. *Learning: Is There an App for That? Investigations of Young Children's Usage and Learning with Mobile Devices and Apps*; The Joan Ganz Looney Center at Sesame Workshop: New York, NY, USA, 2010; pp. 44–48.
102. Pempek, T.A.; Demers, L.B.; Hanson, K.G.; Kirkorian, H.L.; Anderson, D.R. The impact of infant-directed videos on parent–child interaction. *J. Appl. Dev. Psychol.* **2011**, *32*, 10–19. [CrossRef]
103. Izci, B.; Jones, I.; Ozdemir, T.; Alktebi, L.; Bakır, E. *Children, Families and Technology in Today's Society: What Challenges? Which Paths?* Lisbon School of Education: Lisbon, Portugal, 2019; pp. 81–92.
104. Neumann, M.M. Young children and screen time: Creating a mindful approach to digital technology. *Aust. Educ. Comput.* **2015**, *30*, 1–15.
105. Neumann, M.M. Parent scaffolding of young children's use of touch screen tablets. *Early Child Dev. Care* **2017**, *188*, 1654–1664. [CrossRef]
106. Anderson, M. Technology Device Ownership. Available online: https://www.pewresearch.org/internet/2015/10/29/technology-device-ownership-2015/ (accessed on 1 January 2022).
107. Jessie, R.; Jodi, D.; Susan, W.; Jennifer, D. Parents' use of information and communications technologies for family communication: Differences by age of children. *Inf. Commun. Soc.* **2015**, *18*, 78–93. [CrossRef]
108. Harmon, E.L.; Mazmanian, M. Stories of the smartphone in everyday discourse: Conflict, tension & instability. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, Paris, France, 23 April 2013. [CrossRef]
109. Mohamed, S.; Toran, H. Family socioeconomic status and social-emotional development among young children in Malaysia. *J. Appl. Sci.* **2018**, *18*, 122–128. [CrossRef]
110. Benard, Y.B.; Padmapriya, N.; Chen, B.; Cai, S.; Tan, K.H.; Yap, F.; Shek, L.; Chong, Y.-S.; Gluckman, P.D.; Godfrey, K.M.; et al. Predictors of screen viewing time in young Singaporean children: The GUSTO cohort. *Int. J. Behav. Nutr. Phys. Act.* **2017**, *14*, 112–121. [CrossRef] [PubMed]
111. Boone, W.J. Rasch analysis for instrument development: Why, when and how? *CBE-Life Sci. Educ.* **2016**, *15*, rm4. [CrossRef] [PubMed]
112. Denzin, N.K.; Lincoln, Y.S.; Smith, L.T. *Handbook of Critical and Indigenous Methodologies*; SAGE Publication Inc.: Thousand Oaks, CA, USA, 2008.

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Article

The Relative Influence of Family and Neighborhood Factors on Child Maltreatment at Critical Stages of Child Development

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Abstract: This study examines the impact of family and neighborhood factors on physical and psychological abuse across three developmental stages of children: early childhood (age 3), young school age (age 5), and middle childhood (age 9). Data from the Fragile Families and Child Wellbeing Study, a longitudinal national cohort study of children from 20 urban U.S. cities, are used. Path analysis is employed to investigate the longitudinal relationships between family and neighborhood context variables and abuse risk, as well as the importance of different factors at key developmental stages. Economic hardship, maternal substance use, intimate partner violence, and exposure to community violence are found to be related to child abuse risk regardless of developmental stage, while maternal depression and neighborhood informal social control are found to have impacts only within certain child development stages. Findings suggest the need for early intervention and prevention strategies that specifically target economic hardship, poverty, intimate partner violence, and exposure to community violence.

Keywords: child maltreatment; path analysis; neighborhoods; families; risk and protective factors

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1. Introduction

Experiences in childhood are critical to their long-term outcomes over their life course. Over the past several decades, researchers have discovered many critical aspects of the context in which a child grows that relate to their likelihood of experiencing child maltreatment [1]. These include factors at various levels of the social ecology, with the characteristics of the child, parents, families, and neighborhoods affecting the likelihood that maltreatment occurs [2]. Although researchers have examined the influence of such factors occurring at these various ecological levels, there is limited understanding of the relative influence of these different factors at different developmental stages of children and the extent to which the effect of these factors in early periods of development persist into later ages. The current study addresses this gap in the literature by specifically modeling factors about the family, school, and neighborhood at three critical periods of child development—early childhood (age 3), young school age (age 5), and middle childhood (age 9).

1.1. Theory

The causes of child maltreatment are complex. There are a multitude of theories that seek to understand why parents maltreat their children. This work is guided by ecological systems theory [3], which suggests that individuals are influenced by factors at multiple levels and that these factors coalesce to affect health and development in people. This study is also guided by the developmental psychopathology perspective [4,5]. Similar to ecological systems theory, this perspective underscores the significance of understanding developmental outcomes through an interplay between an individual and one's surrounding contexts (e.g., family, school, neighborhood). Developmental psychopathology further stresses that both the nature (e.g., multi-level contexts) and timing (e.g., developmental

timing) of an experience are critical in determining one's developmental pathways and outcomes. The theory emphasizes that individuals' development and health can be understood properly only by examining developmental history, changing contexts, and evolving outcomes over time, highlighting the importance of applying a developmental lens in health science research.

1.2. Family Context

The family context is one of the most proximal and influential environmental factors related to child maltreatment. At the family level, key factors such as family socioeconomic (SES) status and parental characteristics (e.g., parental behavioral health) can significantly impact the likelihood of child maltreatment. Poverty and child maltreatment are closely linked [6]. Parents who are living with limited economic resources may have decreased ability to meet their children's basic needs. Additionally, economic hardships are associated with increased stress in parents, which is related to an increased risk for harsh parenting [7–10].

Intimate partner violence (IPV) often co-occurs with child maltreatment [11], with children living in homes with IPV being 2.5 times more likely to experience physical abuse and 9.5 times more likely to experience psychological abuse [12]. IPV can create dangerous situations for children, who may try to intervene to protect the survivor. IPV also causes a great deal of stress for survivors, which may, in turn, influence their parenting behaviors, both in terms of harsher parenting practices as well as lower levels of supervision and care. Finally, in homes where IPV is present, the intimate partner abuser may also be committing violence against the children.

Depression can increase fatigue and make it difficult for individuals to conduct their normal daily activities. Among parents, depression can inhibit a parent's ability to properly care for their children. It may also contribute to increased levels of harsh parenting because parents may be so focused on their own mental health issues that they are less sensitive to children's needs and therefore may be more reactive and use harsher discipline than they typically would. Parental depression and emotion dysregulation is associated with a greater likelihood of using an authoritarian parenting style [13]. Prior research has found depression to be linked to an increased risk for psychological abuse [14], physical abuse [1], and neglect [1].

Finally, substance use may impact the ways in which parents care for their children. Parents who struggle with substance-use disorder may be emotionally and physically unavailable to meet their children's basic needs. Additionally, children's basic needs may go unmet because of financial resources being redirected to the substance-use problem. Substance use is associated with lower inhibitions [15], and parents, therefore, may react more harshly to their children than they would under normal circumstances. Parents who use substances are at greater risk for maltreating their children [16].

1.3. Neighborhood Context

While the direct family context impacts the likelihood that parents will maltreat, parents also interact with their direct neighborhoods and communities that may also play an important role. There are critical process factors within neighborhoods that relate to the relationships and interactions that residents have with each other. Social cohesion relates to the bonds and ties between neighbors and captures the social relationships they have with each other [17]. Informal social control relates to the willingness of neighbors to intervene in problematic social situations on behalf of the common good [17]. Parents who have trusting relationships with their neighbors and feel as though their neighbors are looking out for the best interests of their children may feel supported, and therefore less stressed. They also might be able to rely on their neighbors for favors such as emergency childcare or food assistance, which would impact their ability to meet their child's basic needs. Social cohesion and social control have been found to be protective against child maltreatment [18].

Families are also impacted by the violence occurring within their communities. Children who live in communities with high levels of violence may require higher levels of supervision compared to children in communities in which it is safe for them to play outdoors. Witnessing violence within the community may also contribute to higher levels of stress in parents, which may then translate into harsher parenting practices. Prior research has demonstrated a link between community violence and abusive parenting [19].

1.4. Developmental Considerations

This study is focused specifically on the relative importance of the family and neighborhood contexts in child maltreatment across key developmental periods in children—early childhood (age 3), young school age (age 5), and middle childhood (age 9). We focus on these developmental periods because children's ecological systems become larger over time. In early childhood, children are neither in school nor old enough to be left alone, and they are very reliant on their caregivers. Because parents may experience more difficulty traveling outside their neighborhoods to access goods and services, they may be more reliant on the networks within close proximity to their home. Once children enter school, parents may become more engaged outside of their direct neighborhoods due to their children's school and extracurricular activities. As such, the quality of their direct proximal neighborhood may have less of an impact on their parenting behaviors as their personal networks grow and have a larger influence. However, it is anticipated that neighborhoods still play a crucial role at this developmental stage, in which children tend to interact more often with other children within the neighborhood, increasing the contacts between parents and other residents, and children still require supervision and childcare. In middle childhood, the impact of neighborhood on child maltreatment is expected to continue to lessen as children grow and make more school friends and expand their own networks; parents may have less frequent interactions with their neighbors.

1.5. Current Study

The current study extends prior research examining factors of the family and neighborhood context related to child abuse by exploring the relative importance of these two contexts of children at key developmental stages. We specifically ask the following research questions: (1) What is the relative influence of the family and neighborhood context on child abuse at ages 3, 5, and 9? (2) What is the longitudinal relationship between the factors and child abuse across these three ages?

2. Methods

2.1. Data and Sample

The data for the current study is from the Fragile Families and Child Wellbeing Study (FFCWS). FFCWS is a longitudinal birth-cohort study of 4898 children from 20 urban U.S. cities and was deemed human subjects research by the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board (FWA 00004969) and approved on 7 October 2019. Parents were interviewed at the time of the child's birth and then again when the focal child was age 1, 3, 5, 9, and 15. The current study focused on the waves of data collection when children were ages 3, 5, and 9.

2.2. Measures

2.2.1. Key Dependent Variables

Child maltreatment was assessed using two subscales of the Conflict Tactics Scale—Parent–Child Version (CTS-PC; [20]): psychological aggression and physical assault. In the FFCWS, a shortened version of this scale was used, with questions representing severe physical abuse being removed (e.g., burning on purpose). The scales used included five questions each and were asked how many times in the past year a behavior happened. Responses were coded as "once", "twice", "3–5 times", "6–10 times", "11–20 times", "more than 20 times", "yes but not in the past year", and "this has never happened". An example

item from the psychological aggression subscale is: "Called him/her dumb or lazy or some other name like that." An example item from the physical assault subscale is: "Hit him/her on the bottom with something like a belt, hairbrush, a stick, or some other hard object." As recommended by the scale developers [20], we coded responses of "once" as 1, "twice" as 2, "3–5 times" as 4, "6–10 times" as 8, "11–20 times" as 15, "more than 20 times" as 25, and both "yes but not in the past year" and "this has never happened" as 0. We then summed across the two subscales at each of the three waves to get a total count of maltreatment events at that time point. Across waves, the interitem reliability for psychological aggression ranged from 0.52 to 0.62 and 0.61 to 0.70 for physical assault. Although these numbers are below the commonly accepted levels for Cronbach's alpha, it is common for maltreatment measures to have low interitem reliability due to caregivers choosing some abusive behaviors and not others.

2.2.2. Key Independent Variables—Family Context

To understand the importance of the family context on child maltreatment, we examined the characteristics of the parents and the relationships within the family. Economic hardship was measured using a battery of questions in which participants were asked whether they had experienced a variety of material hardships related to finances in the past year. At age 3, FFCWS included 10 questions of this nature, at age 5 there were 13, and at age 9 there were 10. An example question across all three waves is: "In the past 12 months, did you receive free food or meals because there wasn't enough money?". The three additional questions included at age 5 were: "Were the children ever hungry because you just couldn't afford more food?"; "Have you cut back on buying clothes for yourself because there wasn't enough money?"; and "Have you worked overtime or taken a second job because there wasn't enough money?". At each wave, we took the sum of the number of "Yes" responses for a total count of economic hardships. The interitem reliability for this scale ranged from 0.65 to 0.72 across all three waves.

Intimate partner violence was measured using a subset of questions from the revised Conflict Tactics Scale 2 [21]. Seven questions were asked of mothers about the biological father and their current partner. An example item is: "He hits you with a fist or an object that could hurt you." Response options included "never", "sometimes", or "often". We coded "never" as 0, "sometimes" as 1, and "often" as 2, and took the mean for the whole scale at each wave. The interitem reliability for this scale ranged from 0.60 to 0.67.

Maternal depression was assessed by the Composite International Diagnostic Interview [22]. Mothers who met diagnostic criteria for depression were assigned a 1, while those who did not were assigned a 0. This was measured at all three waves.

Maternal substance use was assessed at all three waves through questions regarding alcohol and illicit drug use. Regarding illicit drug use, if the mother reported any use of illicit drugs in the past 30 days, drug use was assigned a 1. For alcohol use, if the mother reported that drinking or being hungover had interfered with their work at school, a job, or home at least once in the past year, she was assigned a 1. Mothers that did not have illicit drug use or problematic alcohol use were assigned a 0.

2.2.3. Key Independent Variables—Neighborhood Context

To understand the neighborhood environment of the child, we examined collective efficacy, neighborhood poverty rate, and exposure to violence. Collective efficacy was measured using two subscales—social cohesion and informal social control [17]. Social cohesion is intended to measure the trust and bonds between neighbors and was measured on a Likert scale ranging from "Strongly disagree" to "Strongly agree". An example item from this subscale is: "People around here are willing to help their neighbors". At age 3, there were five items included, but beginning at age 5, FFCWS cut one question: "People in this neighborhood can be trusted". We reverse coded two items that were scaled in the opposite direction and scaled all variables such that a higher number represented a higher level of agreement with the items or more social cohesion. The interitem reliability for this

scale ranged from 0.76 to 0.81 across the three waves. Informal social control measures the willingness of neighbors to intervene in a variety of social problems occurring within the neighborhood. This subscale included five items at all three waves and was measured on a Likert scale ranging from "Very unlikely" to "Very likely". We scaled all variables such that a higher number represented a greater likelihood reported or a higher level of informal social control. An example item from this subscale is: "How likely would your neighbors be to intervene if children were skipping school and hanging out on a street corner?". The interitem reliability for this measure ranged from 0.87 to 0.88 across the three waves. For both of these measures, we took the mean of the entire subscale at each time point.

Exposure to violence was measured with a series of seven questions. Participants were asked how many times they had witnessed a variety of violent acts (e.g., "In the past year, about how many times did you see someone else get shot at by someone?"). The scale provided included the following options: "never", "once", "2–3 times", "4–10 times", and "more than 10 times". Participants were instructed to report on violence carried out by someone outside of their direct circle of family and friends and to not consider violence seen on television or movies. The items were assigned a 0 if they reported "never", a 1 if they reported "once", a 2 if they reported "2–3 times", a 3 if they reported "4–10 times", and a 4 if they reported "more than 10 times". At age 9, FFCWS dropped four of the seven exposure to violence questions: "In the past year, about how many times were you hit, slapped, punched, or beaten up by someone?"; "In the past year, about how many times were you attacked with a weapon by someone?"; "In the past year, about how many times were you shot at by someone?"; and "In the past year, about how many times did you see someone get killed because of violence by someone?". We took the mean of the available items at each wave. The interitem reliability for this scale ranged from 0.70 to 0.74 across the three waves.

2.2.4. Control Variables

We controlled for three variables that have been shown in prior research to be related to our independent and dependent variables: maternal age, marital status, maternal education, child sex, and child race. Maternal age was measured continuously in years. Marital status was assessed at each wave as a dichotomous indicator, representing whether the biological mother and father were married. Maternal education was included at each wave as a dichotomous variable indicating that the mother had a high school degree (or equivalent) or higher education. Child sex was measured dichotomously, with a 1 indicating that the child was male and 0 indicating that the child was female. Child race was measured with a series of dichotomous variables for White, Black, Hispanic, some other race, or multi-racial.

2.3. Data Analysis

Before performing the primary analyses, we performed a preliminary analysis to examine variable distributions, invalid data values, and influential outliers. Next, we conducted path analysis with time-varying covariates to examine the concurrent and lagged effects of the family and neighborhood context on child maltreatment at ages 3, 5, and 9. We estimated path analysis models where child maltreatment at ages 3, 5, and 9 were outcomes, family and neighborhood context factors at ages 3, 5, and 9 were focal predictors, and demographics at age 3 were control variables. We regressed outcome variables on time-varying predictors by specifying both concurrent paths and lagged paths. By estimating lagged paths, we were able to examine the extent to which the effects of the early context on child maltreatment outcomes persisted over time. The outcome variables were also regressed on time-invariant control variables (i.e., maternal age, father and mother married, child sex, and child race). The model fit was evaluated using fit indices, with the Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) ≥ 0.95, root mean square error of approximation (RMSEA) ≤ 0.06, and the Standardized Root Mean Square Residual (SRMR) ≤ 0.05, indicating a good fit [23,24]. Data preparation and descriptive analyses were completed using STATA v.15, and the path analysis was conducted using

Mplus v.8.6. Full information maximum likelihood (FIML) was used to handle missing data. FIML is considered less biased and more efficient than other methods (e.g., pairwise deletion, listwise deletion) to address missing data [25].

3. Results

3.1. Sample Characteristics

Table 1 summarizes the sample characteristics. A little over half of the children in the study were boys (52.2%). In terms of child race/ethnicity, 44.1% was Black/non-Hispanic, 16.0% White/non-Hispanic, 22.9% Hispanic, 2.0% multiracial, and 15.0% other race (American Indian, Asian, Native Hawaiian/ Pacific Islander). Mothers' ages ranged from 15 to 43 years (mean age = 25.28, SD = 6.04). About 20.1% of the mothers had less than high school education, and 32.1% were married to the child's biological father.

Table 1. Sample characteristics.

		%	M (SD)	Range
Child Characteristics				
	Sex (boys)	52.2%		
Race/Ethnicity				
	White; non-Hispanic	16.0%		
	Black; non-Hispanic	44.1%		
	Hispanic	22.9%		
	Multiracial	2.0%		
	Other	15.0%		
Maternal Characteristics				
	Age (in years)		25.28 (6.04)	15–43
	Educational level (high school or more)	72.1%		
	Married to the child's father	32.1%		
Economic Hardship			1.72 (2.78)	0–9

3.2. Family and Neighborhood Predictors of Physical Abuse and Psychological Abuse

The path model showed a good fit to the data: CFI = 0.995, TLI = 0.979, RMSEA = 0.013, 90% CI (0.008, 0.018), and SRMR = 0.008. At age 3, economic hardship ($\beta = 0.13$, $p < 0.001$), intimate partner violence ($\beta = 0.07$ $p = 0.008$), and exposure to community violence ($\beta = 0.06$, $p = 0.001$) were positively associated with physical abuse. At age 5, substance use ($\beta = 0.04$, $p = 0.031$) and exposure to community violence ($\beta = 0.06$, $p = 0.001$) were positively associated with physical abuse. At age 9, economic hardship ($\beta = 0.05$, $p = 0.006$) and substance use ($\beta = 0.04$, $p = 0.031$) were positively associated with physical abuse. In addition to the concurrent relationships at each age, several lagged effects were found. Economic hardship at age 3 was positively associated with physical abuse at age 5 ($\beta = 0.08$, $p < 0.001$) and age 9 ($\beta = 0.07$, $p = 0.002$). Additionally, exposure to community violence at age 3 was positively associated with physical abuse at age 9 ($\beta = 0.06$, $p = 0.007$). Family and neighborhood factors at age 5 did not have any lagged effects on physical abuse at age 9. Table 2 and Figure 1 summarize the concurrent and lagged effects of family and neighborhood contexts on child physical abuse.

In terms of child psychological abuse (see Table 3 and Figure 1), economic hardship ($\beta = 0.12$, $p < 0.001$), intimate partner violence ($\beta = 0.11$, $p < 0.001$), depression ($\beta = 0.05$, $p = 0.002$), substance use ($\beta = 0.04$, $p = 0.009$), and exposure to community violence ($\beta = 0.07$, $p < 0.001$) at age 3 were all significantly and positively associated with psychological abuse at age 3. Additionally, age three social control was negatively associated with age 3 psychological abuse ($\beta = -0.07$, $p = 0.001$). At age 5, substance use ($\beta = 0.05$, $p = 0.008$) and exposure to community violence ($\beta = 0.11$, $p < 0.001$) were positively associated with psychological abuse. At age 9, economic hardship ($\beta = 0.04$, $p = 0.036$), intimate partner violence ($\beta = 0.07$, $p = 0.043$), depression ($\beta = 0.05$, $p = 0.010$), and substance use ($\beta = 0.05$, $p = 0.005$) were positively associated with psychological abuse. In addition to

these concurrent associations, several lagged effects of family and neighborhood contexts on psychological abuse were revealed. Economic hardship and intimate partner violence at age 3 were positively associated with psychological abuse at age 5 (economic hardship β = 0.12, $p < 0.001$; intimate partner violence: β = 0.09, $p = 0.008$) and age 9 (economic hardship β = 0.06, $p = 0.005$; intimate partner violence: β = 0.10, $p = 0.001$). Further, substance use at age 3 was positively associated with psychological abuse at age 5 (β = 0.04, $p = 0.028$) and substance use at age 5 was positively associated with psychological abuse at age 9 (β = 0.05, $p = 0.006$).

Table 2. Time-varying predictors of physical abuse.

		Age 3 Physical Abuse			Age 5 Physical Abuse			Age 9 Physical Abuse		
		B	**SE**	***p***	**B**	**SE**	***p***	**B**	**SE**	***p***
Age 3										
	Economic hardship	**0.13**	**0.02**	**<0.001**	**0.08**	**0.02**	**<0.001**	**0.07**	**0.02**	**0.002**
	Intimate partner violence	**0.07**	**0.03**	**0.008**	0.06	0.03	0.063	−0.01	0.03	0.863
	Depression	0.03	0.02	0.051	0.03	0.02	0.194	0.01	0.02	0.875
	Substance use	0.03	0.02	0.119	0.01	0.02	0.700	0.01	0.02	0.650
	Social cohesion	−0.03	0.02	0.080	0.01	0.02	0.823	−0.01	0.02	0.675
	Social control	−0.02	0.02	0.231	−0.04	0.02	0.102	−0.01	0.02	0.506
	Community violence	**0.06**	**0.02**	**0.001**	0.01	0.02	0.560	**0.06**	**0.02**	**0.007**
Age 5										
	Economic hardship	–	–	–	0.03	0.02	0.156	−0.01	0.02	0.545
	Intimate partner violence	–	–	–	−0.02	0.03	0.601	0.01	0.04	0.745
	Depression	–	–	–	−0.03	0.02	0.148	0.03	0.02	0.090
	Substance use	–	–	–	**0.04**	**0.02**	**0.031**	0.03	0.02	0.165
	Social cohesion	–	–	–	−0.04	0.02	0.064	−0.02	0.02	0.394
	Social control	–	–	–	−0.03	0.02	0.205	−0.02	0.02	0.390
	Community violence	–	–	–	**0.06**	**0.02**	**0.001**	0.01	0.02	0.578
Age 9										
	Economic hardship	–	–	–	–	–	–	**0.05**	**0.02**	**0.006**
	Intimate partner violence	–	–	–	–	–	–	0.02	0.04	0.524
	Depression	–	–	–	–	–	–	0.02	0.02	0.375
	Substance use	–	–	–	–	–	–	**0.04**	**0.02**	**0.031**
	Social cohesion	–	–	–	–	–	–	−0.04	0.02	0.062
	Social control	–	–	–	–	–	–	0.03	0.02	0.135
	Community violence	–	–	–	–	–	–	0.02	0.02	0.277

Notes: Standardized parameter estimates are presented. Bolded numbers indicate statistically significant findings.

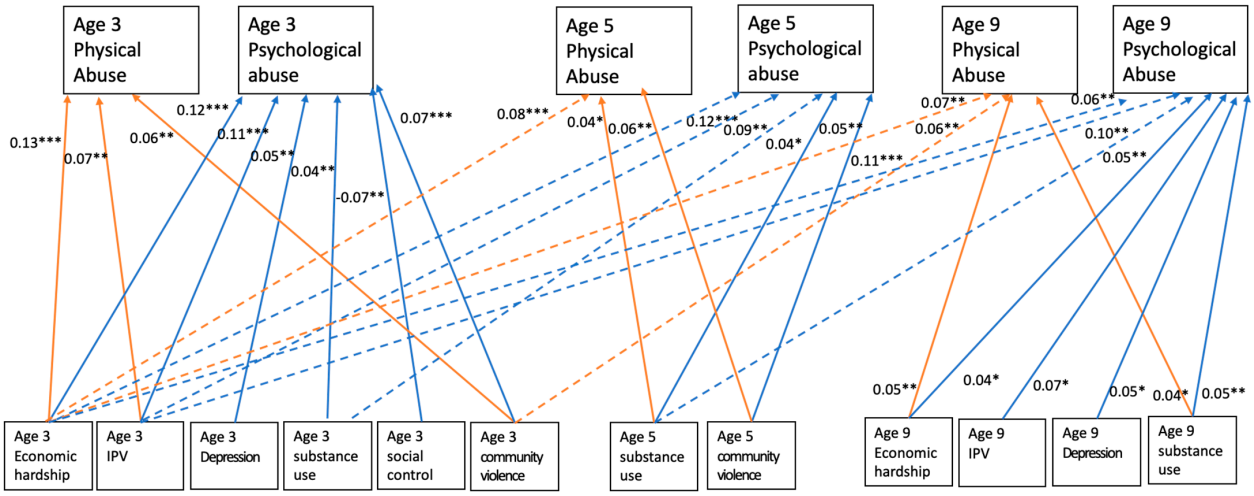

Figure 1. Predictors of physical abuse and psychological abuse at ages 3, 5, and 9. Note: Solid lines indicate concurrent associations and dashed lines indicate lagged effects. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. IPV = intimate partner violence.

Table 3. Time-varying predictors of psychological abuse.

		Age 3 Psychological Abuse			Age 5 Psychological Abuse			Age 9 Psychological Abuse		
		B	**SE**	***p***	**B**	**SE**	***p***	**B**	**SE**	***p***
Age 3										
	Economic hardship	**0.12**	**0.02**	**<0.001**	**0.12**	**0.02**	**<0.001**	**0.06**	**0.02**	**0.005**
	Intimate partner violence	**0.11**	**0.03**	**<0.001**	**0.09**	**0.03**	**0.008**	**0.10**	**0.03**	**0.001**
	Depression	**0.05**	**0.02**	**0.002**	0.04	0.02	0.066	0.02	0.02	0.224
	Substance use	**0.04**	**0.02**	**0.009**	**0.04**	**0.02**	**0.028**	0.03	0.02	0.070
	Social cohesion	0.01	0.02	0.495	−0.01	0.02	0.508	−0.03	0.02	0.145
	Social control	**−0.07**	**0.02**	**0.001**	−0.03	0.02	0.137	−0.02	0.02	0.302
	Community violence	**0.07**	**0.02**	**<0.001**	0.01	0.02	0.619	0.01	0.02	0.679
Age 5										
	Economic hardship	–	–	–	0.02	0.02	0.427	−0.01	0.02	0.581
	Intimate partner violence	–	–	–	−0.03	0.03	0.342	−0.02	0.04	0.615
	Depression	–	–	–	0.03	0.02	0.148	0.03	0.02	0.088
	Substance use	–	–	–	**0.05**	**0.02**	**0.008**	**0.05**	**0.02**	**0.006**
	Social cohesion	–	–	–	0.02	0.02	0.321	0.02	0.02	0.308
	Social control	–	–	–	−0.03	0.02	0.111	−0.03	0.02	0.168
		–	–	–	**0.11**	**0.02**	**<0.001**	0.02	0.02	0.238
Age 9	Community violence									
	Economic hardship	–	–	–	–	–	–	**0.04**	**0.02**	**0.036**
	Intimate partner violence	–	–	–	–	–	–	**0.07**	**0.03**	**0.043**
	Depression	–	–	–	–	–	–	**0.05**	**0.02**	**0.010**
	Substance use	–	–	–	–	–	–	**0.05**	**0.02**	**0.005**
	Social cohesion	–	–	–	–	–	–	−0.01	0.02	0.518
	Social control	–	–	–	–	–	–	0.01	0.02	0.861
	Community violence	–	–	–	–	–	–	0.01	0.02	0.603

Notes: Standardized parameter estimates are presented. Bolded numbers indicate statistically significant findings.

4. Discussion

The current study sought to understand the importance of family and neighborhood factors on child abuse risk at three stages of child development—early childhood, young school age, and middle childhood. Three family context variables had significant impacts on physical and psychological abuse, regardless of child developmental stage, economic hardship, maternal substance use, and IPV.

Early experiences of economic hardship were especially salient for the risk of physical and psychological abuse. Economic hardship reported when the focal child was age 3 was related to higher reported physical and psychological abuse at ages 3, 5, and 9, demonstrating both an immediate and lasting impact of early hardship on both types of maltreatment. The within-time finding coincides with prior research demonstrating a link between poverty and child maltreatment risk [6].

Parental substance use was also found to be critically important for child maltreatment risk. Maternal substance use at child age 3 was associated with increased risk for psychological abuse at ages 3 and 5, while substance use at child age 5 was associated with increased risk for both physical and psychological abuse at age 5 and psychological abuse at age 9, and substance use at child age 9 was associated with increased risk for both physical and psychological abuse at age 9. These findings fit with a large body of research finding an association between substance use and child maltreatment [16,26]. The longitudinal relationship between maternal substance use and abuse risk may be due to damages to the brain from long-term use of drug and alcohol [27,28] or due to decreased inhibitions during periods of use [15].

IPV was the final family-level factor that was found to have longitudinal impacts on child abuse risk. Within early childhood, it is related to increased risk for both physical and psychological abuse. IPV experienced at child age 3 is also associated with an increased risk of psychological abuse at ages 5 and 9, demonstrating the lasting impacts that violence

between partners can have on parenting. These findings are consistent with work from Zolotor and colleagues [12], which found that rates of physical and psychological abuse were much higher in homes where IPV was present.

Maternal depression was found to have differential impacts based on the developmental stage of the child. Specifically, while we did not find significant associations between maternal depression and abuse at ages 3 or 5, we found a cross-sectional relationship between maternal depression and psychological abuse at child age 9. Our result is similar to another past study with a national sample of 2386 children that also identified the link between maternal depression and psychological abuse, but not physical abuse [14]. Despite mothers experiencing depression, children may be buffered against child maltreatment by mothers receiving social support from other family members [29]. On the other hand, having more children in the family increased the risk of child maltreatment [16]. Many children in FFCWS may have received nurturing from their grandparents in early childhood [30] that shielded against maternal depression perpetrating psychological abuse. Nonetheless, as time goes on, mothers may have lost social support, such as losing relationships with paternal grandparents due to relationship instability between biological mothers and fathers of children [30]. Furthermore, a potential increased number of siblings as the child grows up may inflict stress on mothers experiencing depression, which may have perpetuated psychological abuse against their children.

In terms of neighborhood context, we found evidence of impact on child abuse. At the study outset, we had hypothesized that neighborhood variables may have more of an impact when children were younger compared to older ages, specifically that the context would matter most when children were in early childhood (age 3), and then matter progressively less as children went on to ages 5 and 9. We had mixed evidence to support this hypothesis. Informal social control was in line with our hypothesis; specifically, we found that informal social control was protective against psychological abuse at child age 3, but did not find similarly protective effects at ages 5 or 9. We did not find social cohesion to be significantly related to physical or psychological abuse at any of the three time points. Although prior research has found a linkage with social cohesion and child maltreatment, it may be more directly related to child neglect than child abuse [31].

On the other hand, exposure to community violence was found to be especially salient at all three time points. Specifically, age 3 community violence was related to higher levels of both physical and psychological abuse at age 3 and more physical abuse at age 9. At age 5, only the within-time relationship was significant—age 5 exposure to community violence was related to higher levels of both physical and psychological abuse. The findings surrounding community violence provide support against our original hypothesis that community factors would matter less as children grow older. Community violence seems to be an especially important community context factor to consider in understanding how neighborhood conditions relate to parenting behaviors. It is possible that while parents may rely less on their neighbors for support as their children grow older, concerns about safety within the direct environment surrounding the home still come into play in significant ways in parenting choices and behaviors. Perhaps parents of children in violent communities use harsher forms of physical discipline to protect them from becoming victims of the violence within their neighborhood, and this phenomenon is not unique to specific developmental stages.

4.1. Limitations

This study has several limitations that must be considered. First, we relied upon secondary data that were collected from urban cities in the United States. The extent to which the findings extend to suburban and rural contexts is unknown. Second, all variables included were self-reported. Many of the constructs we sought to examine were sensitive in nature (e.g., child maltreatment, substance use), and therefore responses are subject to social desirability bias. Third, the data included an oversample of unmarried mothers by design. As such, the sample is very racially diverse and relatively lower income than

the general population. Findings may not extend to other groups. Fourth, we focused on family and neighborhood factors as focal predictor of child abuse, yet other factors, such as biological and genetic factors, school and peer relationships, and cultural context, likely contribute to child maltreatment across different developmental stages of children. Future research may benefit from examining the extent to which these various factors across multiple levels of the social ecology influence abuse risk and child development. Finally, we focused only on child ages 3, 5, and 9 due to lack of reliable maltreatment data at child age 15 within the dataset.

4.2. Implications

This study offers several important implications for policy and practice. The lasting impact of early experiences of economic hardship suggests that anti-poverty policies and concrete supports to parents, especially those of young children, are crucial for child maltreatment prevention strategies. Further, given both the cross-sectional and longitudinal relationships between substance use and child abuse, child maltreatment prevention programs should screen for substance-use problems and assist families in reducing these conditions. The concurrent and lasting effects of maternal IPV on child abuse risk suggest that providing resources to IPV survivors to help them escape violent situations and holding abusers accountable are critical strategies to preventing child maltreatment from early to middle childhood. Finally, given that exposure to community violence was a salient risk factor for child abuse regardless of the developmental stage of the child, reducing exposure to crime within neighborhoods to make parents feel safer is likely to have a significant impact on reducing child abuse.

5. Conclusions

Overall, this study suggests that early intervention is key for preventing child maltreatment across the developmental stages of children. We found significant impacts of both family and neighborhood factors that lasted from early childhood into middle childhood. Future research studies should examine the specific mediators and moderators of these factors, to understand the pathways through which these factors relate to child maltreatment across developmental stages and the potential buffers of the risk factors and promoters of the risk factors.

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References

1. Stith, S.M.; Liu, T.; Davies, L.C.; Boykin, E.L.; Alder, M.C.; Harris, J.M.; Som, A.; McPherson, M.; Dees, J.E.M.E.G. Risk factors in child maltreatment: A meta-analytic review of the literature. *Aggress. Violent Behav.* **2009**, *14*, 13–29. [CrossRef]
2. Belsky, J. Child maltreatment: An ecological integration. *Am. Psychol.* **1980**, *35*, 320–335. [CrossRef] [PubMed]

3. Bronfenbrenner, U. The ecology of human development: History and perspectives. *Psychol. Wychowawcza* **1976**, *19*, 537–549.
4. Cicchetti, D. Socioemotional, personality, and biological development: Illustrations from a multilevel developmental psychopathology perspective on child maltreatment. *Annu. Rev. Psychol.* **2016**, *67*, 187–211. [CrossRef] [PubMed]
5. Sroufe, L.A.; Rutter, M. The Domain of Developmental Psychopathology. *Child Dev.* **1984**, *55*, 17–29. [CrossRef]
6. Drake, B.; Jonson-Reid, M. Poverty and child maltreatment. In *Handbook of Child Maltreatment*; Korbin, J., Krugman, R., Eds.; Springer: Berlin/Heidelberg, Germany, 2013; Volume 2, pp. 131–148.
7. Berger, L.M. Income, family structure, and child maltreatment risk. *Child. Youth Serv. Rev.* **2004**, *26*, 725–748. [CrossRef]
8. Conger, R.; Wallace, E.L.; Sun, Y.; Simons, R.; McLoyd, V.; Brody, G. Economic pressure in African American families. *Dev. Psychol.* **2002**, *38*, 179–193. [CrossRef]
9. Conger, R.D.; Ge, X.; Elder, G.H.; Lorenz, F.O.; Simons, R.L. Economic Stress, Coercive Family Process, and Developmental Problems of Adolescents. *Child Dev.* **1994**, *65*, 541–561. [CrossRef]
10. Conger, R.; Elder, G. *Families in Troubled Times: Adapting to Change in Rural America*; De Gruyter: Berlin, Germany, 1998.
11. Pu, D.F.; Rodriguez, C.M. Spillover and Crossover Effects: Mothers' and Fathers' Intimate Partner Violence, Parent-Child Aggression Risk, and Child Behavior Problems. *Child Maltreatment* **2021**, *26*, 420–430. [CrossRef]
12. Zolotor, A.J.; Theodore, A.D.; Coyne-Beasley, T.; Runyan, D.K. Intimate Partner Violence and Child Maltreatment: Overlapping Risk. *Brief Treat. Crisis Interv.* **2007**, *7*, 305. [CrossRef]
13. Shaw, Z.A.; Starr, L.R. Intergenerational Transmission of Emotion Dysregulation: The Role of Authoritarian Parenting Style and Family Chronic Stress. *J. Child Fam. Stud.* **2019**, *28*, 3508–3518. [CrossRef]
14. Coron, K.J.; Beardslee, W.; Koenen, K.C.; Buka, S.L.; Gortmaker, S.L. A Longitudinal Study of Maternal Depression and Child Maltreatment in a National Sample of Families Investigated by Child Protective Services. *Arch. Pediatrics Adolesc. Med.* **2009**, *163*, 922–930. [CrossRef] [PubMed]
15. Smith, J.L.; Mattick, R.P.; Jamadar, S.D.; Iredale, J.M. Deficits in behavioural inhibition in substance abuse and addiction: A meta-analysis. *Drug Alcohol Depend.* **2014**, *145*, 1–33. [CrossRef] [PubMed]
16. Dubowitz, H.; Kim, J.; Black, M.M.; Weisbart, C.; Semiatin, J.; Magder, L.S. Identifying children at high risk for a child maltreatment report. *Child Abus. Negl.* **2011**, *35*, 96–104. [CrossRef]
17. Sampson, R.J.; Raudenbush, S.W.; Earls, F. Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy. *Science* **1997**, *277*, 918–924. [CrossRef]
18. Maguire-Jack, K.; Yoon, S.; Hong, S. Social Cohesion and Informal Social Control as Mediators Between Neighborhood Poverty and Child Maltreatment. *Child Maltreatment*, 2021; *online first*. [CrossRef]
19. Chen, W.-Y.; Lee, Y. The impact of community violence, personal victimization, and paternal support on maternal harsh parenting. *J. Community Psychol.* **2017**, *45*, 380–395. [CrossRef]
20. Straus, M.A.; Hamby, S.L.; Finkelhor, D.; Moore, D.W.; Runyan, D. Identification of Child Maltreatment With the Parent-Child Conflict Tactics Scales: Development and Psychometric Data for a National Sample of American Parents. *Child Abus. Negl.* **1998**, *22*, 249–270. [CrossRef]
21. Straus, M.A.; Hamby, S.L.; Boney-McCoy, S.; Sugarman, D.B. The revised conflict tactics scales (CTS2) development and preliminary psychometric data. *J. Fam. Issues* **1996**, *17*, 283–316. [CrossRef]
22. Andrews, G.; Peters, L. The psychometric properties of the Composite International Diagnostic Interview. *Soc. Psychiatry Psychiatr. Epidemiol.* **1998**, *33*, 80–88. [CrossRef]
23. Hu, L.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model. Multidiscip. J.* **1996**, *6*, 1–55. [CrossRef]
24. Kline, R.B. *Principles and Practice of Structural Equation Modeling*; Guilford Publications: New York, NY, USA, 2015.
25. Enders, C.K.; Bandalos, D.L. The Relative Performance of Full Information Maximum Likelihood Estimation for Missing Data in Structural Equation Models. *Struct. Equ. Modeling* **2001**, *8*, 430–457. [CrossRef]
26. Kepple, N.J. Does parental substance use always engender risk for children? Comparing incidence rate ratios of abusive and neglectful behaviors across substance use behavior patterns. *Child Abus. Negl.* **2018**, *76*, 44–55. [CrossRef] [PubMed]
27. Learn.Genetics Genetics Science Learning Center. Available online: https://learn.genetics.utah.edu/content/addiction/brainchange/ (accessed on 7 December 2021).
28. National Institute of Alcohol Abuse and Alcoholism. Available online: https://pubs.niaaa.nih.gov/publications/aa63/aa63.htm (accessed on 7 December 2021).
29. Martin, A.; Gardner, M.; Brooks-Gunn, J. The mediated and moderated effects of family support on child maltreatment. *J. Fam. Issues* **2012**, *33*, 920–941. [CrossRef] [PubMed]
30. Högnäs, R.S.; Carlson, M.J. Intergenerational relationships and union stability in fragile families. *J. Marriage Fam.* **2010**, *72*, 1220–1233. [CrossRef] [PubMed]
31. Maguire-Jack, K.; Showalter, K. The protective effect of neighborhood social cohesion in child abuse and neglect. *Child Abus. Negl.* **2016**, *52*, 29–37. [CrossRef]

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The Influence of Parent Media Use, Parent Attitude on Media, and Parenting Style on Children's Media Use

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Abstract: Parents play a vital role in mediating children's media use, especially at a young age. We examined the link between the media use of younger children and the media use, attitude toward media, and parenting styles of parents. One thousand and twenty parents of children between 4 and 6 years of age completed a questionnaire on their media use, positive and negative attitudes on media, parenting styles, and the media use of their children. Multigroup structural equation modeling was used to analyze the data. The results showed that there was a significant positive relation between the parent's media time and the child's daytime and nighttime media use. Additionally, the parent's positive attitude toward media use was positively related to the child's daytime media use, but not the child's nighttime media use, while the parent's negative attitude toward media was not associated with the child's daytime and nighttime media use. Further, among the seven parenting styles, material rewards and autonomy were positively associated with the child's daytime media use. Discipline was negatively related to the child's nighttime media use, whereas material rewards were positively associated with the child's nighttime media use. Collectively, the parent's positive attitude toward media use was the strongest predictor of the child's daytime media use, and material rewards were the strongest predictor of the child's nighttime media use. These results can be of significant use to inform policymakers, researchers, and parents regarding the development of parental guidelines on children's media use.

Keywords: children media use; parenting style; parent attitude; parent media use

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1. Introduction

Children spend a considerable amount of time consuming media, and this pattern of behavior starts at a young age. Studies have shown that children's media use is associated with childhood development in areas including physical fitness, psychological well-being, social behavior, and behavioral difficulties [1–6]. Parents play a critical role in determining children's media use since parents spend a sizable portion of time with their children and establish the climate within the household associated with children's media exposure. Specifically, the parent's media use, attitudes on media, and parenting styles have been suggested as determinants of children's media use. Studies have shown that parents with higher screen times also had children with higher screen times [7,8]. The parent's attitudes and beliefs toward their child's media use were strong predictors of the amount of time their child spent with screen media [9]. Further, parents with permissive and neglectful parenting styles are likely to allow their children to spend more time on media while parents with authoritarian and authoritative parenting styles are less likely to do so [10–12]. Nevertheless, it is unclear which determinant is most strongly associated with children's media use. Given the significant role of the parents in shaping the child's media use, identifying the most important parental determinant is vital. The current study aims to

examine which parental determinants are associated with young children's media use and parents' media use, attitudes on media, and parenting styles.

1.1. Children Media Use

Children are increasingly growing up in homes with screen media technologies and are often active users of them. Many children consume more screen media than is recommended by the American Academy of Pediatrics [13] across different devices, such as television, computers, and mobile devices [14]. This phenomenon suggests increased media use among children at a younger age. In fact, in the United States, 70% of children younger than 1 year and 91% of children between 2 and 3 years engage in media use several times per week, despite the recommendation by the American Academy of Pediatrics that children under the age of 2 should spend no time with screen media [14]. Typical 8- to 10-year-old children watch an average of 3 h and 41 min of television and spend over 1 h playing video games daily [15]. In South Korea, children ages 3 through 9 years consume media for 4 h and 45 min each day, which is four times more than what is recommended by the World Health Organization [16]. On average, television, smartphones, tablets, and computers are most frequently used, and the age children begin to use smart devices is decreasing [7]. A cross-sectional study with 350 children ages 6 months through 4 years in the United States showed that 50% of the children had their own television by the age of 4, and 75% had their own mobile device by the age of 4 [17]. Children aged 3 and 4 years used mobile media devices without assistance, and content delivery applications, such as YouTube and Netflix, were popular [16,17].

1.2. Strengths and Difficulties of Young Children

Children's media use has implications for strengths and difficulties in childhood development. Several cross-sectional [6] and longitudinal studies [2,5,18] showed positive associations between screen time and behavioral difficulties. Increased media use of children was associated with a decreased level of prosocial behavior [4,6]; however, the level of parent–child interactions mediated the association between children's media use and level of prosocial behavior [6].

Past studies have shown that children's screen media use relates to their strengths and difficulties as early as the preschool years [5]. Generally, increased use of media at a younger age was linked to reduced physical fitness and psycho-social health [3]. Cross-sectional studies demonstrated that children experiencing excessive screen time also experienced positive associations with poor psychological well-being and behavioral difficulties during preschool [1,6,19]. A longitudinal study with children between 2 and 6 years of age revealed that while the results varied for boys and girls, there was an association between increased media use and poorer well-being outcomes [20]. Another longitudinal study conducted in the Netherlands showed that high television exposure enhanced the risk of preschool children's behavioral problems [18]. Further, a longitudinal study conducted in South Korea highlighted a positive association between time spent on gaming and voice calls using mobile phones and the risk of developing symptoms of attention deficit disorders [2]. Another study from South Korea, which surveyed mothers and teachers of children who were between the ages of 5 and 6 years demonstrated that increased use of smart devices in children was associated with increased levels of aggression [21]. Collectively, these studies suggested potential adverse effects of excessive media use at a young age. To date, researchers have proposed that underlying mechanisms for these effects include overstimulation of the developing brain and distraction from social and physical activities [22].

1.3. Parent's Media Use and Social Learning Theory

The time that children spend using screen media can be explained using the social learning theory [23]. This theory explains that learning and behaviors result from observing one's environment. Young children observe their parents, siblings, and surrounding envi-

ronments and learn from observing the daily routines, interactions and situational response of those people. This includes interactions with screen media within the environment of their household. In this space, parents model media use, and children have a higher chance of mimicking the media use of their parents as a result. For example, a national survey noted that anecdotally, many parents noticed their children mimicking their parents or older siblings by playing with game controllers [14]. Although the survey noted that the children could not use them properly, it supported the theory that children learn to use technologies from observing their environments. Past studies also support the idea of social learning theory by explaining children's media use in terms of the parent's media use. Studies have shown that screen time is higher for children with mothers who reported high screen times [7,8]. The researchers suggested that children might use the media use of their mothers as models for their own media use [8]. Thus, we hypothesize:

H1: *A parent's screen time will be positively related to a child's media use.*

1.4. Parent Attitude and Media

One of the key contributors to a child's screen time is their parent's attitude toward media. Past studies have shown that parent attitudes are critical in determining children's screen time [9,24] along with parent time spent on media technologies and the child's age [24]. In the United States, parents expressed mixed attitudes toward media. A national study concerning media use of children 6 months to 6 years old consisted of a survey focusing primarily on the role of electronic screen media in children's lives, including television, videos or DVSs, computers, and video games [14]. Many parents indicated that they encourage their children to spend time with media because they believe that it is beneficial for the children and convenient for the parents, especially when there is a need to keep their children occupied while they finish chores. From an educational standpoint, a similar proportion of parents believed that TV had both positive (38%) and negative effects (31%) on children's learning, while the majority of the parents expressed that computers helped with learning (70%) and video games hurt learning (49%) [14].

In general, parents who perceive the effects of media positively have children who more often consume media technology. For preschool-aged children, parent attitudes and beliefs regarding children's media use were strong predictors of the amount of time their children spent with screen media [9]. Similarly, for younger (0–2 years) and older (5–6 years) children, positive parent attitudes toward media were significant predictors of whether their children watched more TV than recommended by the American Academy of Pediatrics [25,26]. Parent attitudes were strongly associated with the use of TV and computers, but less so for mobile devices, such as tablets and smartphones [24]. Overall technology use changed with age, and parent attitudes differentially related to children's amount of time spent with media for different age groups of children aged between 0 and 8 years old [24]. Parents shape the rules within a household that directly affect the media consumption of younger children. If parents have a positive attitude toward media, they are more likely to have rules that allow media use to foster a positive home environment. If the parents are negative toward media, they are more likely to impose rules that restrict media use. Thus, more positive parent attitudes toward media would likely increase the media consumption of the parents as well as that of their children. We hypothesize:

H2: *Parents with positive attitudes toward media will have a child with higher levels of media use.*

H3: *Parents with negative attitudes toward media will have a child with lower levels of media use.*

1.5. Parenting Styles and Media Use

Another factor associated with children's media use is parenting style. Some researchers have studied parental mediation strategies or practices, which are specific sets of behaviors, while other researchers have studied the overarching parenting dimensions or general context that create the climate for specific parenting practices [27]. Baumrind [28] classified parenting styles into three large categories—authoritarian, authoritative, and

permissive—in her classical study, which was later expanded into four different parenting styles based upon levels of demandingness and responsiveness [29]. These four styles include authoritative, authoritarian, indulgent, and neglectful. Authoritative parents are highly demanding and responsive; authoritarian parents are highly demanding but are not responsive; permissive parents are not demanding but highly responsive; and neglectful parents are neither demanding nor responsive [29]. Researchers continued to study the association between parenting styles and child development [28,30,31]. The findings showed that children with authoritative parents had the most favorable developmental outcome, and children with authoritarian and permissive parents were more associated with negative outcomes. Children of neglectful parents had the poorest outcome in terms of psychological competence and academic achievement [31–33], psychological outcomes and delinquent behaviors [33,34] and self-efficacy [35].

Different parenting styles can help explain how parents mediate their children's media use. Parents who exercise lower levels of control over their children (e.g., permissive and neglectful parenting style) are more likely to allow high levels of screen exposure for children between 10 and 11 years of age [10,11]. These parents are more likely to exercise positive parenting and give autonomy to their children. On the other hand, parents who exercise higher levels of control while being supportive (e.g., authoritarian and authoritative parenting styles) are more likely to employ active and restrictive mediation [10,12]. These parents are more likely to utilize monitoring, rules, discipline, harsh punishment, and material rewarding. In terms of children's media use, children with permissive and neglectful parents are more likely have higher levels of media use, whereas children with authoritarian and authoritative parents would more likely have lower levels of media use.

Additionally, in a study with Dutch parents with young children, it was shown that the parent attitudes regarding the effects of media on children are critical predictors of the parents' mediation strategies [36]. Parents who believed in the positive influence of media more likely applied supervision, co-use, and active mediation, while parents who were concerned about negative effects were more likely to supervise, restrict, and use technical restrictions on children's media consumption [36]. In terms of the parenting style, the former parents are more permissive while the latter are more authoritarian. Further, when parents perceived media as a pacifier for the child, they used more restrictive mediations. Parents who believed media to be complicated for their child supervised their child less often, co-used media with their child, and employed technical restrictions more often [36–38]. These findings suggest that categorically, parents have a broad perspective regarding the role of media for children, which extends beyond the risk–benefit paradigm [36]. This means that parents not only consider the positive and negative effects of media consumption, but also take the complexity and practical use into account to balance their children's media use. To better understand the dynamic between parenting style and children's media use, we hypothesize:

H4: *Children who have parents with permissive and neglectful parenting styles (i.e., exercise positive parenting and give autonomy to children) will have higher levels of media use.*

H5: *Children who have parents with authoritative and authoritarian parenting styles (i.e., monitoring, rules, discipline, harsh punishment, and material rewarding) will have lower levels of media use.*

Given the clear implications of parent media use, parent attitude, and parenting style in the context of children's media use, as well as children's strengths and difficulties, the authors of the current study aim to answer the following research question:

RQ1: What factors are the most influential ones among parent's media use, attitudes on media and parenting styles?

2. Materials and Methods

2.1. Participants

One thousand and twenty parents of children aged between 4 and 6 years completed a questionnaire between 31 March 2021 and 8 April 2021 through an online survey run by a Korean survey company, MicroEmbrain, which recruited participants from its national panel pool. When the data were collected during the COVID-19 pandemic, kindergartens and preschools were open. Three hundred and forty parents answered the survey for each age group. Fifty percent of the participants were mothers and the other 50% were fathers. Their child's sex also comprised 50% boys and 50% girls. Finally, 50% of the participants were from double-income families and the other 50% were from single-income families. Sixty-five percent of respondents earned USD 30,000 and more annual household income, and 60.6% held a bachelor's degree or higher.

2.2. Instrument and Measures

The questionnaire was initially constructed in English and then translated into Korean. The equivalence in the process of translation and back-translation was checked by researchers who were fluent in both languages. Along with the main variables, media use (i.e., time spent watching media content using TV, personal device, and smartphone) and demographic information of the children as well as that of the parents was measured. Table 1 shows the reliabilities and descriptive statistics of the variables and correlations among the variables. All the composite variables were computed once their unidimensionality and acceptable reliability were confirmed. Variables were measured with 5-point Likert scales (1 = "strongly disagree" to 5 = "strongly agree") unless other response formats were listed. All the composite variables were averaged, so the possible range was from 1 to 5.

2.2.1. Children's Age at First Media Use

Parents were asked to give their child's age at first media consumption via one item: "How old was your child when he/she first started to watch media content?" The response options were "less than 12 months", "1-year" "2-year" "3-year" "4-year", "5-year", "6-year" and "7-year".

2.2.2. Child's Locus of Control Regarding Media Use

The child's locus of control regarding media use was measured using the modified 5 items from Kendall and Wilcox [39]. An example item is, "My child only watches media content that is scheduled in advance".

2.2.3. Parents' Media Time

Each participant was asked to provide the amount of time they spend watching media as well as that of their spouse. The following two questions were used: "How many hours and minutes do you spend watching media on a typical weekday?" and "How many hours and minutes do you spend watching media on a typical weekend?" These were averaged and computed in minutes.

2.2.4. Parents' Positive and Negative Attitudes on Media Use

Parents' degrees of positivity and negativity toward media use were measured based on Elias and Sulkin [40], and Nikken and Jansz [41]. Nine items were asked to measure the positivity of attitudes (e.g., "I think watching media will positively influence my child's behavioral development"). The negativity of attitudes was measured with two dimensions: intellectual and social. Four items were asked for each dimension. Specifically, "I think watching media will hurt my child's creativity" for the intellectual dimension, and "I believe watching media will negatively affect my child's play with friends" for the social dimension.

Table 1. Reliabilities, correlations, means, and standard deviations of the main variables.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.	Child's age at first use	-															
2.	Child's locus of control	0.12 **	(0.76)														
3.	Mother's media time	0.03	−0.06 *	-													
4.	Father's media time	0.03	−0.12 **	0.58 *	-												
5.	Positive attitude on media use	0.10 **	0.29 **	0.11 **	0.08 *	(0.89)											
6.	Negative attitude on media use -intellectual	−0.03	−0.05	−0.04	−0.02	−0.22 **	(0.84)										
7.	Negative attitude on media use -social	0.01	−0.13 **	−0.02	0.04	−0.15 **	0.61 **	(0.84)									
8.	Positive parenting	−0.07 *	0.22 **	−0.06 *	−0.09 **	0.13 **	−0.14 **	−0.16 **	(0.92)								
9.	Monitoring	0.02	0.18 **	−0.09 **	−0.06	0.09 **	−0.06	−0.02	0.48 **	(0.74)							
10.	Rules	−0.09 **	0.06	−0.05	−0.07 *	0.03	−0.09 **	−0.05	0.57 **	0.46 **	(0.92)						
11.	Discipline	−0.04	0.04	0.03	0.07 *	0.11 **	0.08 *	0.17 **	0.00	0.12 **	0.19 **	(0.77)					
12.	Harsh punishment	0.07 *	0.00	0.08 **	0.11 **	0.08 **	0.20 **	0.22 **	−0.40 **	−0.12 **	−0.25 **	0.32 **	(0.90)				
13.	Material rewarding	−0.02	0.09 **	0.01	0.03	0.24 **	0.11 **	0.20 **	−0.10 **	−0.03	−0.09 **	0.20 **	0.25 **	(0.71)			
14.	Autonomy	0.00	0.21 **	−0.06 *	−0.06 *	0.12 **	−0.11 **	−0.12 **	0.42 **	0.28 **	0.42 **	0.08 *	−0.19 **	0.04	(0.82)		
15.	Child's daytime media use	−0.11 **	−0.22 **	0.32 **	0.27 **	0.06 *	0.06	0.10 **	−0.08 **	−0.10 **	−0.03	0.03	0.10 **	0.13 **	−0.01	-	
16.	Child's nighttime media use	−0.04	−0.13 **	0.15 **	0.16 **	0.03	0.04	0.05	−0.05	−0.04	−0.03	−0.03	0.06 *	0.10 **	−0.04	0.08 *	-
	Mean	2.89	3.06	127	128	3.06	2.89	2.83	4.08	3.81	4.28	3.37	1.81	2.80	3.82	2.41	0.18
	Standard deviation	1.14	0.65	94.55	87.35	0.65	0.73	0.78	0.50	0.66	0.53	0.69	0.84	0.78	0.54	1.53	0.43
	Range	1–7	1–5	0–630	0–630	1–5	1–5	1–5	2.18–5	1–5	2.5–5	1–5	1–4.75	1–5	2–5	0–13	0–3.71

Note 1. ** $p < 0.001$, * $p < 0.05$. Note 2. Reliabilities are reported in parentheses on the diagonal.

2.2.5. Parenting Styles

Parent styles were measured using the Ghent Parental Behavior Scale [42], which was reported to have a solid factor structure in different samples. The original scale has nine dimensions, but two dimensions—inconsistent discipline and ignoring—did not have acceptable reliability in the current study. Accordingly, seven dimensions were further included in the analyses. They are as follows: 11 items for positive parenting (e.g., "I make time to listen to my child, when he/she wants to tell me something"), 4 items for monitoring (e.g., "I keep track of the friends my child is seeing"), 6 items for rules (e.g., "I teach my child to obey rules."), 4 items for discipline (e.g., "When my child does something that I don't want him/her to do, I punish him/her"), 4 items for harsh punishment (e.g., "I spank my child when he/she is disobedient or naughty"), 3 items for material rewarding (e.g., "I give my child money or a small present when he/she has done something that I am happy about."), and 3 items for autonomy (e.g. "I teach my child to solve his/her own problems."). Due to the obtaining of acceptable reliabilities, the rules dimension had one item ("I teach my child respect for the authorities."), and the discipline dimension had two items ("When my child has been misbehaving, I give him/her a chore for punishment" and "It happens that I don't punish my child after he/she has done something that is not allowed") that were excluded in the analyses. All the dimensions and items are available in the measurement study of Leeuwen and Vermulst [42].

2.2.6. Child's Media Time

Each participant was asked to click a cell from a 24-h matrix if it corresponded to a time during which their child watches media. The instructions were as follows: "Please check the time box if your child watches media at that time on a typical weekday", and "Please check the time box if your child watches media at that time on a typical weekend". If the time was between 7 am and 9 pm, then it was assigned to the child's daytime media use. If the time was before 7 am or after 9 pm, then it was assigned to the child's nighttime media use. These were added and computed in hours. The range of the child's possible daytime media use spanned from 0 to 14, and the range of the child's possible nighttime media use spanned from 0 to 10.

2.3. Analysis

Structural equation modeling was conducted to test the hypotheses and research question using Mplus 8.0 [43], which uses the maximum likelihood estimation method. To evaluate the model fit, confirmatory fit index (CFI), Tucker–Lewis index (TLI), and root mean square error of approximation (RMSEA) were used. The child's age at first media use and locus of media regarding media use were controlled in the model since they were related to the main variables. However, the annual household income and education level were not related to the main variables.

3. Results

Acceptable goodness-of-fit indices were obtained for the overall model (χ2(df) = 3277.51(136), $p < 0.01$, CFI = 1.00, TLI = 0.99, and RMSEA = 0.01) [44]. The estimated coefficients are presented in Figure 1. Children's age at first use and locus of control regarding media use were controlled in the model. β is a standardized path coefficient ranging from -1 to 1.

H1 predicted that parents with higher levels of screen time would have children with higher levels of media use. The results supported this hypothesis. The media time of both mother and father showed significant positive effects on both the daytime and nighttime media use of children ($\beta = 0.001$~0.004, $p < 0.05$).

H2 and H3 hypothesized that the parent's degrees of positivity and/or negativity on media use would affect the child's media use. Parents' positive attitudes toward media use increased child's daytime media use ($\beta = 0.207$, $p < 0.001$), but not the child's nighttime

media use (β = 0.029, p = 272). Parents' negative attitudes toward media use affected neither the child's daytime media use nor the child's nighttime media use. H2 was partially supported; however, the data were not consistent with H3.

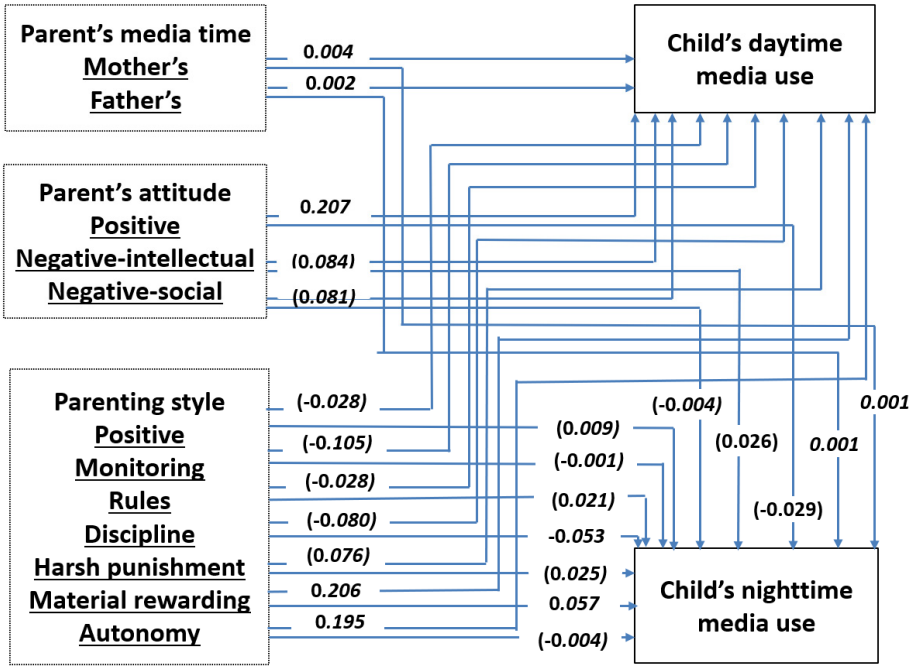

Figure 1. Final model of the relationships among child's daytime and nighttime media use, parent's media time, parent's attitude toward media use, and parenting style. Note that the values are the observed standardized path coefficients. The path coefficients without parentheses are significant at $p < 0.05$.

Finally, H4 predicted that parents with permissive and neglectful parenting styles would be positively associated with the child's media use, while H5 predicted that parents with authoritative and authoritarian parenting styles would be negatively related to the child's media use. As for parents who practiced material rewarding (β = 0.206, $p < 0.001$) and autonomy (β = 0.195, $p < 0.05$), the child's daytime media use increased significantly. The parenting style of discipline ($\beta = -0.053$, $p < 0.05$) decreased the child's night time media use, whereas the parenting style of material rewarding (β = 0.057. $p < 0.01$) increased the child's night time media use. The parenting style of autonomy supported H4, and the data from discipline parenting style were consistent with H5.

RQ1 examined which factors were the most influential among the following: parent's media use, attitudes toward media, and parenting styles. The results showed that a parent's positive attitude toward media use is the strongest predictor of the child's daytime media use, and material rewarding is the strongest predictor of the child's nighttime media use.

4. Discussion

The current study investigated the link between younger children's media use and parent's media use, parent attitudes toward media, and parenting styles. The results support that parents play an important role in determining children's media use. Similar to previous research [7,8], children have higher daytime and nighttime media use when their parents spend more time using media themselves. Further, when parents have a positive attitude toward media, children's daytime media use increases while children's nighttime media use does not. However, the parent's negative attitude toward media does not relate to children's daytime and nighttime media use. These results are in line with past research that showed that parent attitudes toward children's media use are strong predictors of the amount of time their children spend with screen media [9]. In terms of parenting

styles, children of parents who employ material rewarding and autonomy, among the seven parenting styles, have higher daytime media use. Discipline decreases the child's nighttime media use, whereas material rewarding increases the child's nighttime media use. Collectively, the parents' positive attitude toward media use is the strongest predictor of the child's daytime media use, and material rewarding is the strongest predictor of the child's nighttime media use.

Our findings extended past research on the parents' role in children's media use and have several implications on the development of parental guidelines on children's media use. Past studies have identified parental determinants that affect children's media use—parents' media use, parent attitudes toward media, and parenting styles—but the current study extends these findings by determining the strongest predictor of children's media use. It is noteworthy that daytime and nighttime media use are differentiated since media use affects various aspects of children's lives, including, but not limited to, sleep, brain development, academic performance, nutrition and obesity [45–48]. There may be differences between daytime and nighttime media use because parents' general expectations for children's media use is different during the day than it is at night. During the day, parents may generally be more accepting to increased media use, as children use media for educational purposes or for downtime. Thus, children would use more media if the parents are more positive about media use (i.e., parent's positive attitude) and allow their children to make decisions on their own (i.e., giving greater autonomy). At night, however, parents may be more against increased media use since media consumption interferes with sleep. This means that parents are more likely to use discipline to mediate children's media use at night. In general, material rewarding would increase day and nighttime media use as a function of positive reinforcement. In other words, the behavior of media use is more likely to occur in the future when it is followed by reinforcing stimuli, such a praise or reward. Future studies should correlate different time periods and media use to better inform parents on the effects of various times of the day on how children consume media.

For policymakers, these results can aid in the development of specific guidelines to optimize parental support at home, thereby promoting healthy on-screen and off-screen activities. It is important that parents make informed choices given that children are spending more time on media than recommended by public policy. Thus, specific details and guidelines that help parents make these optimal choices should be created based on the findings. The findings have implications for parents as well. The findings support how powerful a role parents can have in shaping their children's media use [49]. Parents can make informed decisions on how to guide their children's media use by modifying their own media use and attitude on media. For example, if parents want to decrease their child's time spent on media, parents could decrease the amount of time they spend on media and use discipline to decrease their child's nighttime media use. To further extend the findings, future studies should explore the role of parent mediation provided by mothers versus fathers since gender ideologies and stereotypes may be related to children's screen time [50]. Additionally, the results inform parents on the potential risks of media use for both the parents and children. Only informed parents might change their attitudes, their parenting style, and their own behavior.

The study is not without limitations. First, the questionnaires were completed by parents through self-reporting, and this method is often biased, due to social desirability bias. This is important to note because public guidelines often advocate limited children's screen time [51]. Further, only a parent survey with a 24 hr basis scale was used to collect data on children's media time. Future researchers should collect direct observational data that measure concrete and momentary context to supplement the self-reported data. For example, observational data on parent and children's time spent on devices would provide more concrete time (e.g., minutes, seconds, and intervals) spent on media. Second, the researchers measured children's time spent on media without specifying the type of media. Given that past studies indicated different types of media (e.g., gaming and voice calls

on mobile phones [2], television [14], and smart devices [7]), future researchers should differentiate the types of media to better understand how the role of parents may differ depending on the type of media. Younger children have guidelines that recommend minimal to no screen time [13]. Thus, different types of media that captures the nuanced use of media at a younger age may be necessary. Third, the current study does not give rise to causal statements. The correlational nature of the analyses describes the parental determinants of children's media use. It is difficult to rule out the possibility that children may respond differently depending on different genetic predispositions and environmental influences [52]. Fourth, it should be noted that all data were collected during the COVID-19 pandemic. Media use was shown to be higher during the pandemic than before, which may have affected parent media use and attitude toward media. With increased time spent in the household, parents would have spent more time on media and had a more positive attitude toward media consumption for their children, ultimately increasing children's media use.

Despite the limitations, the current study showed that parental determinants help explain children's media use. As said previously, different types of media and children's characteristics could potentially affect the results. Incorporating these variables into future studies would offer researchers more comprehensive insight into the dynamic between parents and children's media use. This would better inform researchers, policy makers, and parents on building concrete guidelines for children and parents regarding media use.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Institutional Review Board in South Korea (ewha-202103-0028-01) on 29 March 2021.

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Data Availability Statement: Qualified researchers can obtain the data from the corresponding author (hyeeun-lee77@ewha.ac.kr). The data are not publicly available due to privacy concerns imposed by the IRB.

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References

1. Brockmann, P.E.; Diaz, B.; Damiani, F.; Villarroel, L.; Núñez, F.; Bruni, O. Impact of television on the quality of sleep in preschool children. *Sleep Med.* **2016**, *20*, 140–144. [CrossRef]
2. Byun, Y.-H.; Ha, M.; Kwon, H.-J.; Hong, Y.-C.; Leem, J.-H.; Sakong, J.; Kim, S.Y.; Lee, C.G.; Kang, D.; Choi, H.-D.; et al. Mobile Phone Use, Blood Lead Levels, and Attention Deficit Hyperactivity Symptoms in Children: A Longitudinal Study. *PLoS ONE* **2013**, *8*, e59742. [CrossRef]
3. Leblanc, A.G.; Spence, J.C.; Carson, V.; Gorber, S.C.; Dillman, C.; Janssen, I.; Kho, M.; Stearns, J.; Timmons, B.W.; Tremblay, M.S. Systematic review of sedentary behaviour and health indicators in the early years (aged 0–4 years). *Appl. Physiol. Nutr. Metab.* **2012**, *37*, 753–772. [CrossRef]
4. Limtrakul, N.; Louthrenoo, O.; Narkpongphun, A.; Boonchooduang, N.; Chonchaiya, W. Media use and psychosocial adjustment in children and adolescents. *J. Paediatr. Child Health* **2017**, *54*, 296–301. [CrossRef] [PubMed]
5. Poulain, T.; Vogel, M.; Neef, M.; Abicht, F.; Hilbert, A.; Genuneit, J.; Körner, A.; Kiess, W. Reciprocal Associations between Electronic Media Use and Behavioral Difficulties in Preschoolers. *Int. J. Environ. Res. Public Health* **2018**, *15*, 814. [CrossRef] [PubMed]
6. Zhao, J.; Zhang, Y.; Jiang, F.; Ip, P.; Ho, F.; Zhang, Y.; Huang, H. Excessive Screen Time and Psychosocial Well-Being: The Mediating Role of Body Mass Index, Sleep Duration, and Parent-Child Interaction. *J. Pediatr.* **2018**, *202*, 157–162.e1. [CrossRef]
7. Oh, J.; Park, Y. A study on preschoolers' smart media use and parents' perception. *Korea Inst. Child Care Educ.* **2019**, *13*, 3–26.

8. Poulain, T.; Ludwig, J.; Hiemisch, A.; Hilbert, A.; Kiess, W. Media Use of Mothers, Media Use of Children, and Parent–Child Interaction Are Related to Behavioral Difficulties and Strengths of Children. *Int. J. Environ. Res. Public Health* **2019**, *16*, 4651. [CrossRef] [PubMed]
9. Cingel, D.P.; Krcmar, M. Predicting Media Use in Very Young Children: The Role of Demographics and Parent Attitudes. *Commun. Stud.* **2013**, *64*, 374–394. [CrossRef]
10. Coyne, S.M.; Radesky, J.; Collier, K.M.; Gentile, D.A.; Linder, J.R.; Nathanson, A.I.; Rasmussen, E.E.; Reich, S.M.; Rogers, J. Parenting and Digital Media. *Pediatrics* **2017**, *140*, S112–S116. [CrossRef]
11. Jago, R.; Davison, K.K.; Thompson, J.L.; Page, A.S.; Brockman, R.; Fox, K.R. Parental Sedentary Restriction, Maternal Parenting Style, and Television Viewing Among 10- to 11-Year-Olds. *Pediatrics* **2011**, *128*, e572–e578. [CrossRef]
12. Padilla-Walker, L.M.; Coyne, S.M. "Turn that thing off!" parent and adolescent predictors of proactive media monitoring. *J. Adolesc.* **2011**, *34*, 705–715. [CrossRef]
13. American Academy of Pediatrics. Children, adolescents, and the media. *Pediatrics* **2013**, *132*, 958–961. [CrossRef] [PubMed]
14. Rideout, V.; Hamel, E. *The Media Family: Electronic Media in the Lives of Infants, Toddlers, Preschoolers and Their Parents*; The Kaiser Family Foundation: Oakland, CA, USA, 2006.
15. Rideout, V.; Foehr, U.; Roberts, D. *Generation M2: Media in the Lives of 8- to 18-Year-Olds*; Kaiser Family Foundation: Oakland, CA, USA, 2010.
16. Korea Press Foundation. Children Media Use Survey. Korean Press Foundation. 2020. Available online: https://www.kpf.or.kr/front/research/consumerDetail.do?seq=591511 (accessed on 19 November 2021).
17. Kabali, H.K.; Irigoyen, M.M.; Nunez-Davis, R.; Budacki, J.G.; Mohanty, S.H.; Leister, K.P.; Bonner, R.L. Exposure and Use of Mobile Media Devices by Young Children. *Pediatrics* **2015**, *136*, 1044–1050. [CrossRef] [PubMed]
18. Verlinden, M.; Tiemeier, H.; Hudziak, J.; Jaddoe, V.; Raat, H.; Guxens, M.; Hofman, A.; Verhulst, F.; Jansen, P. Television Viewing and Externalizing Problems in Preschool Children. *Arch. Pediatr. Adolesc. Med.* **2012**, *166*, 919–925. [CrossRef]
19. Manganello, J.A.; Taylor, C.A. Television Exposure as a Risk Factor for Aggressive Behavior among 3-Year-Old Children. *Arch. Pediatr. Adolesc. Med.* **2009**, *163*, 1037–1045. [CrossRef] [PubMed]
20. Hinkley, T.; Verbestel, V.; Ahrens, W.; Lissner, L.; Molnár, D.; Moreno, L.A.; Pigeot, I.; Pohlabeln, H.; Reisch, L.A.; Russo, P.; et al. Early childhood electronic media use as a predictor of poorer well-being: A prospective cohort study. *JAMA Pediatr.* **2014**, *168*, 485–492. [CrossRef]
21. Kim, B.; Shin, H. The Relationship between Young Children's Media Use Time, Self-regulation, and Problem Behaviors. *Korean J. Hum. Ecol.* **2019**, *28*, 567–581. [CrossRef]
22. Christakis, D.A. The effects of infant media usage: What do we know and what should we learn? *Acta Paediatr.* **2009**, *98*, 8–16. [CrossRef]
23. Bandura, A. *Social Learning Theory*; Prentice Hall: Hoboken, NJ, USA, 1977.
24. Lauricella, A.R.; Wartella, E.; Rideout, V.J. Young children's screen time: The complex role of parent and child factors. *J. Appl. Dev. Psychol.* **2015**, *36*, 11–17. [CrossRef]
25. American Academy of Pediatrics. Committee on Public Education Children, Adolescents, and Television. *Pediatrics* **2001**, *107*, 423–426. [CrossRef] [PubMed]
26. Vandewater, E.A.; Rideout, V.J.; Wartella, E.A.; Huang, X.; Lee, J.H.; Shim, M.-S. Digital Childhood: Electronic Media and Technology Use among Infants, Toddlers, and Preschoolers. *Pediatrics* **2007**, *119*, e1006–e1015. [CrossRef]
27. Warren, R.; Aloia, L. Parenting Style, Parental Stress, and Mediation of Children's Media Use. *West. J. Commun.* **2019**, *83*, 483–500. [CrossRef]
28. Baumrind, D. Current patterns of parental authority. *Dev. Psychol.* **1971**, *4*, 1–103. [CrossRef]
29. Maccoby, E.E.; Martin, J.A. Socialization in the context of the family: Parent-child interaction. In *Handbook of Child Psychology*; Mussen, P.H., Ed.; Wiley: New York, NY, USA, 1983; Volume IV, Socialization, personality, and social development; pp. 1–101.
30. Baumrind, D. Rearing competent children. In *Child Development Today and Tomorrow*; Damon, W., Ed.; Jossey-Bass: Hoboken, NJ, USA, 1989; pp. 349–378.
31. Baumrind, D. The Influence of Parenting Style on Adolescent Competence and Substance Use. *J. Early Adolesc.* **1991**, *11*, 56–95. [CrossRef]
32. Lamborn, S.D.; Mounts, N.S.; Steinberg, L.; Dornbusch, S.M. Patterns of Competence and Adjustment among Adolescents from Authoritative, Authoritarian, Indulgent, and Neglectful Families. *Child Dev.* **1991**, *62*, 1049–1065. [CrossRef]
33. Steinberg, L.; Lamborn, S.D.; Darling, N.; Mounts, N.S.; Dornbusch, S.M. Over-Time Changes in Adjustment and Competence among Adolescents from Authoritative, Authoritarian, Indulgent, and Neglectful Families. *Child Dev.* **1994**, *65*, 754. [CrossRef]
34. Hoeve, M.; Blokland, A.; Dubas, J.S.; Loeber, R.; Gerris, J.R.M.; van der Laan, P.H. Trajectories of Delinquency and Parenting Styles. *J. Abnorm. Child Psychol.* **2008**, *36*, 223–235. [CrossRef]
35. Hwang, Y.; Choi, I.; Yum, J.-Y.; Jeong, S.-H. Parental Mediation Regarding Children's Smartphone Use: Role of Protection Motivation and Parenting Style. *Cyberpsychol. Behav. Soc. Netw.* **2017**, *20*, 362–368. [CrossRef]
36. Nikken, P.; Schols, M. How and Why Parents Guide the Media Use of Young Children. *J. Child Fam. Stud.* **2015**, *24*, 3423–3435. [CrossRef]

37. Haines, J.; O'Brien, A.; McDonald, J.; Goldman, R.E.; Evans-Schmidt, M.; Price, S.; King, S.; Sherry, B.; Taveras, E.M. Television Viewing and Televisions in Bedrooms: Perceptions of Racial/Ethnic Minority Parents of Young Children. *J. Child Fam. Stud.* **2013**, *22*, 749–756. [CrossRef]
38. Vaala, S.E.; Hornik, R.C. Predicting US Infants' and Toddlers' TV/Video Viewing Rates: Mothers' Cognitions and Structural Life Circumstances. *J. Child. Media* **2014**, *8*, 163–182. [CrossRef] [PubMed]
39. Kendall, P.C.; Wilcox, L.E. Self-control in children: Development of a rating scale. *J. Consult. Clin. Psychol.* **1979**, *47*, 1020–1029. [CrossRef]
40. Elias, N.; Sulkin, I. YouTube viewers in diapers: An exploration of factors associated with amount of toddlers' online viewing. *Cyberpsychol. J. Psychosoc. Res. Cyberspace* **2017**, *11*, 2. [CrossRef]
41. Nikken, P.; Jansz, J. Developing scales to measure parental mediation of young children's internet use. *Learn. Media Technol.* **2013**, *39*, 250–266. [CrossRef]
42. Leeuwen, K.G.; Vermulst, A.A. Some psychometric properties of the Ghent Parental Behavior Scale. *Eur. J. Psychol. Assess.* **2004**, *20*, 283–298. [CrossRef]
43. Arbuckle, J.L. *Amos, (Version 7.0)*; SPSS: Chicago, IL, USA, 2006.
44. Hu, L.-T.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model. Multidiscip. J.* **1999**, *6*, 1–55. [CrossRef]
45. De Jong, E.; Visscher, T.L.S.; HiraSing, R.A.; Heymans, M.; Seidell, J.; Renders, C. Association between TV viewing, computer use and overweight, determinants and competing activities of screen time in 4- to 13-year-old children. *Int. J. Obes.* **2011**, *37*, 47–53. [CrossRef]
46. Horowitz-Kraus, T.; Hutton, J.S. Brain connectivity in children is increased by the time they spend reading books and decreased by the length of exposure to screen-based media. *Acta Paediatr.* **2018**, *107*, 685–693. [CrossRef]
47. Zimmerman, F.J. *Children's Media Use and Sleep Problems: Issues and Unanswered Questions*; Kaiser Family Foundation: Oakland, CA, USA, 2008. Available online: https://files.eric.ed.gov/fulltext/ED527857.pdf (accessed on 25 October 2021).
48. Zimmerman, F.J.; Christakis, D.A. Children's Television Viewing and Cognitive Outcomes: A longitudinal analysis of national data. *Arch. Pediatr. Adolesc. Med.* **2005**, *159*, 619–625. [CrossRef]
49. Nikken, P.; Opree, S.J. Guiding Young Children's Digital Media Use: SES-Differences in Mediation Concerns and Competence. *J. Child Fam. Stud.* **2018**, *27*, 1844–1857. [CrossRef] [PubMed]
50. Duek, C.; Moguillansky, M. Children, digital screens and family: Parental mediation practices and gender. *Comunicação Soc.* **2020**, *37*, 55–70. [CrossRef]
51. Rosenman, R.; Tennekoon, V.; Hill, L.G. Measuring bias in self-reported data. *Int. J. Behav. Health Res.* **2011**, *2*, 320–332. [CrossRef]
52. Collins, W.A.; Maccoby, E.E.; Steinberg, L.; Hetherington, E.M.; Bornstein, M.H. Contemporary research on parenting. The case for nature and nurture. *Am. Psychol.* **2000**, *55*, 218–232. [CrossRef] [PubMed]

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Patterns of Father Involvement and Child Development among Families with Low Income

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Abstract: This study examined patterns of father involvement and their relations with social, behavioral, and cognitive development among low-income children < 5 years. Latent class analysis on data from 2650 fathers (Mage = 29.35 years) in the Supporting Healthy Marriages program revealed four father involvement patterns: (1) High positive involvement (48%); (2) engaged but harsh discipline (42%); (3) low cognitive stimulation (8%); and (4) lower involvement (2%). The low cognitive stimulation pattern was associated with greater father- and mother-reported child behavior problems and lower child socioemotional and cognitive functioning. The engaged but harsh discipline pattern was associated with more father-reported child behavior problems. These findings highlight the need for active engagement of fathers in parenting interventions to promote child development.

Keywords: father involvement; child development; socioemotional functioning; behavior problems; cognitive functioning; latent profile analysis

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1. Introduction

Father involvement is a key family protective factor that is crucial to children's healthy development [1–4]. Numerous studies suggest a link between greater father involvement and child positive health [5–7], mental health [8–10], socioemotional [10], academic [11,12], and behavioral outcomes [9,13,14]. However, various patterns of father involvement across multiple dimensions of functioning and their unique impacts on healthy child development across the social, behavioral, and cognitive domains remain unclear, especially among economically disadvantaged families. Approximately 17% of children in the United States live in families with low income [15], and children born to parents with low income tend to have poorer developmental outcomes [16–18]. However, not all children in families with low income have poor developmental outcomes. Research has suggested that early parent involvement can have both short- and long-term positive effects on child development in families with low income [18]. Further, there is preliminary evidence that the positive impact of father involvement on child academic outcomes is stronger for children in families with low income than those in middle- and upper-income families [19]. It is vital to examine whether such benefits of father involvement on child academic outcomes among children in families with low income extend to other domains of development (e.g., social and behavioral) for this population. In sum, identifying distinctive patterns of father involvement and their contributions to diverse aspects of child development among families with low income is an important focus of inquiry that can inform the development of interventions to promote healthy development in vulnerable children.

1.1. Father Involvement and Child Development

As fathers' roles expanded in the 1970s to encompass caregiving in addition to breadwinning [20], scholars' recognition that fathers could make positive contributions to their children's development increased. Although early research—especially that focused on father involvement in lower-income families—tended to use relatively simple measures of accessibility (e.g., presence vs. absence of father in the home), this focus soon expanded to encompass time fathers spent engaging in play, cognitively stimulating, or caregiving activities with children [21,22]. Overall, greater father involvement in childhood has been associated with healthier child development in cognitive, social, and behavioral domains [4,23]. For example, a study involving children between 3 months to 24 months illustrated a positive contribution of father engagement to higher cognitive functioning [24]. Similarly, a meta-analysis involving 21 studies concluded that father involvement was consistently found to have a small to moderate positive effect on children's early learning [3].

1.2. Heterogeneity in Father Involvement and Child Development

Fathering has long been viewed as a multidimensional construct [22]. In the mid-1980s, Lamb and Pleck proposed a three-dimensional conceptualization of fathering [25]. This model posited that father involvement was primarily composed of paternal engagement, accessibility, and responsibility. While Lamb and Pleck's model provided one of the first frameworks for understanding the complexity of father involvement, it was far from comprehensive. Scholars subsequently expanded on this model by including dimensions related to communication, father–child closeness, and time spent with the child [26].

Pleck later proposed a revision to the original model including five dimensions of father involvement [22]. Pleck asserted that fathering involved three direct or primary activities classified as "(a) positive engagement activities, interaction with the child of the more intensive kind likely to promote development; (b) warmth and responsiveness; and (c) control, particularly monitoring and decision making" [22] (p. 67). Pleck also included two ancillary domains: Indirect care and process responsibility [22]. Indirect care encompasses activities that are conducted for a child but that do not directly involve father–child interactions, such as the purchase of school supplies. Process responsibility refers to a father's oversight that their child's core needs (e.g., positive engagement, warmth) are being met.

Several empirical studies have suggested that different aspects of father involvement may be associated with different dimensions of child development. For example, positive father–child relationships, paternal warmth, and home learning stimulation have been associated with stronger socioemotional development (e.g., social competence, prosocial skills) and cognitive development, whereas paternal harsh parenting has been associated with greater behavior problems, such as childhood aggression [23,27–29]. Positive father–child relationships have been linked to reduced internalizing and externalizing problems in children and adolescents. For example, high-quality father involvement, which includes trust, closeness, and understanding, was associated with fewer internalizing and externalizing symptoms in a sample of children at risk for maltreatment [30]. Similarly, a recent study found that fathers' early involvement was associated with lower levels of children's internalizing and externalizing problems [23].

Few studies have considered the complex interaction of multiple dimensions of father involvement or examined heterogeneous patterns of involvement and their relations with children's social, behavioral, and cognitive development, although some relevant evidence is emerging [31,32]. For example, Volling et al. used a middle-income sample of 195 two-parent families with 12-month-old infants to examine fathers' (and mothers') parenting profiles, with a particular focus on fathers' engagement in behaviors that excite and stimulate their children and are posited to contribute to their children's development [32]. Results of latent profile analysis showed that fathers and mothers had similar (a) supportive (i.e., high levels of sensitivity, positive regard, and cognitive stimulation); (b) disengaged (i.e., high levels of detachment); and (c) activation (i.e., moderate levels of

sensitivity, positive regard, cognitive stimulation, and intrusiveness) parenting profiles although none of the parenting profiles were related to infants' attachment security.

Researchers have also investigated the parenting patterns of fathers (and mothers) from low-income backgrounds, although to the best of our knowledge, the literature seems to be limited to the following two studies. Ryan et al. used an Early Head Start sample of 237 two-parent families with 2-year-old children to examine fathers' and mothers' parenting profiles [33]. A person-centered cluster analysis revealed four distinct parenting profiles for both fathers and mothers: (a) Highly supportive (e.g., high levels of sensitivity, positive regard, and cognitive stimulation); (b) negative (e.g., high levels of intrusiveness); (c) detached (e.g., high levels of detachment); and (d) somewhat supportive (e.g., moderate levels of sensitivity, positive regard, cognitive stimulation, and intrusiveness). The researchers further showed that children with a supportive father and supportive mother had the best cognitive functioning compared to all other children.

More recently, Lee et al. aimed to replicate prior research by using a sample of 672 two-parent families with preschoolers from the Building Strong Families project, a large and racially diverse dataset of families from socioeconomically disadvantaged backgrounds [34]. Results of latent profile analysis yielded three parenting profiles for both fathers and mothers: (a) Supportive (e.g., high levels of sensitivity, positive regard, cognitive stimulation); (b) intrusive (e.g., high levels of intrusiveness); and (c) activation (e.g., moderate levels of sensitivity, positive regard, cognitive stimulation, and intrusiveness). Consistent with Ryan et al., children with a supportive father and supportive mother had the highest language scores compared to all other children [33]. That said, when it came to socioemotional outcomes (e.g., prosocial behaviors, behavior problems, effortful control), children with an activation father and a supportive mother did just as well as those with two supportive parents. Overall, there seems to be consensus across these prior studies about the heterogeneity in father involvement, with multiple parenting profiles emerging, and their differential effects on child development. While these studies provided valuable information, they were limited in that they primarily focused on the quality of involvement and did not consider both the quality *and* quantity of father involvement.

1.3. The Current Study

Despite emerging evidence suggesting heterogeneity in father involvement, additional research is needed to understand the patterns of father involvement among low-income, racially diverse families and their relations to various dimensions of child development. The current study has several significant contributions. First, we apply a person-centered analytic approach (i.e., latent class analysis)—an effective method also used by prior research in this area that allows for identification of subgroups of individuals based on their particular attributes—to investigate heterogeneous patterns of father involvement, going beyond the traditional variable-centered approach [35]. Second, we combine both quantity and quality of measures of father involvement to better capture various patterns of father involvement. Most past studies of fathering/parenting profile focused on the quality of father involvement, despite empirical evidence suggesting the importance of conjointly considering both the quality and quantity of father involvement [36]. Third, this study is novel and different from prior research in that we examined harsh discipline, an important yet often ignored dimension of involvement, along with other aspects of father involvement. Finally, we use a larger sample of low-income, racially/ethnically diverse families to expand our understanding of the role of father involvement patterns in healthy child development in marginalized and diverse populations.

The current study aimed to discover various patterns of father involvement and their unique relations to social, behavioral, and cognitive development of children in families with low income. Two main research questions guided the study: (1) Are there different patterns of father involvement among families with low income? (2) How do different patterns of father involvement relate to social competence, behavior problems, and verbal ability of children? Building upon Pleck's conceptual model that highlights multidimen-

sionality of father involvement and prior studies that identified heterogeneous parenting profiles [22,32,34], it was hypothesized that approximately four different patterns of father involvement (e.g., supportive, detached, intrusiveness/negative, activation) would emerge in this study. Informed by prior evidence [33,34], it was further hypothesized that more positive patterns of father involvement (e.g., high warmth and engagement, no harsh discipline) would be associated with higher social competence, fewer internalizing and externalizing behavior problems, and higher verbal ability in children.

2. Methods

2.1. Participants and Study Design and Procedure

We conducted a secondary data analysis using data from the Supporting Healthy Marriages (SHM) program, which is a multisite, voluntary marriage education program for low-income couples who had a child under 18 years old or were expecting a child. The SHM project used an experimental study design. A total of 6298 families were recruited and randomly assigned into the intervention or the control group, from February 2007 to December 2009. The program offered group workshops, supplemental activities, and family support services that were designed to strengthen couples' relationships. Three waves of data were collected: (1) When eligible couples first enrolled in the program and completed the baseline survey (during this time period, researchers also randomly selected one child from each couple as the focal child for follow-up studies); (2) 12 months after enrollment when both survey and observational data were collected from the couples; and (3) 30 months after enrollment when couples completed a series of surveys and a subgroup of focal children participated in direct assessments. At the 12-month and 30-month follow-up survey interviews, the participants were given the option of using the computer-assisted telephone interview (CATI) method or the computer-assisted in-person interview (CAPI) method to respond to the survey questions.

In the current study, we primarily used data from the 12- and 30-month follow-up assessments. The following criteria were adopted to determine the analytic sample: (a) At the 12-month follow-up, focal children were 4 years and 11 months old or younger; (b) at the 12-month follow-up, fathers had contact (e.g., in person, text message, phone call, email) with focal children in the past month; and (c) families did not have missing data on all variables of interest. As a result, 2650 families were included. When eligible couples enrolled in the program, their ages ranged from 21 to 40 years old (M_{father} = 29.35, SD_{father} = 5.84; M_{mother} = 27.40, SD_{mother} = 5.26). Amongst the eligible families, 51.79% of the focal children were boys and 48.21% girls. The sample was diverse in terms of race and ethnicity. For fathers, 45.60% identified as White, 19.23% African American, 2.40% Asian, 4.16% American Indian/Alaska Native, 1.47% Pacific Islanders, and 27.14% other races. For mothers, 48.81% identified as White, 14.70% African American, 3.20% Asian, 4.17% American Indian/Alaska Native, 1.58% Pacific Islanders, and 27.54% other races. Moreover, 40.48% of fathers and 40.65% of mothers identified as Hispanic. Most families had low household income, with 38.12% having income below the federal poverty level (FPL), 41.99% between 100 and 200 percent of the FPL, and 19.89% above 200 percent of the FPL. In terms of fathers' residential status, 97.25% of fathers at the 12-month follow-up study and 91.97% of fathers at the 30-month follow-up study reported that they lived with the focal child at least half of the time. Table 1 further provides the demographic characteristics of study participants.

Table 1. Demographic Characteristics (N = 2650).

			% or *M* (SD)
Father			
Age			29.35 (5.84)
Race and ethnicity	White		45.60
	African American		19.23
	Asian		2.40
	American Indian/Alaska Native		4.16
	Pacific Islander		1.47
	Others		27.14
	Hispanic		40.48
Education	At least a high school diploma		80.10
Residential status	15-month follow-up	Lived with child at least half of the time	97.25
	30-month follow-up		91.97
Mother			
Age			27.40 (5.26)
Race and ethnicity	White		48.81
	African American		14.70
	Asian		3.20
	Native American		4.17
	Pacific Islander		1.58
	Others		27.54
	Hispanic		40.65
Education	At least a high school diploma		81.50
Couple			
Marital Status	12-month follow-up	Married	85.29
		In a committed relationship	10.10
		Divorced	0.95
		Separated	3.67
	30-month follow-up	Married	79.44
		In a committed relationship	9.56
		Divorced	3.07
		Separated	7.93
Household			
Income	Below the federal poverty level (FPL)		38.12
	Between 100% and 200% of FPL		41.99
	Above 200% FPL		19.89
Focal Child			
Gender	Boy		51.79
	Girl		48.21

2.2. Measures

2.2.1. Father Involvement

At the 12-month follow-up assessment, fathers reported their involvement with the focal child. Fathers reported frequencies of activities and behaviors they engaged with their child in the past month. The survey included the following domains of father involvement: (1) One item indicating time spent with the child (i.e., "Spend one or more hours a day with the child"); (2) five items indicating engagement in caregiving, play, and cognitively stimulating activities (i.e., "Played inside with games or toys", "Taken the child for a walk", "Sung songs or nursery rhymes with the child", "Read books or told stories to the child", "Dealt with the children when he/she did something wrong"); (3) three items indicating parental warmth (i.e., "Told the child that you love him/her", "Praised the child or told him/her that you appreciated something that he/she did", "Laughed with the

child"); and (4) two items indicating harsh discipline (i.e., "Yelled, shouted, screamed at, or threatened the child because you were mad at him/her", "Hit, spanked, grabbed, or used physical punishment with the focal child"). That is, a total of 11 items pertaining to different domains of father involvement were used. Fathers reported time spent with the focal child in the past month on a 5-point scale, with 1 = Every day or nearly every day, 2 = A few times a week, 3 = A few times in the last month, 4 = Only once or twice, and 5 = Not at all. For other domains of involvement, fathers reported the frequencies of engaging in respective activities using a 4-point scale, with 1 = Every day or almost every day, 2 = Several times a week, 3 = A few times in last month, and 4 = Never/Not at all. Due to the high skewness of the father involvement variables, the 11 items were recoded into binary variables. If fathers reported they never engaged in certain activities/behaviors, the responses were recoded as 0 = No. Otherwise, fathers' responses were recoded as 1 = Yes, which indicated that fathers engaged in the activities/behaviors at least once in the past month.

2.2.2. Child Social, Behavioral, and Cognitive Distal Outcomes

For detailed information on the construction of child outcome measures, please see [37], which included the description and results of factor analyses, tests of measurement equivalence, and tests of construct validity.

Child Social Competence. At the 30-month follow-up, mothers and fathers were independently interviewed about their children's social competence. Parents evaluated nine items related to children's interpersonal competence with peers, prosocial behavior, and friendship quality (e.g., "Resolves problems with other children on his or her own") on a 3-point scale, ranging from 1 = Very True to 3 = Not True. The items were reverse coded and averaged so that higher scores represented higher child social competence. Both maternal reports (α = 0.84) and paternal reports (α = 0.85) showed good reliability.

Child Internalizing and Externalizing Behavior Problems. At the 30-month follow-up, mothers and fathers were separately interviewed about their children's internalizing and externalizing behavior problems. Parents were asked to indicate whether a list of behaviors accurately described their children's behaviors by rating each behavior using a 3-point scale, ranging from 1 = Very True to 3 = Not True. If the focal child was 4 years old or older, the list of behaviors consisted of 12 items for internalizing behavior problems (e.g., "[Focal child] is unhappy, sad, or depressed") and 13 items for externalizing behavior problems (e.g., "[Focal child] cheats or tells lies"). All the items were reverse coded so that higher scores indicated more behavior problems. The scales showed good reliability (internalizing: α_M = 0.80 and α_F = 0.80; externalizing: α_M = 0.89 and α_F = 0.87). If the focal child was under 4 years old, the list consisted of 8 items on internalizing behavior problems (e.g., "[Focal child] is too fearful or anxious") and 14 items on externalizing behavior problems (e.g., "[Focal child] has difficulty concentrating and paying attention"). The reliability of the internalizing behavior problems scale was slightly low (α_M = 0.61 and α_F = 0.66), but the scale for externalizing behavior problems showed good reliability (α_M = 0.81 and α_F = 0.82).

Verbal Ability/Cognitive Performance. At the 30-month follow-up, the Peabody Picture Vocabulary Test (PPVT) [38] and its Spanish-language counterpart, Test de Vocabulario en Imágenes Peabody (TVIP) [39], were used to measure children's receptive vocabulary skills if focal children were aged 2 years to 4 years and 11 months. In these assessments, children were shown a series of cards with four pictures on each of them. In each trial, children were asked to choose one picture that best described the word spoken by the assessor. In the SHM program, some bilingual children were administered both the PPVT and TVIP. However, bilingual children received the TVIP only if they performed poorly at the beginning of the PPVT, which suggested that the TVIP was a more appropriate assessment for these children. Thus, we chose TVIP scores if children had scores on both tests. The standard scores were reported in the current study given that they were comparable across different studies [40].

2.2.3. Covariates

To control for covariates, we created a set of variables based on prior literature. We controlled child age at the 30-month follow-up assessments. Child gender was entered as a binary variable in the analysis. We captured parental education using a dichotomous variable that identified whether both parents had high school diplomas or not. To assess poverty, we used the federal poverty level (FPL) and created two dummy variables (100–200% FPL, ≥200% FPL), with "below the FPL" as the reference group.

2.3. Data Analysis

We first conducted descriptive statistics and correlation analysis across all study variables. To investigate potential heterogeneity in the patterns of father involvement, a latent class analysis (LCA) was conducted using the 11 items reflecting father involvement. LCA is an exploratory analytic method that is person-centered, allowing for the identification of hidden groups (or latent classes) based on multiple categorical observed variables, without requiring any distributional assumptions [41,42]. LCA provides probability estimates (posterior probability), which indicate how likely each individual belongs to each latent class [42,43]. In this paper, each latent class membership represents a group of fathers who share similar response patterns of involvement with their children.

There are two common approaches to LCA, which are the one-step and three-step approaches, when including the covariates or distal outcomes. The one-step approach jointly estimates the latent class membership with the covariates or distal outcomes in one overall model. Thus, not only the class indicators, but also the covariates and the distal outcome variables, can drive the latent class membership [44,45]. On the other hand, the three-step approach employs a step-by-step method that identifies the latent classes in the first step, creates the most likely class membership in the second step, and estimates the association between the extracted latent class variable and the covariates or the distal outcomes in the last step. In this study, we used the three-step approach for LCA, which is advocated by many researchers [45–49]. More specifically, we employed the manual maximum likelihood (ML) three-step approach that has been shown to yield good performance in detecting latent classes [45].

In the first step, we analyzed a series of unconditional LCA models by increasing the number of latent classes from 2 classes to 6 classes. The unconditional LCA models represent the model with no covariates or distal outcomes but the 11 father involvement indicators only. We then compared the models using the Akaike information criterion (AIC) [50] and Bayesian information criterion (BIC) [51]. The AIC and BIC have slightly different formulas but are similar in that both penalize model complexity. The smaller AIC and BIC values represent a better-fitting model. Along with the AIC and BIC, entropy—which indicates the classification accuracy—was also used to decide the number of latent classes. The entropy value ranges between 0 and 1, with a value closer to 1 indicating a smaller model classification error [52]. The optimal number of latent classes was selected based on the AIC, BIC, and entropy, as well as the interpretability of the classes. Given the exploratory nature of LCA, we paid particular attention to the interpretability of the emerged latent classes (e.g., qualitatively distinct and meaningful classes).

After identifying the number of latent classes based on the 11 indicators of father involvement, each individual was assigned to each latent class based on the posterior probability obtained in the second step. In the final step, we analyzed the conditional model to examine the mean differences in the seven measures of child social, behavioral, and cognitive distal outcomes across the enumerated latent classes while controlling for the covariate effects on the outcomes. Missing values were treated using full information maximum likelihood (FIML). In step 1, all cases (N = 2650) with at least one value across 11 indicators were used for analysis by using the maximum likelihood robust (MLR) estimation. Of the 2650 cases, 513 with at least one missing value in the covariates were excluded when conducting the third step. Mplus Version 8 [44] was used to conduct the three-step LCA (The Mplus code is presented in Supplemental Material Syntax S1). The

study was approved by the Institutional Review Board of [Blinded for Review] (protocol ID: 2018B0532).

3. Results

3.1. Descriptive Statistics

Table 2 shows the descriptive statistics for all study variables, including father involvement indicators, covariates, and distal outcomes. As mentioned earlier, all father involvement indicators were recoded as dichotomous variables for the LCA. The original descriptive statistics for these items are presented in Supplemental Material Table S1.

Table 2. Descriptive statistics for the indicators, covariates, and distal outcomes (N = 2650).

Dimensions of Father Involvement at the 12-Month Follow-Up		**%**
Time spent	Spend one or more hours a day with the child	99.58
Warmth	Told (focal child) that you love (him/her)?	99.47
	Praised (focal child) or told him/her that you appreciated something that he/she did?	97.43
	Laughed with (focal child)?	99.77
Harsh discipline	Yelled, shouted, screamed at, or threatened (focal child) because you were mad at him/her?	38.12
	Hit, spanked, grabbed, or used physical punishment with (focal child)?	18.91
Engagement	Played inside with games or toys	98.98
	Taken the child for a walk or to play outside	93.00
	Sung songs or nursery rhymes with the child	87.78
	Read books or told stories to the child	86.01
	Dealt with the children when he/she did something wrong	86.26
Covariates at Baseline		% or *M* (SD)
Child age (at the 30-month follow up)		3.66 (1.32)
Child sex (girl)		48.2
Couple education (both graduated from high school)		56.6
Poverty		
100% of federal poverty level or under		38.1
Between 100% and 200% of federal poverty level		42.0
200% of federal poverty level or above		19.9
Distal Child Development Outcomes at the 30-Month Follow-Up		*M* (SD)
Social emotional functioning assessed by father		2.57 (0.37)
Social emotional functioning assessed by mother		2.56 (0.37)
Internalizing behavior problem assessed by father		1.21 (0.25)
Internalizing behavior problem assessed by mother		1.19 (0.25)
Externalizing behavior problem assessed by father		1.34 (0.30)
Externalizing behavior problem assessed by mother		1.36 (0.32)
Cognitive functioning (verbal ability) assessed by interviewer		97.29 (15.97)

3.2. Father Involvement Patterns

Table 3 shows the model fit indices, as well as the proportion of the emerged latent classes. The AIC continuously decreased as the number of classes increased, favoring more classes. The four-class model had the smallest BIC value, suggesting that the four-class model was the best-fitting model. The entropy was acceptable (>0.70) for models with four or more classes [53]. Based on the AIC, BIC, entropy, and interpretability of the classes, we selected the four-class model as the final model.

Table 3. Fit indices for unconditional latent class models.

	2-Class	3-Class	4-Class	5-Class	6-Class
Log-Likelihood	−7128.50	−6860.18	−6792.45	−6757.93	−6739.75
Number of parameters	23	35	47	59	71
AIC	14,303.00	13,790.36	13,678.90	13,633.85	13,621.51
BIC	14,438.30	13,996.24	13,955.37	13,980.91	14,039.15
Entropy	0.54	0.68	0.75	0.75	0.78
Proportion of class 1	49.97%	46.47%	8.27%	45.31%	5.34%
Proportion of class 2	50.03%	44.13%	47.48%	7.23%	4.48%
Proportion of class 3		9.41%	42.01%	40.79%	41.26%
Proportion of class 4			2.04%	0.81%	45.79%
Proportion of class 5				5.86%	2.68%
Proportion of class 6					0.45%

Figure 1 shows the item response probability (IRP) on the 11 father involvement indicators for each latent class and class proportions. The *high positive involvement* class (47.48%) was the largest class and was characterized by high probabilities of positive involvement (e.g., time spent with child, warmth, engagement activities) and low probabilities of harsh emotional and physical discipline. The *engaged but harsh discipline* class (42.01%) represented the second-largest class and was also characterized by high probabilities of positive involvement (e.g., warmth, engagement activities), but also had the highest probabilities of harsh discipline out of all the classes. The *low cognitive stimulation* class (8.27%) was characterized by the lowest probabilities of paternal cognitive stimulation, but also moderately high probabilities of other aspects of positive involvement (e.g., time spent with child, warmth). The *lower involvement* class (2.04%) was characterized by overall low to moderate probabilities of all dimensions of father involvement examined in the study.

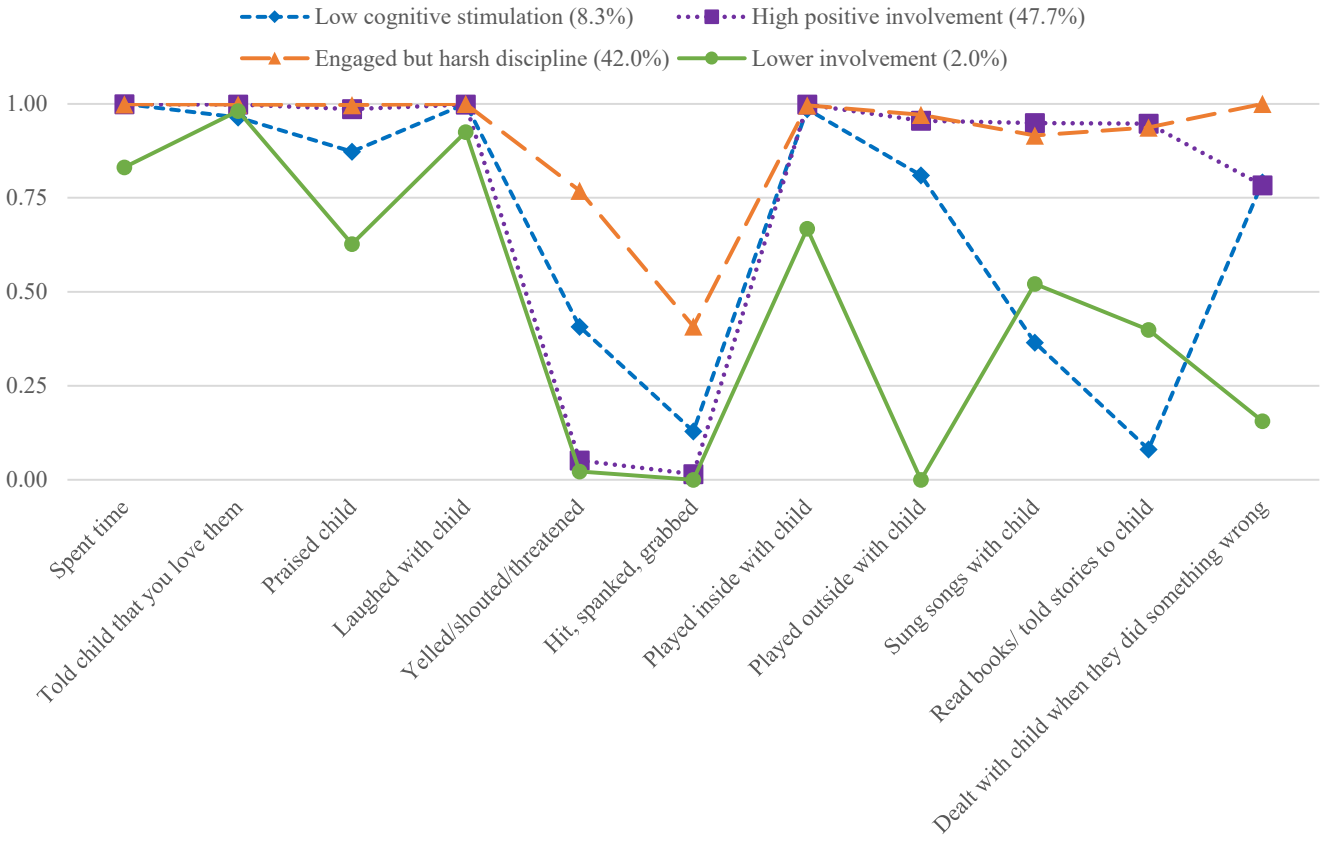

Figure 1. Item response probabilities for four father involvement latent classes.

3.3. Father Involvement Patterns and Child Social, Behavioral, and Cognitive Distal Outcomes

Next, we examined the extent to which different patterns of father involvement relate to children's social competence, behavior problems, and verbal ability, while controlling for the effects of covariates on these outcomes (see Supplemental Material Table S2 for covariate effects). Table 4 presents the results of pair-wise mean comparisons for the seven child outcomes between the four latent classes. Children in the *low cognitive stimulation* class had significantly lower levels of socioemotional functioning class (distal means: father ratings = 2.16, mother ratings = 2.11) compared to those in the *high positive involvement* class (distal means: father ratings = 2.45, mother ratings = 2.37) or the *engaged but harsh discipline* class (distal means: father ratings = 2.41, mother ratings = 2.42). There were no significant mean differences in child socioemotional functioning between the *low cognitive stimulation* class and the *lower involvement* class.

Table 4. Distal mean differences between four latent classes.

Child Distal Outcome	Class	Distal Mean	Low Cognitive Stimulation	High Positive Involvement	Engaged but Harsh Discipline
Socioemotional functioning _father ratings	Low cognitive stimulation	2.16			
	High positive involvement	2.45	−0.29 ***		
	Engaged but harsh discipline	2.41	−0.25 ***	0.04	
	Lower involvement	2.31	−0.15	0.14	0.10
Socioemotional functioning _mother ratings	Low cognitive stimulation	2.11			
	High positive involvement	2.37	−0.26 ***		
	Engaged but harsh discipline	2.42	−0.31 ***	−0.05	
	Lower involvement	2.29	−0.18	0.08	0.13
Internalizing problems _father ratings	Low cognitive stimulation	1.53			
	High positive involvement	1.11	0.42 ***		
	Engaged but harsh discipline	1.23	0.30 ***	−0.12 ***	
	Lower involvement	1.13	0.40 ***	−0.02	0.10 ***
Internalizing problems _mother ratings	Low cognitive stimulation	1.49			
	High positive involvement	1.14	0.35 ***		
	Engaged but harsh discipline	1.11	0.38 ***	0.03	
	Lower involvement	1.15	0.34 ***	−0.01	−0.04
Externalizing problems _father ratings	Low cognitive stimulation	1.82			
	High positive involvement	1.33	0.49 ***		
	Engaged but harsh discipline	1.47	0.35 ***	−0.14 **	
	Lower involvement	1.39	0.43 ***	−0.06	0.08
Externalizing problems _mother ratings	Low cognitive stimulation	1.79			
	High positive involvement	1.39	0.40 ***		
	Engaged but harsh discipline	1.38	0.41 ***	0.01	
	Lower involvement	1.44	0.35	−0.05	−0.06
Child cognitive functioning _interviewer ratings	Low cognitive stimulation	79.08			
	High positive involvement	85.03	−5.95 **		
	Engaged but harsh discipline	84.33	−5.25 **	0.70	
	Lower involvement	78.37	0.71	6.66	5.96

Note. ***: $p < 0.001$; **: $p < 0.01$

For both internalizing and externalizing problems, children in the *low cognitive stimulation* class showed the highest levels of behavior problems among the four classes. The distal means of internalizing (father ratings = 1.53, mother ratings = 1.49) and externalizing (father ratings = 1.82, mother ratings = 1.79) behavior problems were significantly higher for children in the *low cognitive stimulation* class compared to children in the other three classes. The only exception was no significant difference in mother-reported externalizing behavior problems between the *low cognitive stimulation* class and the *lower involvement* class (mean difference = 0.35, $p = 0.19$). Additionally, children in the *engaged but harsh discipline* class showed significantly higher levels of father-reported internalizing problems than the *high positive involvement* and *lower involvement* classes, as well as significantly higher levels of father-reported externalizing problems than the *high positive involvement* class.

In terms of verbal/cognitive functioning, the mean PPVT score was significantly lower for children in the *low cognitive stimulation* class (M = 79.08) compared to those in the *high positive involvement* class (M = 85.03) and the *engaged but harsh discipline* class (M = 84.33). There were no other significant mean differences in PPVT scores across the latent classes.

4. Discussion

The primary aim of the study was to investigate whether and to what extent different patterns of father involvement are associated with various dimensions (e.g., social, behavioral, and cognitive) of child development among children in families with low income. Our findings contribute knowledge that can inform intervention efforts to foster healthy development among children in families with low income who are at heightened risk for negative developmental outcomes. Consistent with our hypotheses, we found heterogeneous patterns of father involvement. More specifically, we successfully identified four classes of father involvement that were qualitatively distinct from each other. These findings offer additional evidence and robust support for theoretical and empirical research that has suggested fathering is multidimensional [22,32–34]. Furthermore, the discovery of four distinctive patterns of father involvement provides empirical evidence for the heterogeneity in father involvement among low-income families, with some of the identified patterns consistent with prior research with families with low income [33,34].

4.1. Four Distinct Patterns of Involvement among Fathers

The largest proportion of the sample (47.48%) fell into the *high positive involvement* class in which fathers showed high levels of positive involvement (e.g., more time spent together, high paternal warmth and engagement) and low levels of harsh discipline. The finding that nearly half of the fathers in this sample exhibited the pattern of high, positive father involvement is especially important. Lower-income fathers, especially Black fathers, have often been depicted as invisible, absent, and uninvolved (e.g., "the myth of the missing Black father") [54], yet our findings are consistent with other recent studies that challenge such stereotypes. For example, using a sample of fathers (in which close to half the sample was Black) from the Building Strong Families project, Lee et al. showed that fathers with a supportive parenting profile (i.e., highest levels of sensitivity, positive regard, cognitive stimulation, and the lowest levels of intrusiveness and detachment) made up the largest group out of the three distinct fathering groups they identified [34].

The second most prevalent pattern of father involvement was the *engaged but harsh discipline* class (42.01%) that was characterized by higher levels of involvement across the board, including greater use of harsh discipline and abusive behaviors. Relatively high probabilities of harsh discipline highlighted in this class are in line with prior research that identified a significant link between economic hardship and poor parenting, including child maltreatment [55]. Studies have suggested that economic hardship may introduce high parental stress, which may be associated with negative, harsh, and poor parenting behaviors [56]. Prior research with families with low income has found negative parenting profiles amongst fathers whereby they engage in moderate levels of sensitivity, cognitive stimulation, and positive regard along with high levels of intrusiveness and negative regard [33]. The *engaged but harsh discipline* class identified in our study is novel, however, given that no known fathering/parenting profile research has considered harsh discipline and abusive behaviors. Although such prior research has not used indicators of harsh discipline as in the case of the current study, the *engaged but harsh discipline* fathering class found in the current study seems to align with the negative fathering profile [33] in that they both share moderate to high levels of positive parenting behaviors within the context of high levels of poor parenting behaviors.

The low cognitive stimulation class (8.27%) was distinguished by the lowest probabilities of paternal cognitive stimulation out of all classes. Fathers in this class showed particularly low levels of engagement (e.g., read books or tell stories to the child) in creating a cognitively stimulating, learning-rich home environment that can foster their children's

cognitive and language development. Fathers with low income and fathers of color may face multiple challenges (e.g., lack of time and resources, non-English speaking immigrants) that may serve as barriers to providing their children with cognitively stimulating environments and activities [57,58]. To the best of our knowledge, no similar fathering profile has been discovered in prior research with men with low income. This may be attributed to the fact that we used multiple indicators of cognitive stimulation (e.g., reading books, telling stories), whereas prior studies have only used a single observed measure of cognitive stimulation [33,34].

Lastly, the *lower involvement* class (2.04%), though the smallest in size, had distinct and meaningful differences from other classes. Fathers in this class showed generally lower levels of involvement in all dimensions of fathering, but especially with respect to the quantity of involvement (e.g., spending one or more hours a day with the child, playing inside with games or toys, taking the child for a walk or to play outside). This may be because fathers with low income tend to work more hours and have non-standard and/or changing work schedules [59]. The *lower involvement* class seems to be consistent with the detached parenting profile found amongst fathers with low income [33], whereby fathers exhibit generally low levels of engagement in both positive and negative parenting behaviors. Importantly, considering its size, this class should be replicated and validated with other samples in future research.

4.2. Father Involvement Patterns and Children's Developmental Outcomes

In terms of the relations between father involvement patterns and child development, one of the most notable findings was the important role played by paternal cognitive stimulation in child development among families with low income. Children in the *low cognitive stimulation* class struggled across the socioemotional, behavioral, and cognitive domains of development, showing higher levels of father- and mother-reported behavior problems and lower levels of socioemotional and cognitive functioning compared to the other three groups. These findings are consistent with the broader literature that report the positive association between fathers' cognitive stimulation (e.g., stimulating parenting, reading books to children, fathers' home literacy involvement) and children's healthy development during early childhood [21,60–62]. While much of the prior work documented the impact of cognitive stimulation on children's cognitive development, such as verbal ability, language outcomes, and academic skills [3,61,63], our findings suggest that the positive influence of paternal cognitive stimulation expands beyond cognitive development into other domains of child development, such as socioemotional and behavioral functioning.

Another primary finding was that children in the *engaged but harsh discipline* class had significantly higher levels of father-reported internalizing problems (than the *high positive involvement* and *lower involvement* classes) and externalizing problems (than the *high positive involvement* class). This finding implies that the high level of involvement in other aspects of fathering (e.g., warmth, cognitive stimulation, time spent together) did not buffer the negative impact of harsh discipline and abusive behaviors on children's behavioral outcomes. Our findings are largely consistent with previous studies that found higher levels of internalizing and externalizing symptoms among children who have experienced harsh discipline, including physical punishment and emotional/verbal abuse [64,65]. The family stress model and prior empirical studies suggest that economic hardship and financial pressure in fathers/parents with low income may be related to disrupted parenting practices through elevated levels of psychological distress and interparental conflict [66]. Drawing from social learning theory [67], disruptive parenting (e.g., harsh discipline), in turn, could be associated with negative child adjustment as children exposed to violent acts may observe and model aggressive behavior.

It should also be noted that the *engaged but harsh discipline* class was related to greater behavior problems reported by fathers, but not mothers. This may be explained by the reciprocal associations between paternal harsh discipline and children's behavior problems

over time [68]. That is, fathers who see their children as having behavior problems (i.e., internalizing and externalizing symptoms) may be more likely to use harsh physical and verbal discipline to manage or correct their children's problem behaviors, and the use of harsh discipline may further exacerbate children's problem behaviors (e.g., children become more aggressive and antisocial). However, more research is needed to disentangle the complex associations between paternal harsh discipline and child behavior problems and understand the discrepancies in findings between different informants (i.e., fathers vs. mothers).

4.3. Limitations

This study has several limitations. First, because the study sample consisted of married couples with low income and residential fathers who participated in the SHM intervention, the findings of the study may not be generalizable to a broader population. In particular, SHM participants volunteered to receive healthy relationship and marriage strengthening education and services by participating in the project. Second, the study relied solely on fathers' reports to assess father involvement. The use of multiple informants (e.g., both mothers and fathers) may provide a more nuanced and fuller picture of father involvement. Relatedly, we were unable to include maternal involvement items in the analytic models due to the heavy skewness of the items (i.e., a lack of variability). Another measurement-related limitation is that some of the measures used in this study, including father involvement items, have not been standardized or validated in prior studies or with families with low income. The results of the study should be interpreted with caution and considered somewhat preliminary, in light of these measurement limitations. Third, the size of the *lower involvement* class was small (2% of the sample). Although the *lower involvement* class represented a distinct pattern of father involvement observed among fathers with low income, this class should be replicated and validated with other samples of fathers with low income in future research to establish greater reliability. Fourth, there were potentially important factors, such as the quality of father–mother relationships, child temperament, and race/ethnicity, that were not accounted for in the current study, either due to lack of data or given the complexity of the analysis employed in the study. Future research should explore how various biological and environmental factors might be related to patterns of father involvement and child development in families with low income. Finally, any causal inferences cannot be drawn from this study due to the nature of the study design.

4.4. Implications for Policy and Practice

The current study offers several important implications for policy and practice. Our results highlight the significance of positive father involvement in healthy child development. At the policy level, increased funding and resources should be allocated to support programs and initiatives (e.g., responsible fatherhood programs) that encourage and facilitate positive father involvement in the lives of children among families with low income. At the practice level, more effort is needed to actively engage fathers in parenting interventions, services, and programs. Our finding that fathers' cognitive stimulation is a key promotive factor for children's healthy social, behavioral, and cognitive development points to the need for fatherhood programming to include components that focus on enhancing fathers' involvement in activities that are cognitively stimulating for their children. For example, practitioners working with fathers with low income could help fathers create a language-rich and cognitively stimulating home environment and build skills to interact with their children in ways that promote language and cognitive development (e.g., reading books the child, using educational materials, telling stories, singing songs, etc.) [69]. Further, considering that paternal harsh discipline was a salient risk factor for behavior problems in children, efforts to engage fathers in programs that focus on positive parenting and maltreatment prevention are needed.

5. Conclusions

The findings of the study contribute to a body of emerging research examining patterns of father involvement among families with low income. The identification of four father involvement patterns (i.e., *high positive involvement*; *engaged but harsh discipline*; *low cognitive stimulation*; *lower involvement*) and their unique associations with child development provide meaningful information that can be incorporated into interventions for young children in socioeconomically disadvantaged families. Given that our findings highlight the pivotal role of positive father involvement, such as paternal cognitive stimulation, on healthy child development, researchers and clinicians developing interventions for positive child development should consider actively engaging fathers in intervention programs and services. Finally, future research should explore potential differences and diversity in patterns of father involvement across different racial/ethnic groups and different developmental stages of children.

Supplementary Materials: The following are available online at https://www.mdpi.com/article/10.3390/children8121164/s1, Table S1: Descriptive statistics for the indicators, covariates, and distal outcomes, Table S2: Effects of the covariates on the distal outcomes, Syntax S1: Mplus syntax.

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References

1. Cabrera, N.J.; Volling, B.L.; Barr, R. Fathers Are Parents, Too! Widening the Lens on Parenting for Children's Development. *Child Dev. Perspect.* **2018**, *12*, 152–157. [CrossRef]
2. Lamb, M.E. *The Role of the Father in Child Development*, 5th ed.; John Wiley & Sons: Hoboken, NJ, USA, 2004.
3. McWayne, C.; Downer, J.T.; Campos, R.; Harris, R.D. Father Involvement during Early Childhood and Its Association with Children's Early Learning: A Meta-Analysis. *Early Educ. Dev.* **2013**, *24*, 898–922. [CrossRef]
4. Sarkadi, A.; Kristiansson, R.; Oberklaid, F.; Bremberg, S. Fathers' Involvement and Children's Developmental Outcomes: A Systematic Review of Longitudinal Studies. *Acta Paediatr.* **2008**, *97*, 153–158. [CrossRef]
5. Allport, B.S.; Johnson, S.; Aqil, A.; Labrique, A.B.; Nelson, T.; Kc, A.; Carabas, Y.; Marcell, A.V. Promoting Father Involvement for Child and Family Health. *Acad. Pediatr.* **2018**, *18*, 746–753. [CrossRef]
6. Drysdale, R.E.; Slemming, W.; Makusha, T.; Richter, L.M. Father Involvement, Maternal Depression and Child Nutritional Outcomes in Soweto, South Africa. *Matern. Child Nutr.* **2021**, *17*, e13177. [CrossRef] [PubMed]
7. Teitler, J.O. Father Involvement, Child Health and Maternal Health Behavior. *Child. Youth Serv. Rev.* **2001**, *23*, 403–425. [CrossRef]
8. Cano, T.; Perales, F.; Baxter, J. A Matter of Time: Father Involvement and Child Cognitive Outcomes. *J. Marriage Fam.* **2019**, *81*, 164–184. [CrossRef]
9. Flouri, E.; Buchanan, A. The Role of Father Involvement in Children's Later Mental Health. *J. Adolesc.* **2003**, *26*, 63–78. [CrossRef]

10. Maselko, J.; Hagaman, A.K.; Bates, L.M.; Bhalotra, S.; Biroli, P.; Gallis, J.A.; O'Donnell, K.; Sikander, S.; Turner, E.L.; Rahman, A. Father Involvement in the First Year of Life: Associations with Maternal Mental Health and Child Development Outcomes in Rural Pakistan. *Soc. Sci. Med.* **2019**, *237*, 112421. [CrossRef] [PubMed]
11. Nobles, J. Parenting from Abroad: Migration, Nonresident Father Involvement, and Children's Education in Mexico. *J. Marriage Fam.* **2011**, *73*, 729–746. [CrossRef]
12. Varghese, C.; Wachen, J. The Determinants of Father Involvement and Connections to Children's Literacy and Language Outcomes: Review of the Literature. *Marriage Fam. Rev.* **2016**, *52*, 331–359. [CrossRef]
13. Leon, S.C.; Jhe Bai, G.; Fuller, A.K. Father Involvement in Child Welfare: Associations with Changes in Externalizing Behavior. *Child. Abus. Neglect.* **2016**, *55*, 73–80. [CrossRef]
14. Opondo, C.; Redshaw, M.; Savage-McGlynn, E.; Quigley, M.A. Father Involvement in Early Child-Rearing and Behavioural Outcomes in Their Pre-Adolescent Children: Evidence from the ALSPAC UK Birth Cohort. *BMJ Open* **2016**, *6*, e012034. [CrossRef]
15. The Annie E. Casey Foundation Child Poverty Statistics in the U.S. Available online: https://datacenter.kidscount.org/data/tables/43-children-in-poverty-100-percent-poverty (accessed on 26 October 2021).
16. Lacour, M.; Tissington, L.D. The Effects of Poverty on Academic Achievement. *Educ. Res. Rev.* **2011**, *6*, 522–527.
17. Spencer, N.; Thanh, T.M.; Louise, S. Low Income/Socio-Economic Status in Early Childhood and Physical Health in Later Childhood/Adolescence: A Systematic Review. *Matern Child Health J.* **2013**, *17*, 424–431. [CrossRef]
18. Benner, A.D.; Boyle, A.E.; Sadler, S. Parental involvement and adolescents' educational success: The roles of prior achievement and socioeconomic status. *J. Youth Adoles.* **2016**, *45*, 1053–1064. [CrossRef]
19. Miller, D.P.; Thomas, M.M.C.; Waller, M.R.; Nepomnyaschy, L.; Emory, A.D. Father Involvement and Socioeconomic Disparities in Child Academic Outcomes. *J. Marriage Fam.* **2020**, *82*, 515–533. [CrossRef]
20. Pleck, E.H.; Pleck, J.H. Fatherhood Ideals in the United States: Historical Dimensions. *Role Father Child Dev.* **1997**, *3*, 33–48.
21. Cabrera, N.; Tamis-LeMonda, C.S.; Bradley, R.H.; Hofferth, S.; Lamb, M.E. Fatherhood in the Twenty-First Century. *Child Dev.* **2000**, *71*, 127–136. [CrossRef]
22. Pleck, J.H. Fatherhood and masculinity. *Role Father. Child Dev.* **2010**, *5*, 27–57.
23. Xu, Y.; Huang, H.; Cao, Y. Associations among Early Exposure to Neighborhood Disorder, Fathers' Early Involvement, and Children's Internalizing and Externalizing Problems. *J. Evid. Based Soc. Work* **2020**, *17*, 558–575. [CrossRef] [PubMed]
24. Sethna, V.; Perry, E.; Domoney, J.; Iles, J.; Psychogiou, L.; Rowbotham, N.E.L.; Stein, A.; Murray, L.; Ramchandani, P.G. Father–child interactions at 3 months and 24 months: Contributions to children's cognitive development at 24 months. *Infant Ment. Health J.* **2017**, *38*, 378–390. [CrossRef]
25. Lamb, M.E.; Pleck, J.H.; Levine, J.A. The role of the father in child development: The effects of increased paternal involvement. In *Advances in Clinical Child Psychology*, 1st ed.; Lahey, B.B., Kazdin, A.E., Eds.; Plenum Press: New York, NY, USA, 1985; Volume 8, pp. 229–266.
26. Palkovitz, R. Involved fathering and child development: Advancing our understanding of good fathering. In *Handbook of Father Involvement: Multidisciplinary Perspectives*, 1st ed.; Tamis-LeMonda, C.S., Cabrera, N., Eds.; Erlbaum: Mahwah, NJ, USA, 2002; pp. 33–64.
27. Baker, C.E. Father-Son Relationships in Ethnically Diverse Families: Links to Boys' Cognitive and Social Emotional Development in Preschool. *J. Child Fam. Stud.* **2017**, *26*, 2335–2345. [CrossRef]
28. Chang, L.; Schwartz, D.; Dodge, K.A.; McBride-Chang, C. Harsh Parenting in Relation to Child Emotion Regulation and Aggression. *J. Fam. Psychol.* **2003**, *17*, 598–606. [CrossRef]
29. Liew, J.; Carlo, G.; Streit, C.; Ispa, J.M. Parenting Beliefs and Practices in Toddlerhood as Precursors to Self-Regulatory, Psychosocial, and Academic Outcomes in Early and Middle Childhood in Ethnically Diverse Low-Income Families. *Soc. Dev.* **2018**, *27*, 891–909. [CrossRef]
30. Yoon, S.; Bellamy, J.L.; Kim, W.; Yoon, D. Father Involvement and Behavior Problems among Preadolescents at Risk of Maltreatment. *J. Child Fam. Stud.* **2018**, *27*, 494–504. [CrossRef]
31. Stevenson, M.M.; Crnic, K.A. Activative Fathering Predicts Later Children's Behaviour Dysregulation and Sociability. *Early Child Dev. Care* **2013**, *183*, 774–790. [CrossRef]
32. Volling, B.L.; Stevenson, M.M.; Safyer, P.; Gonzalez, R.; Lee, J.Y., IV. In Search of the Father–Infant Activation Relationship: A Person-Centered Approach. *Adv. Res. Meas. Father. Child. Dev.* **2019**, *84*, 50–63.
33. Ryan, R.; Martin, A.; Brooks-Gunn, J. Is One Good Enough Parent Good Enough? Patterns of Father and Mother Parenting and Their Combined Associations with Concurrent Child Outcomes at 24 and 36 Months. *Parent. Sci. Pract.* **2006**, *6*, 211–228.
34. Lee, J.Y.; Volling, B.L.; Lee, S.J. Testing the Father–Child Activation Relationship Theory: A Replication Study with Low-Income Unmarried Parents. *Psychol. Men. Masc.* **2021**, *22*, 551–563. [CrossRef]
35. Laursen, B.; Hoff, E. Person-Centered and Variable-Centered Approaches to Longitudinal Data. *Merrill-Palmer Q.* **2006**, *52*, 377–389. [CrossRef]
36. Brown, G.; Mangelsdorf, S.C.; Shigeto, A.; Wong, M.S. Associations between Father Involvement and Father-Child Attachment Security: Variations Based on Timing and Type of Involvement. *J. Fam. Psychol.* **2018**, *32*, 1015–1024. [CrossRef] [PubMed]

37. Lowenstein, A.E.; Altman, N.; Chou, P.M.; Faucetta, K.; Greeney, A.; Gubits, D.; Nguyen, V.Q. *A Family-Strengthening Program for Low-Income Families: Final Impacts from the Supporting Healthy Marriage Evaluation, Technical Suppl. OPRE Report 2014–09B. Research and Evaluation*; Administration for Children and Families, US Department of Health and Human Services: Washington, DC, USA, 2014.
38. Dunn, L.M.; Dunn, D.M. *Peabody Picture Vocabulary Test*, 4th ed.; Pearson Assessments: Bloomington, MN, USA, 2007.
39. Dunn, L.; Padilla, E.; Lugo, D.; Dunn, L. *Manual Del Examinador Para El Test de Vocabulario En Imágenes Peabody (Peabody Picture Vocabulary Test)–Adaptación Hispanoamericana (Hispanic-American Adaptation)*; American Guidance Service: Bloomington, MN, USA, 1986.
40. Sullivan, J.R.; Winter, S.M.; Sass, D.A.; Svenkerud, N. Assessing Growth in Young Children: A Comparison of Raw, Age-Equivalent, and Standard Scores Using the Peabody Picture Vocabulary Test. *J. Res. Child. Educ.* **2014**, *28*, 277–291. [CrossRef]
41. Oberski, D. Mixture models: Latent profile and latent class analysis. In *Modern Statistical Methods for HCI*; Springer: Berlin/Heidelberg, Germany, 2016; pp. 275–287.
42. Muthén, L.; Muthén, B. *Mplus User's Guide*, 8th ed.; Author: Los Angeles, CA, USA, 2017.
43. Howard, M.C.; Hoffman, M.E. Variable-Centered, Person-Centered, and Person-Specific Approaches: Where Theory Meets the Method. *Organ. Res. Methods* **2018**, *21*, 846–876. [CrossRef]
44. Muthén, B.; Shedden, K. Finite Mixture Modeling with Mixture Outcomes Using the EM Algorithm. *Biometrics* **1999**, *55*, 463–469. [CrossRef] [PubMed]
45. Nylund-Gibson, K.; Grimm, R.P.; Masyn, K.E. Prediction from Latent Classes: A Demonstration of Different Approaches to Include Distal Outcomes in Mixture Models. *Struct. Equ. Modeling Multidiscip. J.* **2019**, *26*, 967–985. [CrossRef]
46. Bakk, Z.; Tekle, F.B.; Vermunt, J.K. Estimating the Association between Latent Class Membership and External Variables Using Bias-Adjusted Three-Step Approaches. *Sociol. Methodol.* **2013**, *43*, 272–311. [CrossRef]
47. Bolck, A.; Croon, M.; Hagenaars, J. Estimating Latent Structure Models with Categorical Variables: One-Step versus Three-Step Estimators. *Political Anal.* **2004**, *12*, 3–27. [CrossRef]
48. Lanza, S.T.; Tan, X.; Bray, B.C. Latent Class Analysis With Distal Outcomes: A Flexible Model-Based Approach. *Struct. Equ. Modeling Multidiscip. J.* **2013**, *20*, 1–26. [CrossRef]
49. Vermunt, J.K. Latent Class Modeling with Covariates: Two Improved Three-Step Approaches. *Political Anal.* **2010**, *18*, 450–469. [CrossRef]
50. Akaike, H. A New Look at the Statistical Model Identification. *IEEE Trans. Autom. Control* **1974**, *19*, 716–723. [CrossRef]
51. Schwarz, G. Estimating the Dimension of a Model. *Ann. Stat.* **1978**, 461–464. [CrossRef]
52. Celeux, G.; Soromenho, G. An Entropy Criterion for Assessing the Number of Clusters in a Mixture Model. *J. Classif.* **1996**, *13*, 195–212. [CrossRef]
53. Nagin, D. *Group-Based Modeling of Development*; Harvard University Press: Cambridge, MA, USA, 2005.
54. Coles, R.L.; Coles, R.; Green, C.S.C. *The Myth of the Missing Black Father*; Columbia University Press: New York, NY, USA, 2010.
55. Lefebvre, R.; Fallon, B.; Van Wert, M.; Filippelli, J. Examining the Relationship between Economic Hardship and Child Maltreatment Using Data from the Ontario Incidence Study of Reported Child Abuse and Neglect-2013 (OIS-2013). *Behav. Sci.* **2017**, *7*, 6. [CrossRef] [PubMed]
56. Warren, E.J.; Font, S.A. Housing Insecurity, Maternal Stress, and Child Maltreatment: An Application of the Family Stress Model. *Soc. Serv. Rev.* **2015**, *89*, 9–39. [CrossRef]
57. Votruba-Drzal, E. Income Changes and Cognitive Stimulation in Young Children's Home Learning Environments. *J. Marriage Fam.* **2003**, *65*, 341–355. [CrossRef]
58. Peterson, J.; Bruce, J.; Patel, N.; Chamberlain, L.J. Parental Attitudes, Behaviors, and Barriers to School Readiness among Parents of Low-Income Latino Children. *Int. J. Environ. Res. Public Health* **2018**, *15*, 188. [CrossRef] [PubMed]
59. Strawn, J.; Martinson, K. *Steady Work and Better Jobs: How to Help Low-Income Parents Sustain. Employment and Advance in the Workforce. A How-to Guide*; Manpower Demonstration Research Corporation: New York, NY, USA, 2000.
60. Tamis-LeMonda, C.S.; Shannon, J.D.; Cabrera, N.J.; Lamb, M.E. Fathers and Mothers at Play with Their 2- and 3-Year Olds: Contributions to Language and Cognitive Development. *Child. Dev.* **2004**, *75*, 1806–1820. [CrossRef]
61. Duursma, A. The Effects of Fathers' and Mothers' Reading to Their Children on Language Outcomes of Children Participating in Early Head Start in the United States. *Fac. Soc. Sci. Pap. (Arch.)* **2014**, 283–302.
62. Baker, C.E. Fathers' and Mothers' Home Literacy Involvement and Children's Cognitive and Social Emotional Development: Implications for Family Literacy Programs. *Appl. Dev. Sci.* **2013**, *17*, 184–197. [CrossRef]
63. Coley, R.L.; Lewin-Bizan, S.; Carrano, J. Does Early Paternal Parenting Promote Low-Income Children's Long-Term Cognitive Skills? *J. Fam. Issues* **2011**, *32*, 1522–1542. [CrossRef]
64. McKee, L.; Roland, E.; Coffelt, N.; Olson, A.L.; Forehand, R.; Massari, C.; Jones, D.; Gaffney, C.A.; Zens, M.S. Harsh Discipline and Child Problem Behaviors: The Roles of Positive Parenting and Gender. *J. Fam. Viol.* **2007**, *22*, 187–196. [CrossRef]
65. Parent, J.; Forehand, R.; Merchant, M.J.; Edwards, M.C.; Conners-Burrow, N.A.; Long, N.; Jones, D.J. The Relation of Harsh and Permissive Discipline with Child Disruptive Behaviors: Does Child Gender Make a Difference in an at-Risk Sample? *J. Fam. Viol.* **2011**, *26*, 527. [CrossRef]
66. Conger, R.D.; Wallace, L.E.; Sun, Y.; Simons, R.L.; McLoyd, V.C.; Brody, G.H. Economic Pressure in African American Families: A Replication and Extension of the Family Stress Model. *Dev. Psychol.* **2002**, *38*, 179–193. [CrossRef]

67. Bandura, A.; Walters, R.H. *Social Learning Theory*; Prentice Hall: Englewood cliffs, NJ, USA, 2000.
68. Wang, M.; Liu, L. Reciprocal Relations between Harsh Discipline and Children's Externalizing Behavior in China: A 5-year Longitudinal Study. *Child Dev.* **2018**, *89*, 174–187. [CrossRef]
69. Chacko, A.; Fabiano, G.A.; Doctoroff, G.L.; Fortson, B. Engaging Fathers in Effective Parenting for Preschool Children Using Shared Book Reading: A Randomized Controlled Trial. *J. Clin. Child Adolesc. Psychol.* **2018**, *47*, 79–93. [CrossRef] [PubMed]

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