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Special Issue Reprint

School Bullying during Childhood and Adolescence

Edited by
Muhammad Waseem

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About the Editor

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Muhammad Waseem is an Emergency Medicine and Pediatrics Professor at Weill Cornell Medicine, New York. He has completed a Pediatrics residency and a Pediatric Emergency Medicine fellowship. His other educational achievements include a master's in clinical Investigation and Epidemiology, as well as Health Services Research from Cornell University, New York. He served as the Research Director for the Department of Emergency Medicine and vice chair for the IRB at Lincoln Medical Center Bronx, New York, for several years. He has also earned the following research-related certifications: Certified IRB Professional (CIP) by Public Responsibility in Medicine and Research (PRIMER); Certified Principal Investigator (CPI) by the Association of Clinical Research Professionals (ACRP); and Certified Clinical Research Professional (CCRP) by the Society of Clinical Research Associates (SOCRA).

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Editorial

Evolving Dimensions of Bullying in Children

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Bullying remains a pervasive issue that affects many children worldwide, with devastating consequences that ripple through their lives and communities. The effects and consequences of bullying continue to evolve. There is a gap in the research that addresses the impact of bullying on the victim, the bully, and their families. This demands urgent attention and concerted efforts from parents, educators, policymakers, and society. This Special Issue focuses on school bullying during childhood and adolescence. The manuscripts referenced in this Special Issue address several aspects of bullying and its influence on children's lives.

The first manuscript emphasizes the importance of peer relationships and their capacity to prevent bullying. Peer relationships are essential for a healthy environment. The presence of school bullying can have profound effects on children's peer cooperation. Negative peer interaction can result in a hostile peer environment where students focus more on asserting dominance or avoiding victimization than cooperating. Cooperative learning demonstrated significant positive effects [1]. It also resulted in a positive change in peer relations and affective empathy [2]. Negative effects were reduced with increased support from teachers and parents. Effective support systems at school and home can mediate the impact of school bullying on peer cooperation.

The second manuscript assesses the association between bullying victimization and psychological distress. Although there is an association between bullying victimization and psychological distress, the underlying mechanism of this link is not clear. This manuscript assesses the impact of bullying on mental health, specifically depression, anxiety, and stress. There is a multidirectional relationship between bullying victimization and mental health issues. Bullying victimization not only leads to mental health issues, but children who already suffer from these issues (e.g., depression, anxiety, or stress) may also be more vulnerable to being targeted by bullies. Also, this co-occurrence of depression and anxiety leads to a worse prognosis [3]. Furthermore, it also explores whether cognitive emotion regulation (CER) strategies could be a potential mediator. This study supports the concept that while dysfunctional CER strategies may be mediated by the impact of bullying victimization on depression, anxiety, and stress, bullying victimization did not significantly influence functional CER strategies.

The third manuscript examines the role of physical activity in preventing bullying. The relationship between bullying and types of physical activity is important in understanding the dynamics of bullying and potential mitigating possibilities. Physical inactivity is a serious public health concern among children and is related to other psycho-social variables [4]. Physical activity may be a protective factor against bullying victimization. In general, physical activities that involve competition can help in developing a defense mechanism [5]. This could help develop and implement effective prevention and intervention strategies. The promotion of physical activity can be an important component in bullying prevention.

The fourth manuscript attempts to understand the contexts that exacerbate or attenuate the connection between bullying and children's mental health. Marginalized and disadvantaged children are vulnerable to being victimized. This article enhances our understanding of bullying experiences among disadvantaged children. This study explores the interplay between school-level disadvantage, bullying involvement, and mental health. These results help develop interventions that target children in the most disadvantaged population.

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The fifth manuscript recognizes the dimensions and contexts of bullying and understands which psychosocial dimensions the dynamics of bullying influence most. This manuscript explores the relationship between bullying perception and its psychosocial dimensions. It has been suggested that bullying impairs all health-related variables. Emotional and social dimensions have served mainly to mediate it.

The sixth manuscript evaluates intercultural differences based on age and gender. Bullying has significantly increased among children worldwide, across all cultures. This study shows that the behaviors associated with school bullying also differ according to the gender of those involved. Nonetheless, both boys and girls internalize social stereotypes. This study on bullying in Spain and Italy yielded significant practical implications for education and society. This information could help in developing consistent approaches among several other countries. Addressing school bullying through a gender-oriented lens and trying to accommodate their distinct characteristics when developing strategies can be very important.

The seventh manuscript explores the association between witnessing bullying and internalizing its symptoms and how they could develop negative consequences. For example, depressive symptoms were evident among males and females who witnessed school bullying. Gender may be a moderator in the relationships between internalizing symptoms, witnessing school bullying, and defending associated behavior. Witnessing school bullying could help to predict depressive symptoms. Among bystanders, gender differences were noted in internalizing symptoms, particularly concerning the type of social anxiety. Specifically, among females, Social Avoidance and Distress were positively related to witnessing school bullying, and in males, defending behavior was positively related to the Fear of Negative Evaluation.

The eighth manuscript assesses the influence of bullying on positive emotions (PEs). Students' positive emotional experiences significantly impact their academic performance (AP). PEs serve as a powerful mediator in determining their AP. Also, Internal Controllable Attributions (ICAs) are correlated with positive emotions and academic performance. This study showed a close relationship between all three variables: AP, PE, and ICA.

The ninth manuscript looks at the impact of the visible nature of diseases and their negative effects. Several medical conditions can make children vulnerable to bullying, particularly diseases with esthetic and potentially disfiguring effects, such as Neurofibromatosis. Assessing the consequences of bullying behaviors in terms of psychological symptoms (i.e., depression and anxiety), Quality of Life (QOL), and self-esteem is warranted. These children are more likely to be victimized, and diseases such as these may also reduce their psychosocial QOL. Their interpersonal relations may also be affected by such stigmatization.

The tenth manuscript explains how empowering children reduces bullying. Empowering children and giving them tools against bullying are essential for their psychological well-being. Teaching children effective interventions and prevention strategies is critical.

In conclusion, this document addresses the mental health implications of bullying. There continues to be an urgent need for the further exploration of variables and mechanisms related to bullying behavior. There are still many variables and mechanisms that need to be explored.

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Article

Effect of School Bullying on Students' Peer Cooperation: A Moderated Mediation Model

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Abstract: Background: Studies show that cooperative environments enhance student performance. However, school bullying can significantly undermine peer cooperation. There is limited research on how school bullying impacts peer cooperation and the mechanisms involved. Methods: Using data from 15-year-old middle school students in four Chinese provinces and cities, as part of the 2018 Program for International Student Assessment (PISA), this study employs a moderated mediation model. It examines the negative effects of school bullying on peer cooperation, the mediating role of school belonging, and the moderating effects of teacher support and parents' support. Results: School bullying negatively impacts peer cooperation. School belonging partially mediates this relationship. Teacher support moderates the effect of school bullying on school belonging, which in turn affects peer cooperation. Parents' support moderates the direct impact of school bullying on peer cooperation. Conclusion: School bullying reduces peer cooperation by diminishing students' sense of belonging in school. This effect is lessened with increased support from teachers and parents. The findings suggest that while social support is beneficial, it must be balanced and not excessive.

Keywords: school bullying; peer cooperation; school belonging; teacher support; parents' support

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1. Introduction

In the 21st century, the ability to cooperate with others in solving problems has become an indispensable core social skill for the new generation, essential for adapting to the needs of the new era [1]. The benefits of cooperative behaviors have been widely proven across various social environments, including communities, hospitals, and companies [2–4]. For example, during the COVID-19 crisis, greater cooperation among countries and groups worldwide reduced the health, social life, and economic harm impacts of the epidemic by increasing compliance with social distancing advice [5].

In education, empirical evidence suggests that students in cooperative academic environments not only excel academically but also report enhanced relationships with peers and stronger school attachment, compared to those in competitive contexts [6,7]. Trust and collaboration among students, teachers, parents, and principals particularly benefit disadvantaged students [8–10]. Thus, schools should focus on enhancing students' ability to cooperate and actively create environments conducive to effective cooperation. Cooperative behavior is diverse and complex. According to social cognitive theory, individual, environmental, and behavioral factors are interdependent yet each exerts a causal influence [11–13]. While individual factors often drive cooperative behavior, environmental factors provide the conditions for its maintenance [14]. Previous studies on cooperative behavior have mainly concerned individual factors such as personality traits, social value orientation, motivation, and environmental factors such as reward and punishment, individual–collectivism cultural backgrounds, group identity, etc. [14]. Although existing studies have emphasized the importance of environmental factors in student cooperation, the impact of peer relationships, especially the destructive role of school bullying, has been less explored. Cooperation

is a socialized behavior, and good peer relationships contribute to cooperative behaviors, whereas undesirable relationships, particularly those affected by school bullying, can cause great damage to good cooperation [15]. However, there is no discussion on the mechanism of the impact of campus bullying on peer cooperation.

School bullying, defined as repeated and deliberate aggressive behavior by one or more students towards a peer [16], can include physical, verbal, or other forms of harm [17,18]. The power imbalance in school bullying often makes it difficult for victims to resist [19–21]. Such bullying significantly disrupts peer relationships, leading to a negative attitude towards cooperation among victims. This study aims to explore the relationship and mechanism of school bullying on peer cooperation, to enrich the theoretical understanding of these dynamics, and to provide new strategies for preventing campus bullying and enhancing cooperative atmospheres in schools.

1.1. School Bullying and Peer Cooperation

School bullying is an important issue of worldwide concern, and being bullied can cause serious consequences to students' health. Research identifies bullying as a significant risk factor for adolescent mental and physical health, both short and long term [22]. Victims of bullying are prone to depression, anxiety, low self-esteem, loneliness, and sadness [23–25], and often exhibit disengagement from school, impaired social relationships, and diminished academic performance [26–28]. According to the frustration–aggression theory [29], both children and adults are prone to anger and other emotions related to aggression after being frustrated, and their aggressive behavior will increase or be further strengthened, and the peer relationship is then violated. Some studies have explored the effect of bullying on peer relationships; for example, a survey of 827 primary and middle school students identified a negative correlation between school bullying and peer acceptance [30]. Also, there are some discussions on peer relationships focused on peer support [31], peer fear and low self-esteem [32], peer acceptance and rejection [33], trouble with peer friendship [34], peer conflict [35], undesired companions relationship [36], and other aspects. According to the analysis of previous research results, students who suffer from school bullying will feel that they receive serious injury by peer groups, a lack of interest in school ensues, and social relations become impaired [26,27], which may lead to a negative perception of the cooperative relationship between classmates. This leads to our first hypothesis H1:

H1. *School bullying negatively impacts peer cooperation*.

1.2. The Mediating Role of School Belonging

School is a crucial setting for children's social interaction, trust-building with teachers, and attachment formation [37]. According to Maslow's hierarchy theory of needs, the need of belonging and love is individual's basic need, influencing students' psychological development [38,39]. However, if they are bullied at school, it is very difficult for them to form the school belonging [40]. Studies have shown that school bullying impairs the formation of school belonging [41,42], and increases the proportion of truancy as well as academic and test anxiety [42,43]. There is also evidence of a negative mutual relationship between school bullying and school belonging [44]. Longitudinal studies have found that positive changes in school belonging can predict a reduction in school bullying behaviors [45]. A sense of school belonging also mediates the relationship between peer support and school bullying [31,36].

A student's sense of belonging to school refers to the degree to which a student feels accepted, respected, or supported by teachers and classmates in the school [46,47], indicating that they see themselves as part of the school groups. According to the social identity theory or group identity theory, individuals identify with their own groups through social classification, and produce in-group and out-group preferences [48]. Eaton, Eswaran, and Oxoby (2011) found that individuals' intrinsic tendency to classify "insiders" and "outsiders" differently, namely, their personal identity, affects cooperation [49]. Contrary

evidence also suggests that group heterogeneity, such as group members belonging to different races or religions, is detrimental to cooperation [50]. Previous research revealed that people with a high sense of belonging will also have more cooperative behaviors [51]. This argument is consistent with the results of a recent study, which shows that cooperation can increase a sense of inclusion, thereby satisfying the need for sense of belonging [52]. In summary, students who are bullied at school have a reduced sense of school belonging, which in turn will reduce their intention to cooperate. So, this study speculates the second hypothesis, H2.

H2. *School belonging mediates the impact of school bullying on peer cooperation.*

1.3. The Moderating Role of Teacher Support and Parents' Support

Mills' significant others theory posits that parents, teachers, and peers are important in the socialization process of students [53]. As important adults in the family and school environment, parents and teachers interact with each other to affect student development [54]. From the perspective of social support theory, social support is a selective behavior that people give material and spiritual help for free to disadvantaged groups in society [55]. Social supporters include people who can have a positive meaning for suffering individuals around them, such as family members, friends, relatives, teachers, etc. In school bullying behavior of middle school students, social support can enable students to maintain positive emotional feelings and physical and mental conditions in a state of psychological stress, avoiding or reducing the harm of school bullying behavior to students [55].

Teachers are one of the main sources of social support for teenagers [56]. Teacher support refers to the behavior and attitude that students perceived for teachers' support in their studying and life, which mainly includes cognitive support, ability support and emotional support [57]. Previous studies have shown that teachers' emotional support is more important than cognitive support and ability support [58,59], and the teacher–student relationship have significant negative effects on students' bullying [60,61]. When students are bullied at school, and if teachers give positive and active attention and support to the bullied students, such as severely criticizing the bullying behavior, criticizing the bully, or making the bully apologize to the bullied students, etc., and giving the victims more emotional support, it will reduce the psychological harm of bullied students and make them feel warm psychologically to a certain extent [55]; however, if when students are bullied on campus teachers choose to "pretend not to see" or ignore them, this will aggravate the feeling of helplessness and despair of the bullied student to a certain extent, which makes it difficult for them to form a sense of trust and dependence on school, and the sense of belonging to the school is correspondingly reduced [62]. Therefore, at the same level of school bullying, compared with students with higher teacher support, students with lower teacher support will find it difficult to feel a higher sense of belonging. Therefore, we propose hypothesis H3:

H3. *Teacher support moderates the first half of the path that school bullying affects peer cooperation through school belonging. Compared with students with higher perceived teacher support, students who perceived lower teacher support experience school bullying will have greater negative predictive effect on their sense of school belonging.*

Similarly, based on the social ecosystem theory, "Human living environment is a complete ecosystem", multiple systems including adolescent's family and school are interrelated, and family experience can affect school experience. According to the social capital theory [63], as an important family social capital, family support in bullying behavior is embodied in the emotional, informational, and material help provided by parents to children after the bullying occurs. Studies have found that after their children are bullied, most parents will take their children to school to find teachers to solve the problem, and some parents will directly ask the parents of bully for an explanation [55]. These behaviors

will reduce the psychological harm of the child school bullying to a certain extent. On the contrary, when the children are facing school bullying, parents choose to let the child "temporarily compromise, and find a chance to retaliate" or "compromise and give up or tell the teacher" may not be able to give the children enough emotional support, and the negative impact of children school bullying cannot be effectively mitigated.

Meanwhile, previous studies have found that family factors also affect individual cooperative behavior. Xie et al. found that parents' work values had a certain impact on children's cooperation tendency [64]. The more parents attach importance to economic interests, the lower the child's cooperative tendency; the more dominant their parents were, the less cooperative their children were. In addition, children who share good receptivity with parents are more cooperative and less aggressive or argumentative; children whose mothers neglected them and excessively restricted them showed less cooperative behavior during activities [65]. Therefore, it can be seen that parents' support is also external protective factor that reduces the impact of the bullying injury; however, since parents' support is not directly involved in school activities, it may not affect students' cooperative behavior through school belonging but may directly moderate the impact of school bullying on cooperative behavior. We propose hypothesis H4:

H4. *Parents' support moderates the negative impact of school bullying on peer cooperation. Compared with students with higher parents' support, students with lower parents' support experience school bullying will have greater negative predictive effect on their peer cooperation.*

In summary, this study conceptualizes a moderated mediation model to explore the mediating role of school belonging in the impact of school bullying on students' peer cooperation and the moderating roles of teacher and parents' support (see Figure 1).

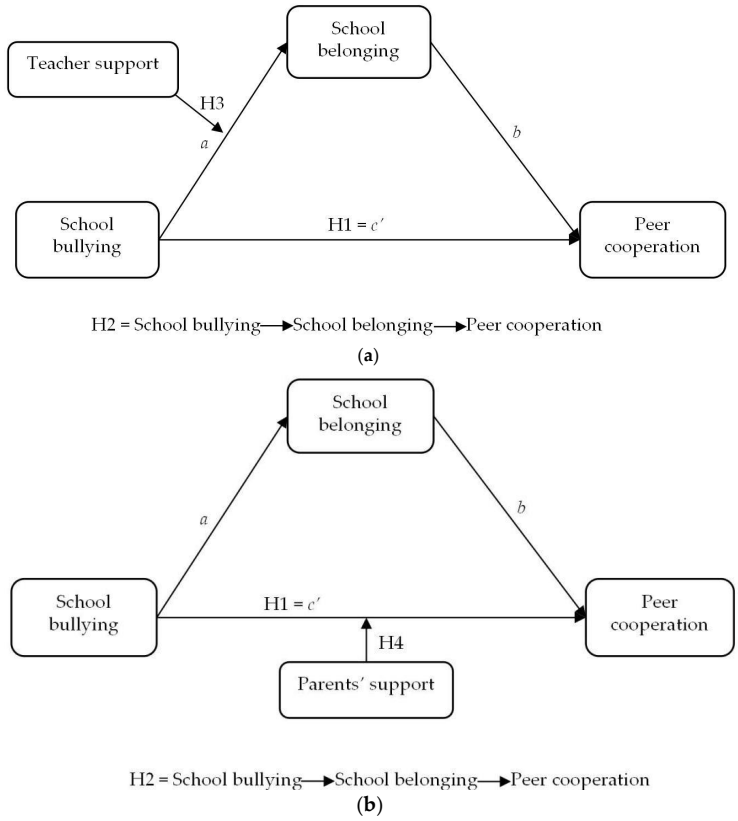

Figure 1. The hypothetical framework model of the study. (**a**) The moderated mediating effect of school bullying on peer cooperation (teacher support). (**b**) The effect of school bullying on peer cooperation (parents' support).

2. Materials and Methods

2.1. Materials

This study's data were sourced from the PISA 2018 survey database, covering four provinces and cities in mainland China (Beijing City, Shanghai City, Jiangsu Province, and Zhejiang Province). The PISA test focuses on students' academic performance in reading, math, and science, as well as their mental health and social development. All variables used in this study were derived from the PISA surveys. A detailed introduction to PISA can be found in Appendix A.

We initially downloaded the 2018 Global Student Questionnaire data file from the PISA website https://www.oecd.org/pisa/data/2018database/ (accessed on 15 October 2021), selecting the data specific to mainland China. These data encompassed 12,058 middle school students aged 15 (ranging from 15 years and 3 months to 16 years and 2 months) from 361 schools. The average class sizes varied from 18 to 53 students, with a mean of 38 students per class. After excluding samples with missing data and those that did not meet the statistical criteria, we proceeded to analyze the data.

2.2. Research Variables

2.2.1. Peer Cooperation

This is the outcome variable. The PISA 2018 background questionnaire asked students to rate the truthfulness of statements about peer cooperation at their school on a Likert scale from 1 (Not at all true) to 4 (Extremely true). The sum of the scores from four questions formed the peer cooperation index, ranging from 4 to 16. A higher score indicates a higher perceived level of peer cooperation. The Cronbach's alpha coefficient for these items was 0.934, showing high internal consistency reliability.

2.2.2. School Bullying

This is the predictive variable. The PISA 2018 questionnaire surveyed students' experiences of physical, relational, and verbal bullying. Students rated the frequency of six different bullying-related experiences on a scale where 1 represented "Never or almost never" and 4 indicated "Once a week or more". The cumulative score of these items, ranging from 6 to 24, represented the severity of bullying. According to the reliability and validity of the formative indicators [66,67], a multi-collinearity test was performed on the six items, yielding VIF values between 1.552 and 2.041, which are within the acceptable range (smaller than 3.3), indicating no multi-collinearity issues.

2.2.3. School Belonging

This is the mediating variable. The PISA 2018 questionnaire measured students' sense of school belonging through six items, rated on a Likert scale from 1 (Strongly agree) to 4 (Strongly disagree). The scores were reversed for three of the questions (question 2, 3 and 5), and the cumulative score ranged from 6 to 24. A higher score reflects a stronger sense of belonging. The Cronbach's α coefficient for this scale was 0.832.

2.2.4. Teacher Support

This is the moderating variable. This variable measured the perceived cognitive and emotional support from teachers, as rated by students in their language classes. The responses were rated on a Likert scale from 1 to 4, with the scores then reversed and summed to create an index ranging from 4 to 16. A higher score indicates greater perceived teacher support. The Cronbach's alpha coefficient for these items was 0.864.

2.2.5. Parents' Support

This is also the moderating variable. This variable measured students' perceived emotional support from their parents, based on three statements rated from 1 (Strongly disagree) to 4 (Strongly agree). The cumulative score ranged from 3 to 12, with higher

scores indicating greater parental emotional support. The Cronbach's alpha coefficient for these items was 0.908.

2.3. Statistical Analyses

Descriptive statistics, reliability analysis, and correlation analysis were performed using SPSS 24.0. The mediation model and moderated mediation model tests were conducted using Hayes' PROCESS program [68], a computational tool available for SPSS and SAS that facilitates moderated mediation analysis. The significance of regression coefficients was tested using the Bootstrap method with a 95% confidence interval, based on 5000 repeated samplings.

2.4. Common Method Biases Test

The use of self-reported data collection can lead to common methodology biases. To address potential biases from self-reported data, anonymous surveys and reverse scoring of some questions were employed. Additionally, Harman's single factor test was used to assess common method biases. The results revealed five factors with eigenvalues greater than 1, and the first factor explained only 27.699% of the variance below the 40% threshold, suggesting no significant common method biases in this study [69].

3. Results

3.1. Descriptive Statistics and Correlation Matrices for the Variables

Correlation analysis of the study variables revealed significant negative correlations between school bullying and peer cooperation, school belonging, teacher support, and parents' support. Conversely, peer cooperation showed significant positive correlations with school belonging, teacher support, and parents' support. Additionally, significant positive correlations were observed among the three variables of school belonging, teacher support, and parents' support (see Table 1).

Table 1. Descriptive statistics and correlation coefficient matrix of each variable.

Variables	*M*	*SD*	1	2	3	4	5
1. Peer cooperation	11.388	2.767	1				
2. School bullying	7.604	2.931	−0.171 **	1			
3. School belonging	17.716	3.297	0.404 **	−0.333 **	1		
4. Teacher support	13.576	2.769	0.286 **	−0.175 **	0.246 **	1	
5. Parents' support	9.990	1.929	0.304 **	−0.144 **	0.286 **	0.202 **	1

Note: *M* is the mean and *SD* is the standard deviation. ** $p < 0.01$.

3.2. Moderated Mediation Model Testing

First, we tested the mediating role of school belonging in the impact of school bullying on peer cooperation using Hayes' PROCESS procedure [68] and Wen and Ye's guidelines [70], employing Model 4 in SPSS. The process involved 5000 bootstrap estimates for constructing 95% bias-corrected confidence intervals (CIs).

The results indicated that school bullying significantly negatively affected students' school belonging ($a = -0.399$, $SE = 0.010$, $t = -38.064$, $p < 0.001$, 95% $CI = [-0.419, -0.378]$), and school belonging significantly positively affected peer cooperation ($b = 0.345$, $SE = 0.008$, $t = 43.355$, $p < 0.001$, 95% $CI = [0.330, 0.361]$). The indirect effect, calculated using the Bootstrap method, was significant (*Effect* $= -0.138$, Boot $SE = 0.006$, and 95% $CI = [-0.149, -0.127]$). Moreover, with school bullying and school belonging in the regression equation, the direct effect of school bullying on peer cooperation was significant ($c' = -0.043$, $SE = 0.010$, $t = -4.546$, $p < 0.001$, 95% $CI = [-0.062, -0.025]$) (see Table 2). The deviation corrected percentile Bootstrap test shows that school belonging plays a part mediating effect in the impact of school bullying on the peer cooperation ($ab = -0.138$, Boot $SE = 0.006$, 95% $CI = [-0.149, -0.127]$). Ratio of indirect to total effect is $ab/(ab + c') = 76.24\%$.

Table 2. Conditional indirect effects of school bullying on peer cooperation through school belonging.

Outcome Variables	Predictive Variables	Effect	*SE*	*t*	*p*	*LLCI*	*ULCI*
Total effect							
Peer cooperation	(constant)	12.767	0.078	162.843	<0.001	12.614	12.921
	School bullying	−0.181	0.010	−18.660	<0.001	−0.200	−0.162
Direct effect							
Peer cooperation	(constant)	5.603	0.181	31.027	<0.001	5.249	5.957
	School bullying	−0.043	0.010	−4.546	<0.001	−0.062	−0.025
Indirect effect							
School belonging	(constant)	20.752	0.085	245.205	<0.001	20.586	20.918
	School bullying	−0.399	0.010	−38.064	<0.001	−0.419	−0.378
Peer cooperation	(constant)	5.603	0.181	31.027	<0.001	5.249	5.957
	School belonging	0.345	0.008	43.355	<0.001	0.330	0.361
		Effect	**Boot *SE***	***t***	***p***	**Boot *LLCI***	**Boot *ULCI***
Peer cooperation	School bullying	−0.138	0.006	/	/	−0.149	−0.127
Ratio of indirect to total effect of School bullying on Peer cooperation							
School belonging		0.760	0.051	/	/	0.673	0.876
R-squared mediation effect size (R-sq_med)							
School belonging		0.028	0.003	/	/	0.022	0.033
Preacher and Kelley (2011) Kappa-squared							
School belonging		0.128	0.005	/	/	0.118	0.138

Note: Bootstrapping based on n = 5000 subsamples. *CI* indicates confidence interval; *LL* = lower limit, indicating the lower confidence interval; *UL* = upper limit, indicating upper confidence interval. Bootstrap SE indicates the standard error after Bootstrap is executed.

To better explain the validity of mediating effects, we calculated the mediation effect size in two ways: R-squared mediation effect size and Preacher and Kelley (2011) Kappa-squared. The results showed that while the effect size of the R-squared mediation effect was not large, the Preacher and Kelley (2011) Kappa-squared had medium effect and was acceptable, affirming the validity of our model [71]. So, we reported the effect size without overemphasizing its magnitude.

Secondly, in order to assess the moderating role of teacher support, we utilized Model 7 within the PROCESS analytical framework. Our moderated mediation analysis encompassed the estimation of three distinct regression equations: Equation (1) evaluated the total effect of school bullying on peer cooperation; Equation (2) examined the moderating influence of teacher support on the association between school bullying and school belonging; Equation (3) appraised the predictive impact of school belonging on peer cooperation, with standardization applied to all predictors. The model's validity was confirmed by the following: (a) a significant total effect of school bullying on peer cooperation in Equation (1); (b) a notable main effect of school bullying on school belonging and a significant interaction between teacher support and school bullying in Equation (2); and (c) a significant predictive effect of school belonging on peer cooperation in Equation (3), as supported by references [68,70].

$$Y = i_Y + c'X + bM + e_Y \quad (1)$$

$$M = i_M + a_1X + a_3XW + e_M \quad (2)$$

$$Y = i_Y + bM + e_Y \quad (3)$$

Y represents peer cooperation, X represents school bullying, M represents school belonging, and W represents teacher support.

Table 3 presents the results, affirming the aforementioned criteria (a), (b) and (c). The moderated mediation effect yielded an index value of −0.012 (Boot *SE* = 0.003, 95% *CI* = [−0.019, −0.006]). In line with Hayes' study [72], this effect is statistically significant, thereby validating the model. This substantiates that the initial process through which school bullying impacts peer cooperation via school belonging is indeed moderated by teacher support. Furthermore, examining the conditional indirect effects at specific levels of teacher support revealed that at a low level of teacher support (1 *SD* below the mean), the indirect effect of school bullying on peer cooperation through school belonging was smaller (*index* = −0.108, Boot *SE* = 0.007, 95% *CI* = [−0.119, −0.097]). Conversely, at a high level of teacher support (1 *SD* above the mean), this indirect effect was more pronounced (*index* = −0.131, Boot *SE* = 0.006, 95% *CI* = [−0.145, −0.118]). Thus, the indirect effect of school bullying on peer cooperation varies in tandem with changes in the level of teacher support, intensifying as teacher support increases.

Table 3. Results of the moderated mediating effect test of teacher support.

Outcome Variables	**Predictive Variables**	R^2	*F*	*β*	*SE*	*t*	*p*	*LLCI*	*ULCI*
School belonging	(constant)			−0.005	0.009	−0.593	0.553	−0.022	0.012
	School bullying	0.149	677.969	−0.311	0.009	−34.143	<0.001	−0.329	−0.293
	Teacher support			0.200	0.009	22.782	<0.001	0.183	0.217
	School bullying × Teacher support			−0.032	0.007	−4.508	<0.001	−0.046	−0.018
Peer cooperation	(constant)			<0.001	0.008	0.031	0.976	−0.016	0.017
	School bullying	0.164	1138.785	−0.041	0.009	−4.586	<0.001	−0.059	−0.024
	School belonging			0.388	0.009	43.270	<0.001	0.370	0.406
Conditional indirect effect at specific levels of the moderator									
Moderator: level of Teacher support				*β*	**Boot *SE***	*t*	*p*	**Boot *LLCI***	**Boot *ULCI***
M − *SD*				−0.108	0.006	/	/	−0.119	−0.097
Mean				−0.121	0.005	/	/	−0.131	−0.110
M + *SD*				−0.131	0.007	/	/	−0.145	−0.118
Index of moderated mediation									
				Index	**Boot *SE***	*t*	*p*	**Boot *LLCI***	**Boot *ULCI***
	Teacher support			−0.012	0.003	/	/	−0.019	−0.006

In order to explain the interaction effect more clearly between school bullying and teacher support, we divided teacher support into high and low groups according to the mean plus or minus one standard deviation ($M \pm SD$), conducted a simple slope test, and drew a simple effect analysis diagram (Figure 2). The results showed that when teacher support is high ($M + SD$), school bullying had significant negative prediction on school belonging ($B_{simple} = -0.339$, $t = 27.478$, $p < 0.001$); when teacher support is low ($M - SD$), the negative prediction effect of school bullying on school belonging was weakened ($B_{simple} = -0.280$, $t = 28.442$, $p < 0.001$; $B_{simple} = -0.339$ decreases to $B_{simple} = -0.280$).

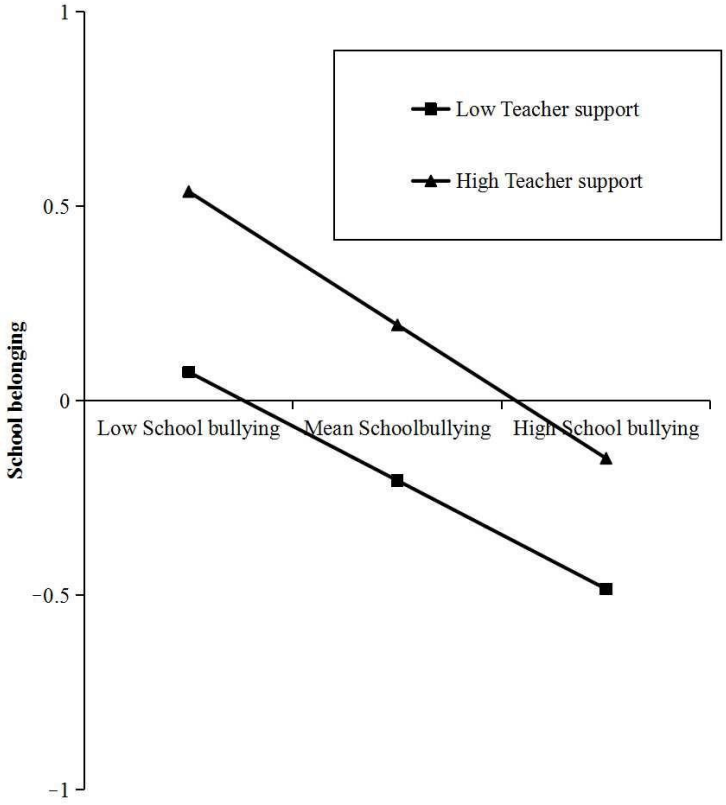

Figure 2. The moderating effect diagram of teacher support on the relationship between school bullying and school belonging.

For the moderating effect of parents' support, Model 5 in the PROCESS procedure was used. The model required estimating three regression equations: Equation (1) for the moderating effect of parents' support on the relationship between school bullying and peer cooperation, Equation (5) for the predictive effect of school bullying on school belonging, and Equation (6) for the predictive effect of school belonging on peer cooperation. The conditions for a significant moderating effect were: (a) Equation (4) showing a significant main effect of school bullying on peer cooperation and a significant interaction effect of parents' support and school bullying; (b) Equation (5) demonstrating a significant predictive effect of school bullying on school belonging; (c) Equation (6) indicating a significant predictive effect of school belonging on peer cooperation.

$$Y = i_Y + c'X + c_{3'}XW + e_Y \quad (4)$$

$$M = i_M + a_1X + e_M \quad (5)$$

$$Y = i_Y + bM + e_Y \quad (6)$$

Y represents peer cooperation, X represents school bullying, M represents school belonging, and W represents parents' support.

The model met these conditions, indicating that the direct process of school bullying affecting peer cooperation is moderated by parents' support, with the index value of the moderated effect *Index* = −0.111, Boot *SE* = 0.005, 95% *CI* = [−0.121, −0.102] (see Table 4).

Table 4. Results of the moderated effect test of parents' support.

Outcome Variables	Predictive Variables	R^2	F	β	SE	t	p	$LLCI$	$ULCI$
School belonging	(constant)	0.110	1442.695	<0.001	0.009	0.051	0.960	−0.017	0.018
	School bullying			−0.334	0.009	−37.983	<0.001	−0.352	−0.317
Peer cooperation	(constant)	0.201	732.234	−0.003	0.008	−0.394	0.693	−0.02	0.013
	School bullying			−0.037	0.009	−4.117	<0.001	−0.055	−0.02
	School belonging			0.333	0.009	36.661	<0.001	0.315	0.35
	Parents' support			0.204	0.009	23.489	<0.001	0.187	0.221
	School bullying × Parents' support			−0.024	0.007	−3.525	<0.001	−0.038	−0.011
Indirect effect of School bullying on Peer cooperation									
				Index	**Boot *SE***	***t***	***p***	**Boot *LLCI***	**Boot *ULCI***
	School belonging			−0.111	0.005	/	/	−0.121	−0.102

In order to explain the interaction effect more clearly between school bullying and parents' support, we divided parents' support into high and low groups according to the mean plus or minus one standard deviation ($M \pm SD$), conducted a simple slope test, and drew a simple effect analysis diagram (Figure 3). The results showed that when parents' support is high ($M + SD$), school bullying has significant negative prediction on peer cooperation ($B_{simple} = -0.062$, $t = -4.878$, $p < 0.001$); when parents' support is low ($M - SD$, the negative prediction effect of school bullying on peer cooperation was not significant ($B_{simple} = -0.013$, $t = -1.315$, $p < 0.189$).

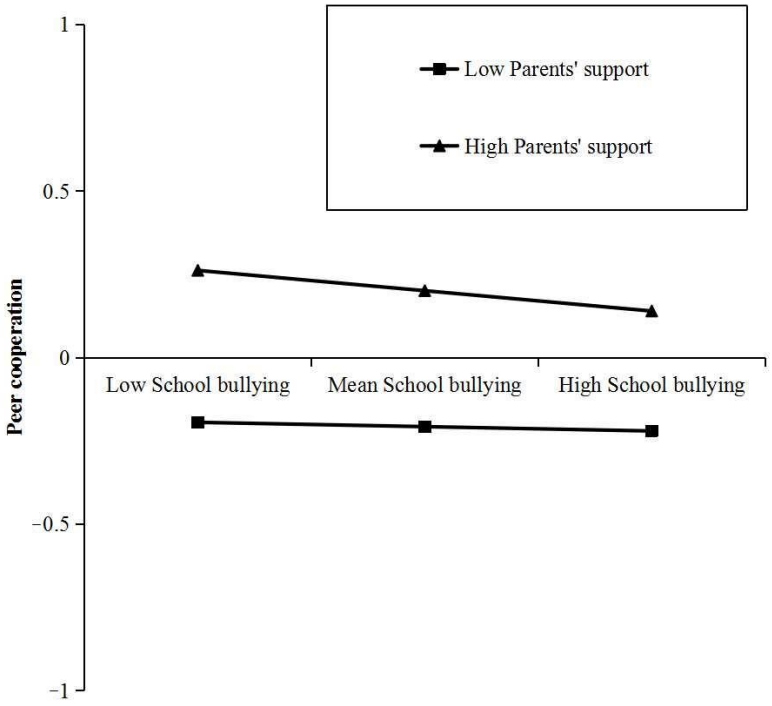

Figure 3. The moderating effect diagram of parents' support on the relationship between school bullying and peer cooperation.

4. Discussion

This study, grounded in social cognitive theory, the frustration–aggression hypothesis, and group identity theory, reveals the relationship between school bullying and peer cooperation and its mechanisms. The key findings are twofold: firstly, the study illustrates "how school bullying works" by influencing peer cooperation through the mediating role of school belonging. Secondly, it dissects "when is more important", showing that the initial part of this intermediary process is moderated by teacher support. Students with higher perceived teacher support experience a greater negative impact on their sense of school belonging when subjected to school bullying. Additionally, the process by which school bullying directly affects peer cooperation is moderated by parents' support. Students with higher parents' support experience a more significant negative impact on peer cooperation when subjected to school bullying. These findings have substantial theoretical significance and practical value for the scientific prevention and intervention of school bullying.

4.1. The Direct Effect of School Bullying on Peer Cooperation

This study substantiates that school bullying significantly and negatively predicts students' peer cooperation, aligning with the principles of the frustration–aggression hypothesis and group identity theory. This diminished perception of peer cooperation may stem from students exhibiting aggressive or apathetic behaviors as a response to the frustrations experienced due to bullying [29]. As victims of school bullying often do not perceive themselves as belonging to the same social group as their aggressors, this group heterogeneity hinders cooperative efforts [50]. Peer relationships are pivotal in adolescent development, with adolescents spending a considerable portion of their time engaged in academic and extracurricular activities with peers. Positive peer interactions foster personality development and maturity. However, bullied students may find themselves alienated from these interactions and less inclined to participate in school activities, adversely affecting classroom participation rates, enrollment, and academic performance [73]. Recent studies corroborate these findings, indicating that school bullying diminishes students' inclination towards cooperation [42]. This study echoes these findings, underscoring the substantial negative impact of school bullying on students' perceptions of and engagement in interpersonal cooperation. Additionally, the experience of school bullying can precipitate severe negative mental health outcomes, such as increased suicidal ideation and attempts [74,75], anxiety disorders [76], psychiatric symptoms [77], depression [78], and sleep disturbances [79]. Thus, the issue of school bullying warrants concerted attention from all societal sectors.

4.2. The Mediating Role of School Belonging

Upon establishing the direct effect of school bullying on peer cooperation, this study further identifies school belonging as a mediating factor in this relationship. Specifically, school bullying undermines peer cooperation by eroding students' sense of belonging within the school environment. According to Maslow's hierarchy of needs, the desire for group belonging is fundamental during adolescence. School belonging encompasses students' ideological, emotional, and psychological identification with, and active participation in, their educational institution, hoping for acceptance by their peers. Given that schools are primary socialization environments during this critical period of value formation, the impact of bullying on students' sense of belonging is profound [80,81]. Teenagers are in a critical period of forming correct values about the world, life, and themselves. They value the acceptance, care, and identification of others. If they are bullied at school, it is very difficult for them to form a school belonging [40].

Students who were bullied at school would have suffered physical and psychological trauma in school life. They do not feel the collective acceptance and recognition of themselves. Then, it is very difficult to accredit school and the group they belong to from the ideological and emotional aspects, and to have a sense of school belonging. They cannot

feel their value in interacting with others, and do not feel the emotion of being a whole with others. Naturally, the degree of perception of peer cooperation will also be reduced.

4.3. The Moderating Role of Teacher Support and Parents' Support

Beyond the mediating role of school belonging, this study also unveils the moderating effects of teacher and parents' support in the relationship between school bullying and peer cooperation. Specifically, teacher support moderates the first half of the indirect pathway ("school bullying–school belonging–peer cooperation"), while parents' support moderates the direct effect of school bullying on peer cooperation. Intriguingly, in contrary to hypotheses H3 and H4 and diverging from previous research and theories, the study reveals that lower levels of teacher and parents' support are associated with a diminished negative impact of school bullying on school belonging and peer cooperation, respectively.

This finding challenges traditional views in social support theory [82,83], which posit that higher levels of perceived social support typically confer positive emotional energy and effective coping mechanisms, thereby buffering negative impacts [84]. Also, according to the Mills' theory of important others, parents, teachers, and peers are important others in the process of socialization of middle school students. Teacher support and parents support are important protective factors [85]. Teacher support is an important manifestation of teachers' listening, encouragement, and respect for students [86]. Students are more likely to seek help from teachers when they encountered a problem or in a difficult situation [40]. Parents' support is also a protective factor from the impact of school bullying [85]. Studies have found that undesirable parent–child communication can lead to students' anti-social behaviors such as aggression and hostility [87]. A higher level of family support is associated with a lower risk of bullying [88]. As the social capital of the family, parents are one of the important subjects in the prevention and treatment of school bullying, and high-quality parental emotional participation will reduce the frequency of school bullying [89].

However, our findings offer a different perspective on social support, of which excessive support, particularly in the context of overprotective or indulgent parenting, may inadvertently render students more vulnerable to the detrimental impacts of bullying. According to our results, when the level of teacher support and parents' support were lower, the negative impact of school bullying were smaller. We think that it may be caused by the following reasons. In general, Chinese parents and teachers give great support to young student's life and study, but sometimes it may exceed a certain limit. Over-protection and even spoiling of their children has been observed, especially by Chinese parents who often do everything for their children and make every effort to protect them from the outside injury. These over-protected children are like "flowers in a greenhouse" [90]. This "greenhouse effect" posits that overly shielded students, accustomed to having problems resolved for them, may experience more pronounced negative effects when exposed to bullying. However, for students who lack social support, they are accustomed to less support may develop resilience, lessening the impact of bullying on their sense of cooperation. So, it looks as if social support also has a certain degree of impact, and if excessive, it may cause the indulgence of the individual, but does not play a protective role. These insights suggest a nuanced understanding of social support, emphasizing the need for balance to avoid fostering dependency and vulnerability.

4.4. Suggestions on the Results

In the process of children's growth, cooperation is a fundamental mode of social interaction and learning. The development of cooperative skills and abilities is essential for successful social and group integration [65]. Studies from the social aspect of children prove that cooperation and friendliness are positively correlated with prosocial behavior and peer acceptance, while aggression and destructive behavior lead to peer rejection [91]. Given the increasing prevalence and societal concern regarding school bullying, a multi-

faceted approach involving government, parents, teachers, schools, and society at large is imperative for its prevention and treatment.

While maintaining a balanced approach, we believe that parents' support and teacher support are still very important factors. Both family and school environments are pivotal in combating school bullying, with home–school collaboration enhancing anti-bullying efforts. Parents should offer more psychological and emotional support, especially to students facing academic challenges, fostering confidence and resilience rather than resorting to criticism. Based on our previous research, certain student demographics, such as boys, students with repeated grades, truancy, and tardiness in the week before the test, and students with lower ESCS (economic, social, and cultural status) were more likely to experience more school bullying [92]. Therefore, teachers should pay more attention to these students groups, think about the causes of bullying behavior from a variety of perspectives, and use multiple ways to deal with bullying behavior to help students learn correct attitudes and behaviors. In addition, teachers must pay more attention to the circle of friends and interaction between students, and if a particular student is excluded, even in an isolated situation, once it is found that there are signs of bullying behavior among students, they should provide appropriate treatment at the first time to prevent the occurrence of bullying.

4.5. Limitations and Future Research Directions

This study, while comprehensive, is constrained by its reliance on the PISA test database, potentially omitting other relevant factors influencing students' experiences of school bullying and peer cooperation. Future research should consider employing alternative databases or custom-designed questionnaires for a more exhaustive analysis.

Additionally, while the cross-sectional design of this study is theoretically grounded, it still cannot fully infer the causal relationship between school bullying and peer cooperation. Longitudinal studies are recommended to further elucidate these relationships..

Finally, we treat school bullying as a continuous variable in this study. Future research could employ latent profile analysis (LPA) to identify potential subgroups of people being bullied, non-bullied, or popular students and conduct comparative studies. By comparatively analyzing individuals' physical characteristics (such as obesity, disability), social characteristics (such as race), psychological characteristics (such as introversion), or other aspects, we ultimately hope to uncover the root causes of vulnerability to bullying and develop preemptive strategies.

5. Conclusions

Utilizing data from the PISA 2018 survey, this study delves into the impact of school bullying on 15-year-old students' peer cooperation and its mediating and moderating mechanisms. The key findings are as follows.

First, school bullying had a significant negative predictive effect on students' peer cooperation, that is, greater bullying severity correlates with lower levels of peer cooperation. Secondly, school belonging partially mediates the relationship between school bullying and peer cooperation, indicating that bullying adversely affects peer cooperation by diminishing students' sense of school belonging. Finally, the study identifies significant moderating effects of teacher support on the indirect effect of school bullying on peer cooperation, and of parents' support on the direct effect of bullying on peer cooperation. Notably, decreased levels of teacher and parents' support were found to mitigate the negative impacts of school bullying, providing a novel perspective on the role of social support in the context of school bullying.

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Institutional Review Board Statement: Ethical review and approval were not required for this study due to the public availability of the data. The research utilized data from the Program for International Student Assessment (PISA), accessible at https://www.oecd.org/pisa/data/2018database/ (accessed on 15 October 2021). The data, which includes responses from students, school principals, teachers, and parents, is publicly available and was not collected by the research team. PISA provides these comprehensive datasets for statisticians and researchers for independent analysis.

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

Data Availability Statement: Publicly available datasets were analyzed in this study. This data can be found here: https://www.oecd.org/pisa/data/2018database/ (accessed on 15 October 2021).

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Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Appendix A.1. Overview of PISA and Its Questionnaires

This study's data were sourced from the 2018 PISA survey database. Conducted by the Organization for Economic Cooperation and Development (OECD), PISA assesses 15-year-old students worldwide in reading, mathematics, and science. The objective is to determine their readiness to engage in modern societal and economic activities. The assessment evaluates not just knowledge replication but also the application of learned concepts to new situations, both inside and outside of school. Initiated in 2000, PISA is conducted every three years, with detailed assessments in the three core subjects rotating every nine years. Along with these assessments, PISA includes background questionnaires that gather data on students' family backgrounds, school environments, attitudes, beliefs, and experiences. Recent iterations have included surveys on contemporary issues, such as bullying (introduced in 2015) and perceived peer cooperation (added in 2018). PISA also involves parents, teachers, and school principals or leaders, with the latter providing insights into school management and learning environments. Since 2000, PISA has involved over 90 countries and over 3 million students, offering extensive global data on student education.

Appendix A.2. Data Collection Methodology

The 2018 PISA data encompass information from 75 countries and economies, targeting 15-year-olds in grade 7 and above. The sampling method is a two-stage stratified design. In the first stage, schools with 15-year-old students are systematically chosen from a national list based on the School Sampling Framework. This Probability Proportional to Size (PPS) sampling sorts schools into distinct groups based on specific characteristics to enhance sample estimate accuracy. In the second stage, students from these selected schools are sampled. Each participating country or economy in the Computer-based Assessment (CBA) and Global Competitiveness (GC) aims for a target cluster size (TCS) of 42 students. Countries or economies participating only in the Paper Assessment (PBA) or in the CBA without GC aim for a TCS of 35. If a school's list of 15-year-olds is shorter than the target number, all students on the list are included.

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Bullying Victimization and Adolescent Depression, Anxiety and Stress: The Mediation of Cognitive Emotion Regulation

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Abstract: Background: Existing research has revealed a robust association between bullying victimization and psychological distress, but less is known about the underlying mechanism of this link. cognitive emotion regulation (CER) strategies could be a potential mediator. The current study examined the role of functional and dysfunctional CER strategies as potential mediators of the association between bullying victimization and depression, anxiety, and stress symptoms among 638 high school students (53.9% boys; Mean age = 15.65, SD = 1.32). Method: Participants completed a series of questionnaires assessing bullying victimization (Olweus Bully/Victim Questionnaire), CER strategies (CERQ-18), and symptoms of depression, anxiety, and stress (DASS-21). The indirect relationships between bullying victimization and psychopathological symptoms via functional and dysfunctional CER strategies were tested through structural equation modeling. Results: Dysfunctional CER strategies mediated the impact of bullying victimization on depression, anxiety, and stress. In contrast, bullying victimization did not significantly influence functional CER strategies. Conclusions: The findings provide additional support for the detrimental role of bullying victimization on mental distress, also suggesting that this effect is not only direct, but indirect is well. These results are particularly relevant in light of the absence of mediation by protective factors such as the use of positive emotion regulation strategies.

Keywords: bullying; cognitive emotion regulation; psychopathology; adolescents

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1. Introduction

Bullying victimization is a social phenomenon consisting of repeated exposure to intentional negative actions from one or more individuals, accompanied by the perception of an interpersonal power imbalance between the perpetrator and the victim [1]. These aspects conceptually differentiate bullying from other forms of abuse [2,3], such as delinquency, sexual harassment, and physical aggression [4,5]. The oppressive actions exercised over victims can be distinguished in terms of direct or indirect forms of bullying. Direct bullying is easily noticeable because it includes explicit or face-to-face attacks on the victim expressed through physical (e.g., hitting, pushing, and tripping) or verbal aggressions (e.g., name-calling and insulting) [6]. In contrast, indirect or relational bullying is more unobtrusive and refers to secretive and insidious behaviors (e.g., gossiping, spreading rumors, and social exclusion; destroying one's property) that intend to progressively isolate the victim from their peers through emotional maltreatment and by damaging their social status [7]. The experience of these forms of victimization could be particularly threatening during adolescence, a developmental period (10–19 years of age [8]) of multiple biological and psychological transitions culminating with the maturation of complex cognitive and behavioral abilities [8]. During adolescence, individuals enter an emerging social environment and need to establish new interpersonal relationships with peers [9,10]. During this period, the urge to establish dominant status [9], in response to the pronounced need for peer-group belonging and acceptance [10,11], increases; thus, experiencing discrimination and isolation can be exceptionally frustrating [12].

Prevalence studies in bullying have revealed that school is the most common site where intimidation occurs among adolescents globally [13–15] due to the different social class levels united in one place from morning to evening [15]. Data from the Global School-based Student Health Survey [16] suggested a global pooled prevalence of bullying victimization of 30.5% amongst adolescents, with rates varying according to students' age, sex, socio-economic status, and peer/parental support perceived [15]. More specifically, it has been observed that, overall, being male, younger in age, having a below-average socioeconomic status, and receiving low peer and parental support were associated with a greater risk of bullying victimization [15]. Some authors have demonstrated that prevalence rates of bullying victimization in Europe are lower compared with those observed in Africa and America, although more recent evidence showed an overall noteworthy prevalence of 36.39% in European countries [17]. In the Italian school context, 20% of students between 11 and 17 years reported having been bullied two or more times in a month [18].

These alarming frequency estimates of bullying victimization are substantial, considering the consequences of bullying on adolescents' development and adjustment, making this phenomenon a major public health challenge [19,20].

Negative acts from peers, when experienced over time, could be associated with developmental trajectories including emotional and behavioral difficulties [21]. Exposure to this form of interpersonal victimization can also undermine the brain's functionality and connectivity [22], and thereby interfere with healthy development [21]. Concerning the effect on mental adjustment, a systematic review outlined that being victimized in youth was associated with mental distress and negative psychosocial outcomes, including increased peer rejection and poorer school performance and connectedness, both over the short (12 months) and long term (up to 8 years later) [23].

Recent meta-analytic evidence indicated significant associations between bullying victimization and psychological harm [24], sedentary behaviors [25], suicide attempts [26], lower academic achievement [27] peer rejection, and low school connectedness [23]. It is strongly evidenced that bullying victimization in adolescents is related to mental health difficulties, such as externalizing and internalizing symptoms [12,23,28,29]. Some authors, however, have underlined the usefulness of considering potential underlying mechanisms that may mediate this well-known association (e.g., sleep duration [30], resilience [31], and internet addiction [32]). One potential approach is employing cognitive emotion regulation (CER) strategies.

CER strategies consist of individual cognitive responses to emotion-eliciting events [33] and have been recognized as particularly relevant in the context of adolescent psychopathology [34]. The literature distinguishes functional and dysfunctional CER strategies by whether they can facilitate or impede individual functioning in coping with stressful events [35,36]. Functional CER includes strategies employed to process emotions, while the dysfunctional facet consists of strategies used to block or avoid negative emotions related to stressful events [34,36]. The development of CER strategies is crucial for adolescents considering that they encounter a variety of transitional challenges (pubertal development, emerging intimate relationships, and school changes), and need to develop cognitive abilities to effectively manage their emotions during these events [37–39]. In this perspective, emotional responses associated with bullying victimization adversely affect adolescents' cognitive flexibility [40], and may thus negatively impact their CER [39]. Previous studies have reported a higher use of dysfunctional CER strategies (e.g., catastrophizing, self-blame, blaming others, and rumination) among bullied school students as compared with non-bullied school students [41], emphasizing the possibility that bullying victimization could be related to poor cognitive systems of emotion regulation [42]. Considering that a greater use of dysfunctional CER has been associated with high psychopathological symptoms in adolescents [43,44], CER strategies may be potential mediators of the association between bullying victimization and mental difficulties in this population. Indeed, previous studies have established emotion regulation as a key mediator in the maltreatment–psychopathology association [45]. More specifically, it has been suggested

that considering the well-known association between experiences of maltreatment (e.g., emotional and physical) and emotion dysregulation in childhood, as well as between the latter and psychopathology, it is plausible that emotion dysregulation is a mediator in the maltreatment–psychopathology link [45].

In this respect, some findings on bullying victimization are available in the literature. For example, Gardner et al. [46] found that suppression and reappraisal positively mediated the relationship between high peer victimization and high loneliness in late childhood. However, they did not assess the effect on other psychopathological symptoms. In contrast, Labella et al. [47] found that specific emotion regulation strategies mediated the association of bullying victimization with depression. However, the authors did not evaluate cognitive strategies and used a sample of young adults. In view of the information presented above, the present study expanded previous research by evaluating the mediating role of functional and dysfunctional CER strategies in the relationship between bullying victimization and depression, anxiety, and stress in a sample of adolescents. More specifically, based on previous research, it was hypothesized that dysfunctional CER strategies would positively mediate this link, whereas functional CER strategies would act as negative mediators between bullying victimization and levels of psychopathological symptoms. Considering the effects of sex, age, and body mass index (BMI) on bullying victimization [26], CER strategies [48], and psychopathology [49], all these aspects were used as covariates in the tested mediation model.

2. Materials and Methods

2.1. Participants

In total, 638 participants (53.9% boys; M_{age} = 15.65; SD = 1.32) were recruited on a voluntary basis from 10 secondary schools (grades 9–11) in the urban area of Rome and its surroundings. Data were collected during the assessment phase of an intervention project designed to reduce weight-based stigma and victimization. Schools were contacted through convenience sampling using networks from the authors' institutions. After a detailed explanation of the study, parental and individual informed consent was acquired in each class two weeks before data collection (Figure 1). Students were invited to participate in the study without any restrictions. All protocols and procedures were approved by the Department of Psychology's Institutional Review Board (prot. number 0001069).

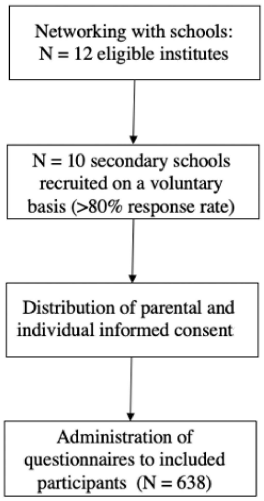

Figure 1. Flowchart of the recruitment process.

2.2. Instruments

- Demographic information: respondents were asked to indicate their sex, age, class level, height (m), and weight (kg). BMI was computed using the standardized formula [body mass (kg)/height (m^2)].

- Bullying victimization: the modified version of the "revised Olweus Bully/Victim Questionnaire" [50] adapted by Bacchini et al. [51] and widely used in Italy [52,53] was used. The questionnaire assessed 11 types of bullying, including direct (e.g., verbal offenses and physical aggression) and indirect forms (e.g., spreading rumors and exclusion from other group activities). Participants answered the questions referring to the previous six months. The questionnaire was completed after receiving a briefing from research authors on the standard definition of bullying, as previously indicated [52]. Responses were rated on a 5-point scale (1 = never; 2 = once/twice; 3 = 2/3 times a month; 4 = about once a week; 5 = several times a week). A total score of bullying victimization was computed by summing the scores of all items, with higher scores indicating a greater frequency of engaging in bullying victimization. The scale showed good internal consistency in the present study (ω = 0.848) as in previous results [51].
- CER strategies: the Italian short version [54] of the Cognitive Emotion Regulation Questionnaire (CERQ-18) [55] evaluates nine CER strategies: acceptance (e.g., I think that I have to accept the situation); putting into perspective (e.g., I tell myself that there are worse things in life); positive refocusing (e.g., I think of pleasant things that have nothing to do with it); positive reappraisal (e.g., I think I can learn something from the situation); positive refocusing (e.g., I think of pleasant things that have nothing to do with it); refocus on planning (e.g., I think about how to change the situation); rumination (e.g., I often think about how I feel about what I have experienced); catastrophizing (e.g., I continually think how horrible the situation has been); self-blame (e.g., I feel that I am the one who is responsible for what has happened); and other-blame (e.g., I feel that basically the cause lies with others). Responses were rated on a 5-point Likert scale, ranging from 1 (rarely) to 5 (almost always), with higher scores indicating a higher frequency of use of a certain cognitive CER strategy. In the present study, scores of the nine subscales were summed and categorized into dysfunctional and functional strategies, as indicated elsewhere [56]. As previously indicated [56], the composite scores of functional CER (ω = 0.907) and dysfunctional CER strategies (ω = 0.883) demonstrated good internal consistency.
- Psychological distress: the Italian version [57] of the Depression Anxiety Stress Scales (DASS-21) [58] consists of 21 items evaluating three facets of negative emotional states. Participants indicated how often they have reported symptoms in the previous week and responses were given on a 5-point Likert scale ranging from "always" (0) to "never" (4). These three dimensions have shown appropriate psychometric characteristics [58]. In the present sample, each subscale showed good reliability (Depression: ω = 0.888; Anxiety: ω = 0.877; Stress: ω = 0.875), as in the validation Italian study [57].

2.3. Data Analytic Strategy

Data were analyzed using Jamovi 2.3 [59] and Mplus 8.6 [60]. Preliminarily, descriptive statistics and zero-order correlations among the main variables under investigation were calculated. Subsequently, the indirect relationships between bullying victimization experienced in the previous six months and psychopathological symptoms (i.e., stress, anxiety, and depression) suffered in the previous week via general functional and dysfunctional CER strategies were tested within the structural equation modeling framework (SEM). To control for measurement error and the issue of attenuation in mediation analyses [61], all the constructs mentioned above were specified as single-indicator latent variables by estimating the error variances from their reliability. In line with Bollen [62], the error variances of the indicators were fixed at $(1 - rxx) \times s2$, where rxx is the scale reliability and s2 is the sample variance. To partial out their effects, we included gender (0 = males, 1 = females), age, and BMI as covariates in the SEM using the full partial control approach [63]. The significance of the indirect effects was formally tested through bias-corrected bootstrap confidence intervals (5000 resamplings) [64]. After calculating critical values for the upper and lower 95% confidence limits, those with confidence intervals not encompassing zero

were considered statistically significant. The bias-corrected bootstrap offers excellent performance in terms of statistical power, the accuracy of confidence intervals, and the overall control of Type I errors, especially when dealing with complex models involving multiple mediators [65]. Finally, we employed maximum likelihood with standard errors robust to non-normality as the parameter estimation method (MLR) [60] due to non-negligible deviations from the univariate normal distributions of the observed indicators (i.e., skewness and kurtosis > |1|) [66].

3. Results

3.1. Description of the Sample

In total, 194 students reported that they had never been bullied, whereas 444 students declared they had experienced at least one type of bullying victimization in the previous six months. The results are displayed in Table 1. The mean BMI was within the normal range (M = 21.68; SD = 4.09).

Table 1. Frequency rates for each of the bullying victimization types (n = 638).

Bullying Victimization	0	1	2	3	4
Teasing for physical appearance	486	67	68	9	8
Teasing for other reasons	442	54	97	25	20
Name-calling	467	87	52	17	15
Physical bullying	549	55	23	3	8
Threatens	565	40	24	3	6
Spreading rumors	486	73	51	14	14
Ignoring others	496	75	42	13	12
Stealing	478	109	39	7	5
Exclusion from sports activities	558	41	23	8	8
Exclusion from group activities	518	65	40	5	10
Exclusion from parties	490	71	60	3	14

0 = never; 1 = once/twice; 2 = 2/3 times a month; 3 = about once a week; 4 = several times a week.

3.2. Bivariate Correlations

Descriptive statistics and bivariate correlations for the main constructs under investigation are reported in Table 2. All variables were approximately normally distributed, except for bullying victimization (skewness and kurtosis > |1|). To compensate for departures from univariate normality, MLR estimation was employed for further SEM analyses [63]. Bullying victimization was positively correlated with dysfunctional CER strategies (r = 0.297, $p < 0.001$), depression (r = 0.376, $p < 0.001$), anxiety (r = 0.338, $p < 0.001$), and stress (r = 0.329, $p < 0.001$). Dysfunctional CER strategies correlated with functional CER strategies (r = 0.419, $p < 0.001$), depression (r = 0.550, $p < 0.001$), anxiety (r = 0.523, $p < 0.001$), and stress (r = 0.606, $p <.001$). Lastly, functional CER strategies were significantly associated with depression (r = 0.111, $p = 0.005$), anxiety (r = 0.124, $p = 0.002$), and stress (r = 0.232, $p < 0.001$).

Table 2. Descriptive statistics and bivariate correlations for the main variables under investigation.

Variable	Mean (SD)	Skewness	Kurtosis	1	2	3	4	5
1. Bullying victimization	16.22 (5.79)	2.36	6.82					
2. Dysfunctional CER strategies	21.92 (6.76)	−0.15	−0.44	0.297 **				
3. Functional CER strategies	31.09 (8.25)	−0.57	0.21	0.025	0.419 **			
4. Depression	1.03 (0.75)	0.57	−0.38	0.376 **	0.550 **	0.111 *		
5. Anxiety	0.97 (0.73)	0.72	−0.12	0.338 **	0.523 **	0.124 *	0.745 **	
6. Stress	1.29 (0.72)	0.24	−0.52	0.329 **	0.606 **	0.232 **	0.761 **	0.801 **

Abbreviations: CER, cognitive emotion regulation; SD, standard deviation. * $p < 0.01$; ** $p < 0.001$.

3.3. Mediation Model

The mediation model reported in Figure 2 was examined within the SEM framework. Notably, since the model had just been identified (i.e., 0 degrees of freedom), its fit was perfect by definition and could not be tested [67]. Overall, the model explained a substantial proportion of the variance in dysfunctional CER strategies (22%), depression (47%), anxiety (46%), and stress (52%), but not in functional CER strategies (2%).

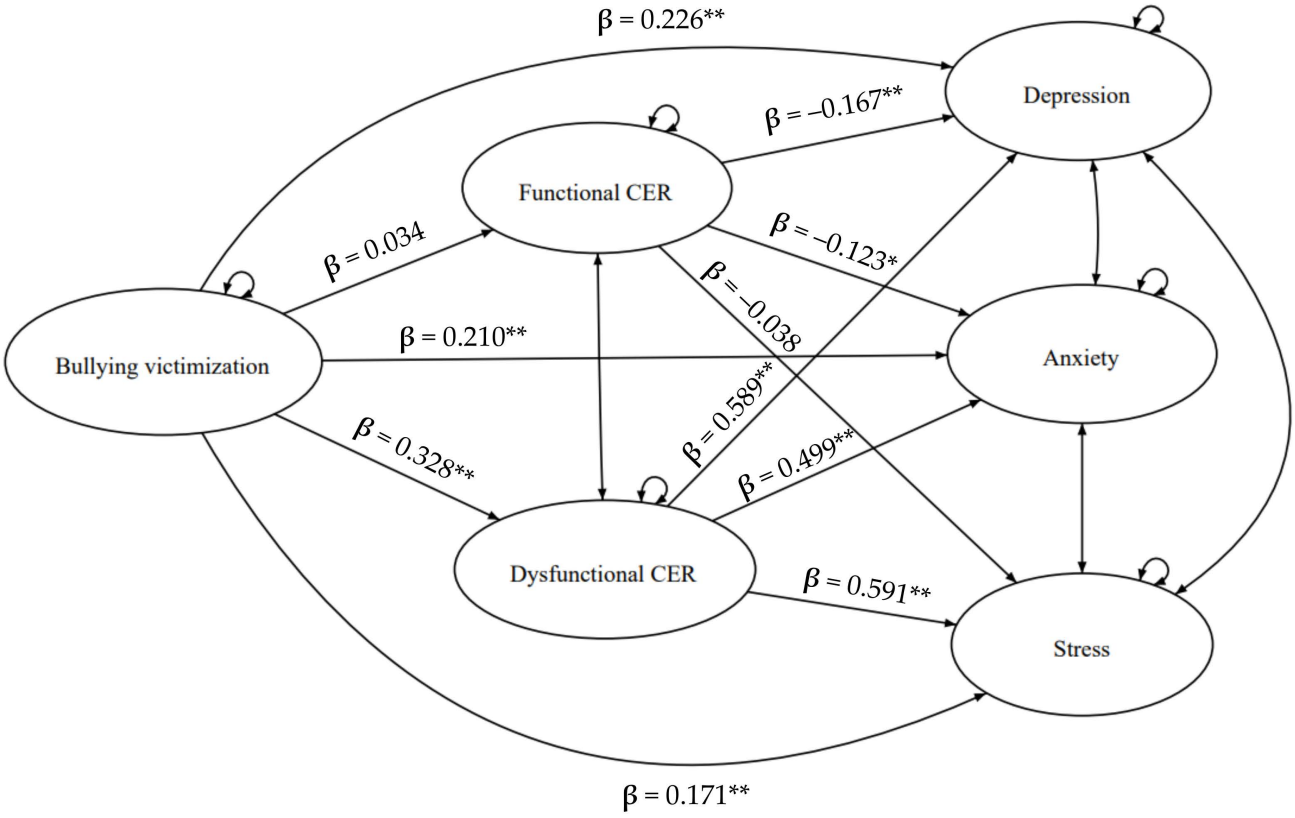

Figure 2. The proposed SEM. Note: Bullying victimization, CER strategies, depression, anxiety, and stress were posited as single-indicator latent variables. Covariates are not presented for the sake of clarity (i.e., gender, age, and BMI). Abbreviations: CER, cognitive emotion regulation. Standardized effects are displayed. * $p < 0.01$; ** $p < 0.001$.

More specifically, bullying victimization was positively related to dysfunctional CER (β = 0.328, $p < 0.001$). In turn, dysfunctional CER was significantly associated with depression (β = 0.589, $p < 0.001$), anxiety (β = 0.499, $p < 0.001$), and stress (β = 0.591, $p < 0.001$). The indirect effects supported our hypotheses (Table 3), highlighting the role of dysfunctional CER in mediating the impact of bullying victimization on depression (β = 0.193, 95% BCI 0.143–0.249), anxiety (β = 0.164, 95% BCI 0.119–0.215), and stress (β = 0.194, 95% BCI 0.144–0.246). Bullying victimization also affected depression (β = 0.226, $p < 0.001$), anxiety (β = 0.210, $p < 0.001$), and stress (β = 0.171, $p < 0.001$) directly; therefore, the SEM suggested the presence of partial mediation.

Table 3. Estimates of the indirect effects along with bootstrap-based confidence intervals.

Indirect Effect	Standardized β	95% BCI
Bullying–Dysfunctional CER—Depression	0.193	0.143 to 0.249
Bullying–Dysfunctional CER—Anxiety	0.164	0.119 to 0.215
Bullying–Dysfunctional CER—Stress	0.194	0.144 to 0.246
Bullying–Functional CER—Depression	−0.006	−0.023 to 0.007
Bullying–Functional CER—Anxiety	−0.004	−0.020 to 0.005
Bullying–Functional CER—Stress	−0.001	−0.011 to 0.002

Abbreviations: BCI, bias-corrected bootstrap-based confidence interval; CER, cognitive emotion regulation.

In contrast, bullying victimization did not contribute to functional CER (β = 0.034, $p = 0.422$). In turn, functional CER exerted a unique effect on depression (β = −0.167, $p < 0.001$) and anxiety (β = −0.123, $p = 0.009$). None of the indirect effects determined via functional CER were statistically significant (*ps* > 0.05; Table 3).

Concerning the covariates, females scored higher on dysfunctional CER (unstandardized B = 4.141, $p < 0.001$), functional CER (unstandardized B = 1.666, $p = 0.008$), depression (unstandardized B = 0.124, $p = 0.020$), anxiety (unstandardized B = 0.331, $p < 0.001$), and stress (unstandardized B = 0.227, $p < 0.001$). Moreover, BMI was positively associated with bullying victimization (β = 0.134, $p = 0.006$).

4. Discussion

The present study aimed to expand previous research on the association between bullying victimization and psychopathological symptoms in adolescents by evaluating the mediating role of functional and dysfunctional CER strategies. This study contributes to the literature on the role of emotion regulation processes in the implications of bullying victimization on adolescent mental health. The findings suggest that the relationships between being bullied by peers and mental difficulties may be both direct and indirect with the mediation of dysfunctional CER strategies.

Specifically, the first finding is consistent with previous studies evidencing a positive association between bullying victimization and each of the three dimensions of the DASS, supporting the well-known negative emotional consequences for bullying victimization and depression, anxiety, and psychological stress in adolescents [12,28,68,69]. Considering the cross-sectional nature of this study, the opposite path could also be reasonable. For example, research has demonstrated that adolescents who experience mental distress are particularly vulnerable to different forms of maltreatment and abuse [70]. Moreover, this bidirectional relationship could perpetuate bullying victimization through a vicious cycle of emotional maltreatment when students who are bullied and experience psychopathological distress may feel helpless, and thus may become more susceptible to acts of aggression [71]; psychopathological symptoms could inhibit their ability to cope with bullying [72]. For example, because depression is characterized by intense isolation, sadness, extreme pessimism, and loss of interest in previous pleasure activities, students experiencing bullying victimization may feel hopelessness and be incapable of objecting to abuse from their peers [68]. Moreover, previous research has suggested that the presence of anxiety and stress in victims can perpetuate the risk of being bullied [73]. Further longitudinal investigations are needed to estimate the direction of the link between bullying victimization and mental distress, as well as their mutual influence over time.

Returning to our mediational model, the second finding is that dysfunctional CER strategies are significantly associated with depression, anxiety, and stress. This evidence is also consistent with previous research and emphasizes the detrimental nature of maladaptive cognitive processes to regulate emotions in adolescence [43,44], as well as with the transdiagnostic role of dysfunctional CER, such as rumination and repetitive negative thinking, in contributing to psychopathology [44]. It has been observed that internal dysfunctional emotion regulation is strongly accompanied by psychopathological symptoms in youth [74], and adolescents with depression, anxiety, and stress symptoms report more

problematic emotion regulation [75,76]. Longitudinal evidence has revealed that this link reflects bidirectional relationships [77], because psychopathological symptoms may also inhibit the individual's ability of appropriately regulating emotions in response to negative stimuli [74,78]. For example, the inability to effectively manage or regulate emotional responses to daily events can lead to stress, depression, or anxiety in youngsters [79–81], and vice versa [82,83]. Further studies are needed on the use of experimental methods to assess the causal direction of these paths.

The present results indicate a non-significant association between bullying victimization and functional CER strategies, consistent with findings evidencing no direct relationship between these two constructs [84]. This result appears to indicate that the experience of being bullied is not associated with limited access to functional CER strategies from adolescents.

In contrast, the path from functional CER strategies to depression and anxiety was significant, substantiating previous studies in the literature [35,85]. However, as compared with dysfunctional CER strategies, weaker associations with psychological difficulties were observed, as previously reported [44,86]. A plausible explanation of the weaker associations found between functional CER and psychopathological symptoms could be that they are context-dependent, and can only be adaptive in certain circumstances (e.g., when the stressful event can be reformulated) [85].

Concerning the primary objective of this study, a significant indirect effect of dysfunctional CER strategies was found in partially explaining the link between bullying victimization and depression, anxiety, and stress. It is possible that disruptions in emotion regulation may lead to the modification of response to a stressor (e.g., bullying victimization, in our study), which, in turn, can impact individual mental health [87]. In this perspective, emotional responses associated with bullying victimization adversely affect adolescents' cognitive regulatory system [88], and may thus result in psychological difficulties [40].

It has consistently been asserted that difficulties in emotion regulation contribute to the maintenance of emotional problems in youth [45,88], and have been regarded as transdiagnostic underlying mechanisms in the development of psychopathological symptoms from mid to late adolescence (e.g., depression) [89]. Some authors have suggested that less general use and a greater focus on specific functional and dysfunctional CER strategies strengthen the negative and positive correlation between being bullied and psychological distress [39,90], demonstrating that CER can also moderate this association. These findings encouraged future prospective studies to determine mechanisms (e.g., mediation) and conditions (e.g., moderation) related to CER through which adolescent mental functioning can be affected by bullying victimization. This topic is especially relevant because the role of functional CER strategies was not significant in the mediation analysis of the present study. Notwithstanding previous research which found that functional emotion regulation processes are important for reducing the negative effects of peer victimization on mental health difficulties in youth [46], this finding was not supported by our results. It seemed that the significant association between bullying victimization and psychopathology was not due to the adolescents' diminished engagement in functional CER strategies. It is possible that the functional CER strategies were not meaningful enough to predict a decrease in symptoms associated with being bullied. A reasonable explanation of this finding may be that the components of functional emotion regulation processes may not be sufficiently structured in adolescence [91], and thus, are less refined to respond to stressful events such as bullying victimization. Indeed, it is well known that emotion regulation strategies are more effective as protective factors against psychological difficulties with growing age [92]. Future longitudinal research should focus on evaluating the association between adolescents' bullying victimization and functional CER in predicting the onset of psychopathology, considering context-dependent factors such as the individual competence in emotion regulation acquired. Moreover, considering that, in the present results, functional and dysfunctional CER were positively correlated, as previously indicated [56], it is possible that the adaptive strategies were not sufficiently developmentally established

to exert opposite effects on adolescent mental adjustment. Further research is needed to address the developmental trajectory of the reciprocal associations between tendencies to use dysfunctional and functional CER strategies in handling bullying victimization.

4.1. Limitations

We are aware that our research has some limitations. First, its cross-sectional nature prevents drawing conclusions about causality/directions of influence. This point highlights the urgency of further longitudinal studies addressing the mediation role of CER in the relationship between bullying victimization and mental health symptoms in adolescents. More specifically, future research should examine whether bullying victimization could predict dysfunctional emotion regulation over time—as previously suggested by retrospective studies [93]—that, in turn, would be a risk factor for the development of psychopathological symptoms consistently with existing evidence [94]. Second, the mere use of self-reported measures could be affected by social desirability bias. Future studies should employ other more rigorous methods, such as experimental tools to assess processes associated with emotion regulation [95]. Additionally, qualitative methods may be useful, such as structured interviews or daily diaries, for the collection of subjective data on the experience of bullying victimization, emotion regulation, and psychopathology. Moreover, considering the association of bullying victimization with socioeconomic status and peer/parental support consistently found in the literature [15], these aspects should be assessed in future studies.

4.2. Conclusions

Despite these weaknesses, this study suggests that interventions focused on targeting dysfunctional cognitive processes to regulate the emotions of peer-victimized adolescents may alleviate the psychological maladjustment associated with this stressful experience [47]. For example, emotion coaching can be effective in helping adolescents to self-regulate their emotions at school, promoting emotional competencies and positive peer interactions [96,97]. School prevention and treatment programs that can encourage adolescents to modify maladaptive patterns of CER that are typically used to cope with experienced bullying situations are illustrated in the literature [98]. For instance, metacognitive therapy (MCT) can be a valid short-term intervention to reduce adolescent dysfunctional CER and associated maladaptive outcomes [99]. Another example is emotion regulation training (ERT), which can be effective in increasing positive emotions and promoting personal strengths and resiliency in students experiencing bullying victimization [100]. Notably, since CER strategies begin to develop during the first years of life [101], it is essential to promote such interventions in the preschool years.

To conclude, our results suggest that maladaptive forms of CER strategies might be underlying mechanisms in the link between bullying victimization and emotional difficulties in adolescence. This is a particularly meaningful contribution because these problems often exhibit their first onset in adolescence, suggesting the urge to plan preventive and treatment interventions focused on experiences of victimization and their consequence on mental health in this life period. Nevertheless, these findings support the importance of contrasting bullying episodes and involvement, especially in the school context, in order to limit its negative effects on the psychological adjustments of adolescents.

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Article

Relationship between Bullying and the Type of Physical Activity Practised by Spanish Pre- and Adolescents

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Abstract: Background: The influence of bullying on physical activity beyond school time is uncertain, as it can vary widely in terms of type, modality, duration, adult supervision, and objectives. Methods: This study aims to analyze the relationship between school bullying and the type of physical activity practised. To this end, a descriptive study was made of 2025 pre- and adolescents aged between 10 and 19 years, reporting on their participation in victimisation and perpetration. The EBIPQ and PAQ-A were used. An analysis of the relationships between these variables was carried out according to gender and type of activity practised. Results: The results showed a higher rate of victimisation in boys who did not practise physical activity. Meanwhile, perpetration was higher in those who practised organised physical activity, especially in boys. Depending on the type of physical activity, the higher levels of both victimisation and perpetration of those who practised wrestling activities stand out in comparison with other groups. Conclusions: It could be stated that physical activity may be a protective factor against bullying victimisation, especially in boys. However, participation in organised physical activity activities may be related to higher perpetration in this sample in adolescent boys.

Keywords: bullying; physical activity; adolescents

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1. Introduction

The phenomenon known as bullying corresponds to a pattern of antisocial behaviour that results in a series of deliberate and negative behaviours based on an abuse of power by a specific student, or groups of students, over one or more of their peers, with the main characteristics of recidivism in the abusive behaviours and the intention to cause physical, social, and/or mental harm to the victim [1–5].

The victimised person suffers a series of problems associated with the bullying situation described as low self-esteem, emotional difficulties, shame, self-pity, social isolation, depression, anxiety, feelings of loneliness or suicidal ideation, among others [1,3,6]. Some studies present profiles that may be more sensitive to being bullied, such as women, students in secondary education, students with a low socioeconomic level, or adolescents outside the family context [1,7,8]. Physical activity contributes to the development of different dimensions of the personality [9] and has therefore become a context of interest to study the relationship with bullying. In most studies in relation to adolescence, it has been found that greater participation in physical activities, in addition to school Physical Education, is associated with less bullying victimisation [9–15], although other studies, to

a lesser extent, have not found such a relationship [16–19]. Noteworthy is the study by Holbrook et al. [20], who reported lower victimisation in those who were more physically active but found no relationship with participation in sports-type activities. However, the relationship between physical activity and the role of the perpetrator or aggressor in bullying has been less well studied. In fact, students who participate in physical activity and sports may show less aggressive attitudes and more respectful behaviour towards their peers and rules and have greater self-control [21,22]. However, when we focus specifically on bullying perpetration behaviours, the results are scarce and not very enlightening.

On the one hand, relationships have been found between greater participation in physical activity and greater bullying perpetration [18]. On the other hand, another study finds no relationship [16] and negative relationships between physical activity participation and cyberbullying in girls [23]. The variety of results found may be due to the lack of discrimination of specific aspects of the physical activity or sport practised, such as whether the physical activity is carried out freely, organised, competitive, or recreational, among other issues that determine its characteristics [23,24]. In this sense, the practice of organised physical activity does not guarantee inherent benefits, as positive experiences must be guaranteed in order to do so [21], although it does seem to bring other related benefits to adolescents who have been victims of bullying [14]. Likewise, it seems that the type of physical activity does have an influence on victimisation [18]. For example, participants in more physical contact sports activities show more aggressive behavioural tendencies than those who participate in non-contact or low-contact sports, recommending such activities, with a low level of participation, for bullying interventions [25]. Other authors highlight non-competitive physical activity as having the most positive results regarding a lower risk of developing aggressive behaviour [18], or that cooperative sports favour the reduction in bullying [22]. Medina Cascales and Prieto [26] found no differences in victimisation according to the type of physical activity and sport practised, which may be due to the small sample size.

In terms of gender, studies that address the issue in general show differences between boys and girls in terms of the type of bullying, with physical and verbal bullying being more prevalent in boys and relational bullying in girls [27,28]. In terms of physical activity as a differentiating factor, there is a greater aggressiveness and victimisation in boys who practice physical activity and a higher score in girls in terms of suffering from bullying [8]. Other studies point to a higher risk of developing aggressive or antisocial behaviours in boys and a lower risk of developing these behaviours in girls, in general, and the development of prosocial, respectful, and self-control behaviours in boys and girls who practise sports [21]. This issue contrasts with another study that concludes, based on the data collected in their research, that there are no correlations between physical activity and gender in bullying or victimisation [16]. In line with physical activity, gender, and bullying behaviours, the study carried out by [18] points to the participation of both males and females in bullying, finding trends towards a change in the levels of aggressiveness, more markedly so in boys than in girls, or less aggressive behaviour in students who participate in non-competitive team sports. The conclusions regarding victimisation in girls are noteworthy, as they showed less victimisation whether or not they took part in physical activity, which is consistent with another aspect highlighted in reference to the lack of influence of physical activity on levels of victimisation.

Another factor to consider in bullying behaviour in physical activity is age. Studies such as that of [21] confirm that age is a determining factor in the appearance and incidence of aggressive behaviour, an issue that is corroborated by other studies which point to the age of 11 to 14 years as the age that shows more aggressiveness in boys and girls, as well as being a phenomenon that tends to decline with the increase in the age of subjects [29]. Likewise, students aged 9–15 who participate in sports activities show behaviours with a lower risk of developing bullying, although some trends are observed in boys aged 13–15 regarding antisocial behaviour and neuroticism, both relevant variables in bullying [21].

In this sense, and considering the literature reviewed, it is observed that there are discrepancies in the description of victimisation and perpetration behaviours in bullying in reference to the type of physical activity practised, gender, and age, and that it is therefore necessary to know in detail the type of physical activity practised to better understand the relationships with bullying [8].

Therefore, we can hypothesise that adolescents involved in physical activity will be less involved in victimisation and less likely to be perpetrators of bullying, with further identification of such behaviours as a function of the type of physical activity practised, gender, and age.

The objective of this research is to examine the connections between victimisation and bullying behaviors, considering the variables of type of physical activity practised, gender, and age. The specific objectives we set ourselves are the following:

- To analyse victimisation and perpetration behaviours according to the type of physical activity practised.
- To analyse victimisation and perpetration behaviours as a function of physical activity as a function of gender and age.

2. Materials and Methods

2.1. Participants

In the present study, 2025 students participated in this study. Their ages ranged between 10 and 19 years, with a mean age (M) = 14.57, standard deviation (SD) = 1.74, and of which 1009 were girls (48.8%). The sample was selected by convenience based on accessibility, and participation of subjects was voluntary. They came from 7 public schools in southern Spain (6 in the province of Cordoba and 1 in the province of Huelva). The sample consisted of students from 5th year of Primary Education to 2nd year of Baccalaureate, in a medium socioeconomic context.

2.2. Procedure

A descriptive, exploratory, cross-sectional study was carried out with non-probabilistic sampling. The present study was carried out after obtaining permission from the school councils of the participating schools, as well as duly signed and completed informed consent forms from the families. The inclusion criteria encompassed the willingness to participate and the completion of the consent form, while exclusion criteria involved the non-completion of the questionnaire. Participants were characterised by a moderate socioeconomic level. This study protocol conformed to the latest version of the Declaration of Helsinki (2013), and the project was also approved by the Human Research Ethics Committee of the University of 11 December 2019. The average time for completing the questionnaire ranged between 20 and 30 min.

2.3. Instruments

2.3.1. Bullying

The Spanish version of the European Bullying Intervention Project Questionnaire (EBIPQ) was used to measure the incidence of bullying [5]. It includes two dimensions addressing bullying victimisation and bullying perpetration. The first 7 questions are related to victimisation, and the last 7 to perpetration. It is composed of Likert-type response options, from 0 to 4, where 0 = never, 1 = once or twice, 2 = once or twice a month, 3 = about once a week, and 4 = more than once a week. Internal consistency values were equally optimal (overall victim $\alpha = 0.841$ and overall perpetrator $\alpha = 0.805$).

2.3.2. Physical Activity

Two inquiries were posed to ascertain the quantity and nature of physical activity.

The initial question was derived from the primary query of the PAQ-A questionnaire [30] and underwent modification. The formulated questions were as follows:

- Physical activity in your free time: Have you done any physical activity in the last 7 days (last week)? If yes, how many days?
- Do you regularly attend any kind of physical activity classes, sports...? Indicate type of activity and days of the week.

Students answer with a number from 0 to 7 according to the number of days per week they practice.

From these two questions, the number of days of leisure time physical activity and participation in organised physical activities of each student were determined. Leisure-time physical activity was considered to include both free and organised practical activities, while organised activity was repetitive over time, dependent on a club or organisation, and led by an individual. In both cases, the compulsory days corresponding to the subject of Physical Education were not counted.

To analyze the nature of physical activity, the open-ended responses to question 2 were categorised into the following groups: non-practitioners, individual activities (athletics, cycling, and swimming), fitness (pilates classes, CrossFit, strength training, etc.), dance classes, rhythmic gymnastics, individual racket sports (tennis and badminton), paired racket sports (padel tennis), combat sports (karate, judo, kickboxing, and boxing), volleyball, team sports (basketball and handball), and football. In order to carry out this differentiation, the motor praxeology of Parlebas and previous studies were taken as a reference [23,31]. Volleyball, being a non-contact sport, was separated from other team sports. Football was also specifically analyzed due to its widespread popularity and distinctive social characteristics in our country [23].

2.4. Statistical Analysis

Data are presented as mean ± standard deviation (SD). The normality of the data distribution was assessed through the Kolmogorov–Smirnov test. All variables analysed had a non-normal distribution, so non-parametric techniques were applied. First, bivariate correlations were performed using Spearman's test. Subsequently, comparisons between two independent groups were performed using the Mann–Whitney U-test. In addition, multiple linear regressions were performed on the dependent variables victimisation and perpetration. For the analysis of the types of physical activities, the Kruskal–Wallis test was performed for intergroup comparisons and the Mann–Whitney U-test for intragroup comparisons according to gender. The effect size was calculated according to Cohen [32]. Values above 0.8, between 0.8 and 0.5, between 0.5 and 0.2, and below 0.2 were considered large, moderate, small, and trivial, respectively. Data coding and analysis were performed using SPSS, version 26. Statistical significance was set at $p < 0.05$.

3. Results

Table 1 shows the correlation between organised activity, total activity, victimisation, and perpetration. Practised activity was lower with increasing age. High levels of significance were obtained between total activity and organised activity (0.579). Focusing on the variables concerning bullying, correlations were found between perpetration with organised activity (0.064) and perpetration with victimisation (0.556).

Table 1. Correlations between the different variables and victimisation and perpetration in bullying.

Variable	Age	Total Activity	Organised Activity	Victimisation
Total activity	−0.057 *	-	-	-
Organised activity	−0.058 **	0.579 **	-	-
Victimisation	−0.020	−0.022	−0.009	-
Perpetration	0.034	0.013	0.064 **	0.556 **

* Established level of significance; $p < 0.05$, ** Established level of significance; $p < 0.01$.

Regarding Table 2, the most remarkable aspect is that boys who do not practice physical activity suffer more victimisation ($p = 0.04$), finding no other significant aspect regarding gender and victimisation and/or perpetration in the total physical activity practised.

On the other hand, Table 3 shows that the total number of people who practice physical activity, in this case, organised physical activity, are more perpetrators than those who do not practise physical activity ($p = 0.04$). This value is maintained in boys ($p \leq 0.01$) and not in their female counterparts ($p = 0.24$), indicating that this behaviour is more developed by boys.

Regarding age and gender, and after applying a linear regression based on total physical activity (Table 4), it was found that perpetration increases at higher ages ($\beta = 0.057$) and is significantly more frequent in boys ($\beta = 0.105$) compared to girls.

When repeating the linear regression model with the same independent variables, but in this case varying the dependent variable of organised physical activity (Table 5), we find that, as in Table 4, perpetration increases with increasing age ($\beta = 0.059$). In this case, there are significant relationships between organised physical activity and perpetration, indicating an increase in this behaviour in this activity ($\beta = 0.043$).

Table 6 examines the associations between the specific type of physical sports activity engaged in and experiences of victimisation or perpetration. Significant differences in victimisation were found to be higher among those who practise wrestling sports than among those who do not practise or carry out activities such as football, other team sports, and fitness training. In relation to perpetration, practitioners of wrestling activities presented significantly higher values than those who do not practice physical activity or carry out physical sports activities such as individual, dance, aquatics, rhythmic gymnastics, or other team sports not including football.

On the other hand, and analysing gender differences and the type of physical activity practised (Table 7), we found values indicating that boys are more aggressive than girls in racket sports ($p = 0.05$), wrestling ($p = 0.00$), football ($p = 0.00$), and fitness activities ($p = 0.05$).

Table 2. Differences in the practice of physical activity in their free time between victimisation and perpetration (total physical activity).

Condition	Total				Boys				Girls			
	Mean ± SD				Mean ± SD				Mean ± SD			
	Yes (*n* = 1 602)	No (*n* = 423)	ES	*p*	Yes (*n* = 853)	No (*n* = 163)	ES	*p*	Yes (*n* = 749)	No (*n* = 260)	ES	*p*
Victimisation	0.43 ± 0.62	0.48 ± 0.63	0.08	0.10	0.41 ± 0.60	0.53 ± 0.70	0.01	0.04	0.45 ± 0.64	0.45 ± 0.58	0.06	0.96
Perpetration	0.23 ± 0.40	0.24 ± 0. 41	0.23	0.62	0.27 ± 0.46	0.27 ± 0.46	0.00	0.97	0.17 ± 0.32	0.21 ± 0.38	0.82	0.13

Notes. SD = standard deviation; ES = effect size. Established level of significance; $p < 0.05$.

Table 3. Differences in the practice of physical activity between victimisation and perpetration (organised physical activity).

Condition	Total				Boys				Girls			
	Mean ± SD				Mean ± SD				Mean ± SD			
	Yes (*n* = 1085)	No (*n* = 940)	ES	*p*	Yes (*n* = 613)	No (*n* = 403)	ES	*p*	Yes (*n* = 472)	No (*n* = 537)	ES	*p*
Victimisation	0.43 ± 0.60	0.45 ± 0.64	0.03	0.48	0.42 ± 0.60	0.44 ± 0.65	0.00	0.68	0.44 ± 0.62	0.46 ± 0.63	−0.06	0.67
Perpetration	0.25 ± 0.48	0.21 ± 0.39	0.23	0.04	0.30 ± 0.46	0.22 ± 0.42	0.18	<0.01	0.17 ± 0.30	0.20 ± 0.37	0.82	0.24

Notes. SD = standard deviation; ES = effect size. Established level of significance; $p < 0.05$.

Table 4. Linear regression of bullying on gender, age, and total physical activity.

Variable/Condition	Perpetrators		Victims	
	β	t	β	t
Gender female	−0.105 **	−4.677	0.018	0.819
Age	0.057 **	2.598	−0.040	−1.806
Total physical activity	0.012	0.532	−0.003	−0.128

Notes. β = Standarised Beta. ** Established level of significance; $p < 0.01$.

Table 5. Linear regression in relation to bullying determined by gender, age, and participation in organised physical activity.

Variable/Condition	Perpetration		Victimisation	
	β	t	β	t
Sex/Gender female	−0.098	−4.357	0.014	0.611
Age	0.059 **	2.670	−0.041	−1.859
Organised physical activity	0.043 **	1.917	−0.026	−1.139

Notes. β = Standarised Beta, ** Established level of significance; $p < 0.01$.

Table 6. Analysis of variations based on the type of physical activity undertaken in relation to experiences of victimisation or perpetration.

Total/Variable	Type P.A. (*n*)	Mean ± SD	Type P.A. (*n*)	Mean ± SD	ES	*p*
Victimisation	Fighting (107)	0.67 ± 0.78	Not practised (945)	0.45 ± 0.64	0.31	0.03
Victimisation	Fighting (107)	0.67 ± 0.78	Football (288)	0.38 ± 0.51	0.44	0.00
Victimisation	Fighting (107)	0.67 ± 0.78	Equipment (109)	0.34 ± 0.56	0.49	0.00
Victimisation	Fighting (107)	0.67 ± 0.78	Fitness (104)	0.36 ± 0.57	0.45	0.02
Perpetration	Fighting (107)	0.32 ± 0.56	Individuals (124)	0.17 ± 0.28	0.34	0.00
Perpetration	Fighting (107)	0.32 ± 0.56	Not practised (945)	0.18 ± 0.23	0.33	0.00
Perpetration	Fighting (107)	0.32 ± 0.56	Dance (143)	0.12 ± 0.23	0.47	0.00
Perpetration	Fighting (107)	0.32 ± 0.56	Aquatics (25)	0.03 ± 0.17	0.70	0.01
Perpetration	Fighting (107)	0.32 ± 0.56	Rhythmic (43)	0.05 ± 0.26	0.62	0.00
Perpetration	Fighting (107)	0.32 ± 0.56	Equipment (109)	0.13 ± 0.27	0.43	0.00

Notes. P.A. = physical activity; SD = standard deviation; ES = effect size. Established level of significance; $p < 0.05$.

Table 7. Analysis of the differences according to the type of physical activity practiced in the victimisation or perpetration (looking at differences between sex and type of F.A. performed).

Variable	Type P.A.	Boy (*n*)	Mean ± SD	Girl (*n*)	Mean ± SD	ES	*p*
Perpetration	Racket	31	0.30 ± 0.34	21	0.14 ± 0.20	0.52	0.05
Perpetration	Fight	75	0.53 ± 0.70	32	0.22 ± 0.24	0.59	0.00
Perpetration	Football	272	0.30 ± 0.46	16	0.11 ± 0.14	0.56	0.00
Perpetration	Fitness	54	0.34 ± 0.59	50	0.16 ± 0.24	0.40	0.05

Notes. P.A. = physical activity; SD = standard deviation; ES = effect size. Established level of significance; $p < 0.05$.

4. Discussion

The purpose of this study was to analyse victimisation and perpetration behaviours in bullying among adolescents according to the type of physical activity practised, gender, and age.

As the main results of the study, we found that there is no relationship with total physical activity, i.e., including both organised and freely practised physical activity by adolescents. However, there is a difference between boys who engage in physical activity and those who do not, with less victimization observed in those who participate in physical activity. Meanwhile, perpetration is positively correlated with organised physical activity, showing differences in the group of boys, which implies that those who practise organised physical activity were more often perpetrators.

The data indicating that boys who are physically active experience less victimisation than boys who are not physically active are consistent with those of the majority of studies [9–15], although such relationships were not present in the sample as a whole, which is consistent with studies by different authors [16–19]. In this case, the results were not entirely conclusive, which could be due to the large number of characteristics that can differentiate the type of physical activity practised—for example, when we refer to quantity, frequency, company of other practitioners, organisation of the same by adults, or the type of physical sport activity in terms of its objectives or competitiveness among other factors [18,22,23,26,33].

Going into this detail at an initial level, we found that organised physical activity did not show any relationships or differences in victimisation behaviour but did show differences in perpetration, with boys being more likely to perpetrate the offence. It should also be noted that most studies do not distinguish between total, free, or organised physical activity. When comparing the existing literature, it should be pointed out firstly that perpetration is less studied than victimisation, and these data coincide with some studies [8,18], and no relationship was found in the study by Corral-Pernia [16]. This could corroborate the statement that the fact of practising organised physical activity does not guarantee a positive influence in this regard simply because of the fact of practising it [18,21]. The observed significance of differences in perpetration, particularly in relation to organised physical activity among boys, aligns with the reported findings of Méndez et al. [18], which found no differences in girls and no differences in boys and could be explained by the fact that boys tend to be more perpetrators than girls in relation to bullying [28] and specifically in physical activity [8].

In reference to age, no direct differences were found between bullying behaviours and bullying behaviours, which tends to contrast with different studies that find a decrease in bullying behaviours with age [29,34]. However, when physical activity and gender are included in the regression models, a greater perpetration is observed, coinciding with the trends found by Pelegrín Muñoz et al. [21].

Regarding the specific type of physical activity practised in relation to victimisation and perpetration, wrestling sports present significantly higher values in perpetration and victimisation compared to the rest of the activities practised and non-practitioners, which had been previously described [23,35]. This contrasts with experiences that contradict the findings, as there are studies that support the opposite in fighting sports such as judo, according to which they have a positive influence on the direct prevention of bullying and on variables related to it [36]. In this type of modality, in addition, practitioners have a high level of muscular strength in comparison with the practice of other physical sports activities [37], and greater muscle strength is related to greater perpetration of bullying in boys [38].

In terms of gender and physical activity, perpetration values are higher in boys, as in other studies [18,21,23,27], and in this case, in racket sports, wrestling, football and fitness modalities. Some possible explanations for these gender differences by sport modality could be due to the fact that girls tend to choose less competitive and contact-type activities in their sport physical activity practice than boys [21,23]. Likewise, girls who practice

physical activity show greater empathy than their male peers, which could partially explain this relationship [33], and contact and competitive sports players have lower levels of empathy, especially boys.

5. Conclusions

From the results found, it can be concluded that the practice of physical activity may be a protective factor against bullying victimisation, especially in boys. However, participation in organised physical activity activities may be related to a higher perpetration, in this sample, in adolescent boys [18,28].

Within organised physical activities, participants in racket sports, wrestling, football, and fitness show higher levels of perpetration in boys than in girls. This could be related to the competitive nature, contact, or increased strength established in these activities.

This contrasts with the efficacy of sport–physical interventions in reducing aggressiveness [25,39–41] and bullying [17], including through combat sports such as judo [36] or martial arts [42], which, according to the data from our study, have been the groups with the worst results.

Therefore, it is proposed to develop an approach in the physical sports activities to be carried out by children and adolescents that takes into account the application of anti-bullying measures, improving the reduction in aggressiveness and improving aspects such as empathy or resilience from a specific approach that helps to build a more just and egalitarian society free of bullying, based on intervention programmes that have proven their scientific validity.

Likewise, in future research, it would be of interest to study whether adolescents who show higher levels of perpetration and victimisation maintain such behaviours in other contexts or to consider the point of view of coaches and family members. Another focus of future research would be the possibility of analysing the type of bullying that adolescents engage in or whether anti-bullying programmes improve perpetration and victimisation behaviours in different contexts of student interaction.

The main limitations of the study are based on the nature of self-reporting by the participants themselves, which could present some bias. Likewise, the sample is not randomised and does not represent the globality of a geographical territory.

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children

MDPI

Article

Associations between School-Level Disadvantage, Bullying Involvement and Children's Mental Health

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Abstract: Bullying is a modifiable risk factor for poor mental health across childhood and adolescence. It is also socially patterned, with increased prevalence rates in more disadvantaged settings. The current study aimed to better understand whether school-level disadvantage is associated with different types of bullying roles, and whether it is a moderator in the association between bullying and children's mental health. Cross-sectional data were used from 4727 children aged 6–11 years, from 57 primary schools across England and Wales. The child data included previous bullying involvement and bullying role characteristics (bully, victim, bully–victim, reinforcer, defender, outsider), and the teacher-reported data included each child's mental health (emotional symptoms and externalizing) problems. School-level disadvantage was calculated from the proportion of children in the school eligible to receive free school meals (an indicator of disadvantage). Children in more disadvantaged schools were more likely to report being bully perpetrators, bully–victims, and engage less in defending behaviors during a bullying incident. Children from more disadvantaged schools who reported bullying others showed fewer emotional symptoms than those from less disadvantaged schools. There was no other evidence of moderation by school-level disadvantage between bullying roles and emotional and externalizing problems. The findings highlight the potential for school-based interventions targeting children's emotional and social development, targeting bullying, and promoting defending behaviors, particularly in more disadvantaged settings.

Keywords: bullying perpetration; victimization; disadvantage; mental health; emotional symptoms; externalizing problems

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1. Introduction

Mental health in children and adolescents is a public health priority. A recent UK longitudinal study showed that the probable rates of mental disorders for children aged 6–16 years had risen from 11% in 2017 to 17% in 2021 and 18% in 2022 [1]. The findings are mirrored by data from the American Centre for Disease Control and Prevention (CDC) report that in 2022, 20% of children and young people in America had an identified mental health disorder [2].

1.1. Bullying and Mental Health

Bullying is a damaging and aggressive repeated behavior characterized by an imbalance of power between the perpetrator(s) and the targeted victim. The intention of the interaction is to cause the victim harm. School bullying is a known modifiable risk factor associated with children's worsened mental health and negative consequences that can remain into adulthood [3–5].

For many years, the research focused on the involvement of the bully and the victim in a bullying situation and on the associations with mental health [3]. Other roles that children take on during a bullying incident have since been identified, including 'assistants', 'reinforcers', 'defenders', and 'outsiders' [6,7]. Those children surrounding the bullying incident are now recognized as playing a crucial role in the initiation and maintenance or reduction in bullying behaviors; therefore, all roles will be included in this paper.

Bullying victimization and perpetration have both been described as negative environmental stressors that might contribute to poor mental health, particularly among those with greater vulnerability [8]. The complex group of individuals known as 'bully–victims' who both bully others and are victimized themselves are particularly vulnerable due to their double-role and are at risk of psychological problems [9,10]. The evidence also suggests that children involved in the wider participant roles in bullying may, as a result, be at increased risk of developing mental health problems. For example, children who witness bullying but do not (or perhaps cannot) intervene—known as 'outsiders'—may also experience heightened emotional and behavioral problems [11]. 'Reinforcers' of bullying, on the other hand, may experience greater levels of cognitive dissonance as they struggle to balance the need to protect themselves with the knowledge that they are helping those bullying others [12]. Such cognitive dissonance can lead to feelings of self-blame and anger, increasing the risk of both internalizing (emotional difficulties including symptoms of anxiety and depression) and externalizing (behavioral difficulties including conduct problems, hyperactivity, and aggressive behaviors) problems. It is important, therefore, to consider the involvement and outcomes for all roles within a bullying situation.

1.2. Bullying and Disadvantage

Understanding contexts that exacerbate or attenuate the link between bullying and children's mental health is crucial. One such context may be school-level disadvantage—the concentration of child-level disadvantage within a school. With children spending so many hours each week in school, schools can be seen as a very influential (either positive or negative) environment on a child's development [13,14]. They are being recognized as microcosms that can either foster positive development or can host adversity, places designed to support learning and knowledge acquisition, and also places that nurture children's social development and health. School bullying involvement can, therefore, create a negative experience within a child's microsystem.

Bullying is more frequently experienced by children growing up in more disadvantaged homes and communities (see [15] for a review); for example, a meta-analysis [16] found that children from the lowest income households had 40% higher odds of experiencing bullying compared to children from the highest income households. There are also socio-economic patterns that account for some of the extensive variation in prevalence rates of bullying between schools [17]. Currently, it remains unclear as to whether school-level disadvantage moderates the association between bullying involvement and mental health problems in children.

Schools with a higher concentration of disadvantage are known to be associated with increases in school-based violence and disorder, poorer academic outcomes, and an overall worsened school climate and environment [18,19]. They may have fewer resources to implement anti-bullying programs or provide adequate supervision, potentially fostering a climate where bullying can thrive. Furthermore, pupils in such schools may be more likely to engage in bullying behavior as a means of coping with their own stressors. Therefore, although limited research has considered whether the presence of disadvantage within a

school can exacerbate the prevalence of bullying, regardless of individual home and community levels of disadvantage, it seems possible. These problems can lead to disruptions in the learning environment and negative long-term consequences for children's social and academic development. Therefore, understanding the association between school-level factors, including the concentration of disadvantage, and mental health outcomes can provide valuable insight into how schools can begin to support and improve children's mental health.

1.3. Current Study

We used data from over 4000 UK primary school children aged 6–11 years from 57 schools to investigate whether school-level disadvantage (the concentration of disadvantaged pupils in a school) moderated the association between bullying involvement and mental health (externalizing and emotional) problems in children. We administered the Olweus Bullying and Victimization Questionnaire (OBVQ) and the Participant Role Questionnaire (PRQ) to children to identify their involvement in bullying and bullying roles (bully, victim, bully–victim, reinforcer, defender, outsider) and the Strengths and Difficulties Questionnaire (SDQ) to identify the teacher-rated levels of externalizing and emotional problems of each child. Understanding contexts that exacerbate or attenuate the link between bullying and children's mental health is an important goal for the development and targeting of anti-bullying interventions.

We focused on addressing the following research questions:

1. Was the level of bullying involvement higher when the level of school-level disadvantage was higher as determined by the proportion of children eligible for 'free school meals'?
2. Was bullying involvement (including reinforcing, defending, and outsider roles) associated with increased levels of mental health (emotional and externalizing) problems?
3. Does school-level disadvantage moderate any associations between bullying involvement and children's mental health (emotional and externalizing) problems?

2. Materials and Methods

2.1. Design

A cross-sectional design was used. Data were collected between February and March 2020 as part of the Stand Together Trial, a randomized-controlled trial examining the effectiveness of the KiVa anti-bullying intervention [20]. Schools had not been assigned a trial condition at the time of baseline data collection and all data were collected pre-COVID-19 pandemic. Ethical approval was granted by the University of Bangor Ethics and Research Committee.

2.2. Participants

A total of 4724 children from 57 primary schools in England (n = 36) and Wales (n = 21) participated. Schools were sampled from four geographic regions (Devon, Oxfordshire, West Midlands, North Wales). Strategic postcode sampling was applied in an attempt to include a representative range of schools within each region.

UK primary schools are for children of approximately 4–11 years of age. All children in school years 3 (age 7–8), 4 (age 8–9), and 5 (age 9–10) from these schools were invited to participate; parents could opt their children out of the study and the remaining children assented on the day of data collection (sex: female = 48.5%; mean age = 8 years 6 months (SD = 0.97 years): age 6 = 0.1%; age 7 = 15.6%; age 8 = 33.1%; age 9 = 32.2%; age 10 = 18%; age 11 = 0.1%; age data missing from 0.8%). The schools' year 3–year 5 cohorts ranged in size from 28 to 277 children (M = 100.7; SD = 61.63). School size was based on the number of children registered in those years, regardless of whether they decided to take part in the study. Eight children did assent to take part initially but did not complete any questionnaire data and were removed from all analyses.

2.3. Measures

2.3.1. School-Level Disadvantage

This study focused on school-level disadvantage defined as the percentage of children in a school eligible to receive free school meals (eFSM). In the early 1990s, the UK Government recognized the benefit of providing a daily free school meal to the most disadvantaged pupils in the country aged 5 to 16 years. They introduced the Education Act 1996, which required schools to provide daily free school meals to any child whose parents were in receipt of certain income-determined government benefits, an indicator of socio-economic deprivation. The national average of children eFSM at the time of the research was 17.3% in English primary schools [21] and 18.8% in Welsh primary schools [22], and was 14.85% (SD = 13.56) across the schools in the current study. School-level disadvantage (the percentage of children eFSM in each school) was used as a continuous variable for the statistical analysis (with the exception of the analyses for our first question, where we preregistered models with both the continuous and categorical variable and the categorical variable was created based on a median split of our school-level eFSM data).

2.3.2. Olweus Bullying and Victimization Questionnaire (Bullying Involvement)

We administered the Olweus Bullying and Victimization Questionnaire (OBVQ) [23] to categorize each child's bullying involvement roles into one of the four possible categories: bully, victim, bully–victim, and not involved. Questions were scored 1–5, where 1 indicated it had not happened, 3 indicated 2 or 3 times a month, and 5 indicated several times a week. Twenty-two questions were asked, of which 20 were used to create the dichotomous variables used in our analyses. Ten questions indicated having bullied someone (e.g., "How often have you taken part in bullying another child at school in the past couple of months?" and "I called another child mean names, made fun of, or teased them in a hurtful way") and 10 indicated having been bullied (e.g., "How often have you been bullied at school in the past couple of months?" and "I was called mean names, made fun of, or teased in a hurtful way"). For categorization purposes, we followed the literature [24], whereby a child had to answer '2 or 3 times a month' or more often to at least one of the 10 bully perpetration questions to be classified as a perpetrator of bullying. The same rule was applied when categorizing a victim from the 10 victimization questions. To be classified as a bully–victim (an individual who both perpetrates bullying and is bullied themselves), a child had to answer '2 or 3 times a month' or more often on at least one of the 10 bully perpetration questions and one of the 10 victimization questions. Children that never answered '2 or 3 times a month' or more often on any of the 20 questions were classified as 'not involved'. For our analyses with the OBVQ classification, we excluded individual participants who had missing data or who had responded with the 'prefer not to say' option on 50% or more of the OBVQ questions about being bullied and 50% or more of the OBVQ questions about bullying others. After considering practical guidelines regarding missing data [25], we applied the 50% criterion to be able to make rigorous classifications whilst still maximizing the number of participants we could include. Following this procedure, we created dichotomous variables for each category (bully, victim, bully–victim, not involved), whereby we recorded whether a child was a member of this category. Given the classification method, these categories were exclusive (children could not be in more than one group) (internal consistency: $\alpha = 0.91$ (victimization) and $\alpha = 0.87$ (perpetration)).

2.3.3. Participant Role Questionnaire (Bullying Roles)

The Participant Role Questionnaire (PRQ) [26] was administered as an extended measure of bullying role classification, including roles beyond the bully and victim (bully perpetrator, assistant, reinforcer, defender, and outsider). Due to a survey setup error, we did not collect data on the assistant role scale. Thus, the PRQ that was collected comprised 12 questions, with three questions corresponding to each of four role classifications. The PRQ questions were adapted from the original peer reporting method to self-reporting. The questions were scored as follows: 0—never; 1—sometimes; 2—often. The scores

were summed for each scale, resulting in a total score for each role (e.g., for defenders), with a possible range of 0–6, where higher scores indicate more frequent involvement in the behaviors corresponding to that role. For the PRQ analyses, if a participant had not responded to all three questions within each scale, we were not able to compute their score for that corresponding scale [26]. As long as a participant replied to at least one scale in full, we included them in the corresponding analyses (internal consistency: $\alpha = 0.64$ (bully), $\alpha = 0.72$ (defender), $\alpha = 0.13$ (reinforcer), and $\alpha = 0.03$ (outsider)).

2.3.4. Strengths and Difficulties Questionnaire

The Teacher Strengths and Difficulties Questionnaire (TSDQ) [27] was completed by class teachers as a measure of each child's emotional and behavioral problems. The TSDQ has twenty-five questions, of which 15 were used in our analyses; five comprised the emotional symptoms score, and the 5 questions measuring conduct problems and hyperactivity and inattention were combined to make an externalizing problem score. The peer relationship subscale was not included (which would typically have been combined with the emotional symptoms score to make an internalizing score) due to potentially confounding with our bullying measures. Each question was scored from 0 (not true) to 2 (certainly true) and the question scores were summed for each scale, with higher scores indicating greater levels of problems. Here, data were missing from seven schools; therefore, these schools were not be included in any TSDQ analyses (internal consistency: $\alpha = 0.85$ (emotional) and $\alpha = 0.88$ (externalizing)).

2.4. Procedure

The researchers attended each class for one hour and read through and explained every question to the children. The children completed the OBVQ and PRQ in one session on electronic tablets. The class teachers completed the TSDQ for each of their students on paper questionnaires.

2.5. Analysis Plan

Our analyses were preregistered at https://osf.io/xk2vm (19 August 2021). We first examined in our sample the numbers of victimized, bully perpetrators, and bully–victims in more disadvantaged versus less disadvantaged schools. Next, we examined whether bullying involvement was associated with increased teacher-reported levels of emotional and externalizing problems. We used multilevel regression and clustering by school, whereby our outcome variables, emotional and externalizing problems, were computed based on the TSDQ scores. Finally, we investigated whether school-level disadvantage moderated the association between bullying involvement and children's emotional and externalizing problems. We used multilevel regression accounting for clustering by school, with emotional and externalizing problems as the outcome variables. For predictors, we examined bullying involvement, school-level eFSM proportion, and their interaction. Additionally, we examined the same research questions using data on bullying roles from the PRQ in place of bullying involvement variables. Our analyses with the PRQ were exploratory. All analyses were carried out in R version 4.0.5. We relied on the package nlme to run our regressions with the REML estimator.

3. Results

We note that although our full sample contained data from 4724 students, our analyses were based on fewer observation (max: 4258; min: 2640). This was due to missing data and the use of pairwise deletion, with the numbers of missing responses differing depending on the specific sub-scale or measures. We ran Little's test to examine whether our OBVQ, PRQ, and TSDQ data were missing completely at random. All three tests were significant at $p < 0.0001$, suggesting that data were not missing completely at random. Thus, it remains possible that the data were missing at random (MAR) or missing not at random (MNAR).

3.1. Bullying Roles and School-Level Disadvantage

The average proportion of children across all schools reporting victimization was 36.22 ± 8.87%, reporting bully perpetration was 2.01 ± 1.61%, reporting being bully–victims was 11.01 ± 6.81%, and reporting being not involved in bullying was 51.16 ± 10.35%. The mean PRQ bully perpetration across all children score was 0.32 ± 0.17, the mean reinforcer score was 1.34 ± 0.17, the mean defender score was 4.58 ± 0.37, and the mean outsider score was 2.66 ± 0.23.

The association between bullying involvement and the degree of school-level disadvantage was explored in a multilevel model, where individual-level OBVQ bullying involvement rates were the predictor variable (separate models for victimized, bully perpetrator, bully–victim, and not involved) and school-level disadvantage was the outcome variable. A random intercept at the school level in each model was included to account for the clustering of individuals within schools (see Table 1). The proportion of bully–victims was higher in schools with a greater level of disadvantage (% school-level eFSM) when this was assessed as a continuous measure (B = 0.002, $p < 0.001$) and as a dichotomized (median split of our school-level) measure (B = 0.03, $p < 0.05$). These analyses did not indicate significant associations between school-level disadvantage (continuous or dichotomized) with bullying perpetration and indicated only a significant association between victimization and school-level disadvantage as a dichotomized measure (B = −0.04, $p < 0.05$; see Table 1).

Table 1. Associations between prevalence rates of victimization, perpetration, bully–victims, and not involved (OBVQ) at the individual level with school-level disadvantage (unstandardized B (standard error)). The analysis was based on 57 schools.

	Victimized (N = 3932) *b* (SE)	**Bully Perpetrators (N = 3932) *b* (SE)**	**Bully–Victims (N = 3932) *b* (SE)**	**Not Involved (N = 3932) *b* (SE)**
Continuous predictor				
Intercept	0.37 (0.02) ***	0.01 (0.00) ***	0.07 (0.01) ***	0.53 (0.02) ***
School-level disadvantage (continuous)	0.00 (0.0)	0.00 (0.00)	0.002 (0.00) ***	0.00 (0.10)
Random Effects Intercept (SD)	0.05	0.01	0.03	0.07
ICC	0.01	0.003	0.013	0.021
Binary predictor				
Intercept	0.38 (0.01) ***	0.01 (0.00) ***	0.09 (0.01) ***	0.51 (0.02) ***
School-level disadvantage (dichotomized)	−0.04 (0.2) *	0.00 (0.00)	0.03 (0.01) *	0.00 (0.02)
Random Effects Intercept (SD)	0.04	0.01	0.05	0.08

Note: *** $p < 0.001$. * $p < 0.05$.

We investigated the association between the PRQ scores and school-level deprivation via unadjusted multilevel regression analyses. The PRQ mean scores for different bullying roles (perpetrator, reinforcer, defender, outsider) were the outcome variables in each model and school-level disadvantage was the predictor measure. Again, in each model, we included a random intercept at the school level to account for the clustering of individuals within schools (see Table 2). We found that in schools with more disadvantage, children were less likely to engage in defending behaviors (B = −0.01, $p < 0.05$). This was also true when using a binary predictor for school-level disadvantage (B = −0.25, $p < 0.01$). We also found that children were more likely to engage in bullying perpetration when from a school with more disadvantage (B = 0.003, $p < 0.05$).

Table 2. Associations between mean scores for bully perpetrator, reinforcer, defender, and outsider roles (PRQ) and school-level disadvantage (unstandardized B (standard error)). The analysis was based on 57 schools.

	Bully Perpetrator (N = 4108) *b* (SE)	**Reinforcer (N = 4258) *b* (SE)**	**Defender (N = 4179) *b* (SE)**	**Outsider (N = 3677) *b* (SE)**
Continuous predictor				
Intercept	0.26 (0.03) ***	1.33 (0.03) ***	4.70 (0.06) ***	2.66 (0.04) ***
School-level disadvantage (continuous)	0.003 (0.00) *	0.00 (0.00)	−0.01 (0.00) *	0.00 (0.00)
Random Effects Intercept (SD)	0.10	0.13	0.25	0.16
ICC	0.017	0.022	0.026	0.019
Binary predictor				
Intercept	0.28 (0.03) ***	1.35 (0.03) ***	4.70 (0.06) ***	2.67 (0.04) ***
School-level disadvantage (dichotomized)	0.04 (0.04)	−0.03 (0.04)	−0.25 (0.08) **	−0.02 (0.06)
Random Effects Intercept (SD)	0.11	0.12	0.25	0.16

Note: *** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$.

3.2. Bullying Involvement, Mental Health, and Moderation by School-Level Disadvantage

Through a series of multilevel regressions with clustering accounted for at the school level, we examined the associations between bullying involvement, teacher-rated emotional symptoms (Table 3), and externalizing problems (Table 4). We also tested whether the associations were moderated by disadvantage at the school level. The tables report on the unadjusted and adjusted (for age, sex, school-level eFSM, and interactions) models.

Table 3. Multilevel regression models examining the associations between bullying involvement (OBVQ) and emotional symptoms (TSDQ) (unstandardized B (SE)). Model 1 is unadjusted, while model 2 is adjusted for age and sex. Models 3 (unadjusted) and 4 (adjusted for age and sex, where 'boy' = 0 and 'girl' = 1) additionally examine for the association with school-level disadvantage. School N = 50 (7 schools were not included due to missing TSDQ data). The comparison category for bullying involvement was children 'not involved'.

	Model 1 (N = 3302) *b* (SE)	**Model 2 (N = 3275) *b* (SE)**	**Model 3 (N = 3302) *b* (SE)**	**Model 4 (N = 3275) *b* (SE)**
Intercept	1.66 (0.11) ***	0.55 (0.38)	1.37 (0.16) ***	0.29 (0.40)
Bullying perpetration	0.24 (0.31)	0.38 (0.31)	1.16 (0.50) *	1.40 (0.50) **
Victimization	0.30 (0.09) ***	0.33 (0.09) ***	0.30 (0.12) *	0.31 (0.12) *
Bully–victim	0.46 (0.13) ***	0.56 (0.14) ***	0.25 (0.20)	0.35 (0.20)
Age		0.11 (0.04) **		0.11 (0.04) **
Sex		0.31 (0.08) ***		0.31 (0.08) ***
School-level disadvantage			0.02 (0.01) *	0.02 (0.01) *
School-level disadvantage x Bully perpetration			−0.05 (0.02) *	−0.06 (0.02) *
School-level disadvantage x Victimization			0.00 (0.01)	0.00 (0.00)
School-level disadvantage x Bully–victim			0.01 (0.01)	0.01 (0.01)
Random Effects Intercept (SD)	0.69	0.69	0.64	0.64
ICC	0.087	0.088	0.075	0.076

Note: *** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$.

Table 4. Multilevel regression models examining the effects of bullying involvement (OBVQ) and externalizing problems (TSDQ) (unstandardized B (SE)). Model 1 is unadjusted, while model 2 is adjusted for age and sex. Models 3 (unadjusted) and 4 (adjusted for age and sex, where 'boy' = 0 and 'girl' = 1) additionally examine for the effect of school-level disadvantage. School N = 50. The comparison category for bullying involvement was children 'not involved'.

	Model 1 (N = 3302) *b* (SE)	**Model 2 (N = 3275) *b* (SE)**	**Model 3 (N = 3302) *b* (SE)**	**Model 4 (N = 3275) *b* (SE)**
Intercept	1.41 (0.08) ***	1.92 (0.31) ***	1.26 (0.11) ***	1.74 (0.31) ***
Bullying perpetration	1.81 (0.27) ***	1.50 (0.26) ***	2.23 (0.43) ***	1.87 (0.42) ***
Victimization	0.42 (0.07) ***	0.41 (0.07) ***	0.35 (0.11) **	0.37 (0.10) ***
Bully–victim	1.61 (0.11) ***	1.44 (0.11) ***	1.40 (0.17) ***	1.25 (0.16) ***
Age		0.00 (0.03)		0.00 (0.04)
Sex		−1.02 (0.07) ***		−1.02 (0.07) ***
School-level disadvantage			0.01 (0.01)	0.01 (0.01) *
School-level disadvantage x Bully perpetration			−0.02 (0.02)	−0.02 (0.02)
School-level disadvantage x Victimization			0.00 (0.00)	0.00 (0.00)
School-level disadvantage x Bully–victim			0.01 (0.09)	0.01 (0.01)
Random Effects Intercept (SD)	0.45	0.44	0.41	0.39
ICC	0.053	0.054	0.043	0.042

Note: *** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$.

3.2.1. Emotional Symptoms and the OBVQ

As expected, we found that children reporting their involvement as victims or bully–victims had increased levels of emotional symptoms compared to children who reported no bullying involvement (B = 0.30, $p < 0.001$ and B = 0.46, $p < 0.001$, respectively; see Table 3).

Our data also suggest that children in schools with a greater level of disadvantage are generally more likely to display emotional symptoms (B = 0.02, $p = 0.016$) independent of their involvement—if any—in bullying. This was still true in our adjusted model (B = 0.02, $p = 0.002$). Children self-reporting bullying perpetration behaviors from more disadvantaged schools were reported to have significantly fewer emotional symptoms (B = −0.05, $p = 0.017$); this was still true in our adjusted model (B = −0.06, $p = 0.01$).

3.2.2. Externalizing Problems and the OBVQ

As expected, children reporting their involvement as bullies, victims, and bully–victims had increased levels of externalizing problems compared to children who reported no bullying involvement (B = 1.81, $p < 0.001$; B = 0.42 $p < 0.001$; B = 1.61, $p < 0.001$, respectively, see Table 4) in both unadjusted and adjusted models. Our data also show that children in schools with a greater level of disadvantage were not more likely to display externalizing symptoms in our unadjusted model (B = 0.01, $p = 0.072$), although this became significant in our adjusted model (B = 0.01, $p = 0.02$). School-level disadvantage did not moderate the association between bullying involvement (as a bully, victim, or bully–victim) and externalizing problems in either our unadjusted or adjusted models.

Through a further series of multilevel regressions clustered at the school level, we examined the association at the individual level between bullying role behaviors (perpetrator, reinforcer, defender, and outsider behavior scores) and children's emotional problems (Table 5) and externalizing problems (Table 6).

Table 5. Multilevel regression models examining the effects of bullying role scores (PRQ) and emotional symptoms (TSDQ) (unstandardized B (SE)). Model 1 is unadjusted, while model 2 is adjusted for age and sex. Models 3 (unadjusted) and 4 (adjusted for age and sex, where 'boy' = 0 and 'girl' = 1) additionally examine for the effect of school-level disadvantage. School N = 50.

	Model 1 (N = 2665)	**Model 2 (N = 2640)**	**Model 3 (N = 2665)**	**Model 4 (N = 2640)**
Intercept	2.09 (0.21) ***	1.08 (0.44) *	1.72 (0.29) ***	0.71 (0.48)
Bully perpetrator	0.04 (0.06)	0.06 (0.06)	0.06 (0.10)	0.10 (0.10)
Reinforcer	0.08 (0.06)	0.08 (0.06)	0.17 (0.09) *	0.17 (0.09) *
Defender	−0.08 (0.03) **	−0.09 (0.03) **	−0.08 (0.04)	−0.09 (0.04) *
Outsider	−0.01 (0.03)	−0.02 (0.04)	−0.01 (0.04)	−0.03 (0.04)
Age		0.11 (0.05) *		0.11 (0.05) *
Sex		0.33 (0.09) ***		0.32 (0.09) ***
School-level disadvantage			0.02 (0.01)	0.02 (0.01)
School-level disadvantage x Bully perpetrator			0.00 (0.11)	−0.01 (0.01)
School-level disadvantage x Reinforcer			−0.02 (0.1)	−0.01 (0.01)
School-level disadvantage x Defender			0.00 (0.00)	0.00 (0.01)
School-level disadvantage x Outsider			0.00 (0.00)	0.00 (0.01)
Random Effects Intercept (SD)	0.71	0.72	0.67	0.68
ICC	0.09	0.091	0.081	0.083

Note: *** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$.

Table 6. Multilevel regression models examining the effects of bullying role scores (PRQ) and externalizing problems (TSDQ) (unstandardized B (SE)). Model 1 is unadjusted, while model 2 is adjusted for age and sex. Models 3 (unadjusted) and 4 (adjusted for age and sex, where 'boy' = 0 and 'girl' = 1) additionally examine for the effect of school-level disadvantage. School N = 50.

	Model 1 (N = 2665)	**Model 2 (N = 2640)**	**Model 3 (N = 2665)**	**Model 4 (N = 2640)**
Intercept	2.24 (0.16) ***	2.54 (0.35) ***	2.11 (0.22) ***	2.39 (0.38) ***
Bully perpetrator	0.60 (0.05) ***	0.55 (0.05) ***	0.68(0.08) ***	0.58 (0.08) ***
Reinforcer	0.06 (0.05)	0.06 (0.05)	0.02 (0.07)	0.02 (0.07)
Defender	−0.10 (0.02) ***	−0.08 (0.02) **	−0.10 (0.04) **	−0.07 (0.04) *
Outsider	−0.11 (0.03) ***	−0.10 (0.03) **	−0.11 (0.03) ***	−0.10 (0.03) **
Age		0.00 (0.04)		−0.01 (0.04)
Sex		−0.93 (0.07) ***		−0.93 (0.07) ***
School-level disadvantage			0.01 (0.01)	0.01 (0.01)
School-level disadvantage x Bully Perpetrator			−0.01 (0.01)	0.00 (0.01)
School-level disadvantage x Reinforcer			0.01 (0.01)	0.01 (0.01)
School-level disadvantage x Defender			0.00 (0.01)	0.00 (0.00)
School-level disadvantage x Outsider			0.00 (0.01)	0.00 (0.00)
Random Effects Intercept (SD)	0.38	0.40	0.37	0.37
ICC	0.04	0.045	0.037	0.038

Note: *** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$.

3.2.3. Emotional Symptoms and the PRQ

Those children reporting more defending behaviors were overall reported by their teachers to have lower levels of emotional symptoms (B = −0.08, $p = 0.007$; see Table 5).

Children reporting reinforcing behaviors were found to have higher levels of teacher-reported emotional symptoms in the adjusted model (B = 0.17, $p < 0.05$), although no interaction was found. Our adjusted models suggest that older children and girls reported higher levels of emotional symptoms (B = 0.11, $p = 0.023$; B = 0.32, $p < 0.001$, respectively). We did not find support for a direct or moderating effect of school-level deprivation on the association between PRQ scores and emotional symptoms.

3.2.4. Externalizing Problems and the PRQ

Those children reporting more bullying behaviors were overall reported by their teachers to have higher levels of externalizing problems (B = 0.60, $p < 0.001$; see Table 6), both in our unadjusted and adjusted models, whereas those children reporting more defending or outsider behaviors were overall reported by their teachers to have lower levels of externalizing problems (B = −0.10, $p < 0.001$; B = −0.11, $p < 0.001$, respectively), both in our unadjusted and adjusted models. We found that girls reported significantly fewer externalizing problems than boys (B = −0.93, $p < 0.001$). We did not find support for a direct or moderating effect of school-level deprivation on the association between PRQ scores and externalizing problems.

4. Discussion

This paper aimed to explore the interplay between school-level disadvantage, bullying involvement, and mental health in children from 57 primary schools in the UK. It is well known that children growing up in disadvantaged home life circumstances are more likely to experience bullying [15,16] and that concentrations of school-level disadvantage and community disadvantage are known to be risk factors for school-based violence [18,19,28]. This paper suggests that attending a school with a higher concentration of disadvantage has an association with the amount and type of bullying involvement identified; more disadvantaged schools had children self-reporting higher levels of bully perpetration and bully–victim behaviors. Our results provide further evidence of the negative impact an environment with a high concentration of disadvantage can have on children; the children in our sample from more disadvantaged schools were significantly more likely to have poorer mental health compared to those from less disadvantaged schools, regardless of their involvement, if any, in bullying. Children from more disadvantaged schools were more emotionally insecure, which is perhaps unsurprising considering the schools with a higher concentration of disadvantage included significantly more children who self-reported bullying behaviors and significantly fewer children in those schools reported defending behaviors during a bullying incident. This suggests a negative school environment. Surprisingly, children from more disadvantaged schools who reported bullying others were teacher-reported to also show fewer emotional symptoms than those from less disadvantaged schools. Children reporting more defending or outsider behaviors were reported to have fewer mental health problems.

Knowing that social disadvantage and emotional insecurity are forms of vulnerability and that vulnerable children are more at risk of negative outcomes such as bullying involvement [29,30], it is not surprising that the children in our more disadvantaged schools showed higher rates of bullying involvement. This intensified vulnerability may also go some way to explaining why we found fewer defending behaviors in children from more disadvantaged schools. Defenders in our study and in the wider literature have been shown to have higher levels of emotional stability and prosocial behaviors [31,32]; we propose two possible reasons why fewer children reported defending behaviors in schools with a higher concentration of disadvantage. Firstly, in our study, children in more disadvantaged schools showed higher levels of emotional instability, regardless of their bullying involvement. Children with increased emotional instability and the potential cognitive dissonance of either being or being associated with bullies or bully–victims may experience a suppression of acting upon their prosocial intentions [33]. Secondly, we found that schools with more disadvantage had a significantly higher number of self-reported

bullies. Therefore, it is possible that children whose natural tendency would be to defend in a bullying situation find themselves in an environment where bullying is normalized, and those involved are awarded popularity and social status [34]. In those situations, perhaps defending behaviors carry high-risks.

In general, bully perpetrators are more likely to show higher levels of emotional difficulty compared to those not involved in bullying situations [4]. However, we found a moderation of school-level disadvantage, whereby children who self-reported bully perpetration behaviors attending more disadvantaged schools were reported to have fewer emotional instability symptoms compared to self-reported bullies attending less disadvantaged schools. This suggests that social inequality may be influencing the association between bullying and emotional outcomes. Attending a school with higher levels of disadvantage may decrease the association between bullying perpetration and emotional instability. If a school has higher levels of bullying (and higher numbers of bully–victims), then bullying involvement may become trivialized and normalized [34]. Alongside the combined observation of reduced defending behaviors in disadvantaged schools, this suggests that the social positioning and status of bullies may be further strengthened [34]. In turn, the act of being a bully may have less of a negative psychological impact; the disadvantaged school climate may have protected the bullies from increased feelings of guilt, anger, and isolation that can result in emotional symptoms. Children from more disadvantaged homes and communities are also more likely to have experienced bullying behaviors outside the school environment, which might also normalize their bullying involvement within school [16].

4.1. Limitations and Future Work

This study included a large sample of primary school children from a range of schools across England and Wales. Although these schools also varied in their level of disadvantage, the study's percentage of eFSM was a little lower than the national averages in England and Wales, thereby limiting the generalization of the data. We collected data from children and teachers to provide a wider perspective on the situation of, and association between, bullying and mental health. The teachers' data were concurrent but the children's data were collected retrospectively via self-report questionnaires. Although the OBVQ timeframe was short (asking for reported bullying experience in school over the past 3 months), this does open up the possibility of recall error by either over- or under-reporting. In addition, it is likely that this study underestimated the prevalence of bullying perpetration due to the self-report measure and the respondents' fear of being negatively perceived. Due to time restrictions and ethical consideration, we used the PRQ in a self-report format rather than its original peer-reporting format. Future work should consider whether the PRQ as a self-report tool provides the same level of accuracy compared to when it is used as a peer-report tool. We acknowledge that we found poor reliability for the PRQ reinforcer and outsider sub-scales as captured through low Cronbach alpha values. Our analyses with the PRQ were exploratory and further work is needed to clarify or substantiate the effects assessed with the PRQ questionnaire. It is important to point out that the study is unable to identify a causal direction due to the cross-sectional methodology and the inability to include other potentially important variables, including ethnicity and family income, which should be included in the future to explore alternative explanations for the outcomes found.

4.2. Conclusions

Our data present the interplay between social inequality, bullying involvement, and mental health. The levels of disadvantage vary across schools in the UK and other countries, which means that we need to make sure that appropriate interventions and support strategies are in place and that they are effective across the social disadvantage spectrum. Gaining a greater understanding of the association between school-level disadvantage and children's outcomes can help to guide the development of effective and sustainable

anti-bullying interventions. Our results suggest the need to focus on encouraging defending behaviors within the most disadvantaged schools and reducing the social positioning and status of bullies. With these changes, it is possible that a more positive school climate would begin to become established. With more research, schools may want to move from individual-child-based interventions and support to fostering a whole-school approach to raise children's social and emotional wellbeing [7,35].

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Article

An Entangled Relationship between Bullying Perception and Psychosocial Dimensions in a Sample of Young Adolescents

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Abstract: Background: Bullying is a hostile behavior repeated over a time period, affecting children and adolescents in different social settings, mainly small and stable ones like school, with negative effects on mental and physical health. In this study, we aimed to provide the degree of impairment of different variables related to health and well-being in bullying conditions, with attention to sex differences. Methods: Data were obtained from 5390 adolescents (mean age 13.08 ± 1.89; male 2729), and health-related quality of life (HRQoL) was assessed using the KIDSCREEN-52 questionnaire. Results: In all students, mood and emotion, self-perception, and parental relationships are the dimensions more compromised in bullying conditions, while lifestyle habit is the variable less involved. Bullied girls show a significant impairment of all HRQoL variables both with respect to the socially accepted counterpart and to the male population. Conclusions: Our study highlights the strict association between bullying and emotional and social dimensions, suggesting that enhancing them preventively could facilitate earlier detection of problems, thereby reducing health risks.

Keywords: bullying; victims; well-being; students; adolescence; HRQoL; school

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1. Introduction

Bullying is a significant and prevalent problem among young people and presents in different contexts, including home, workplace, community settings, and school [1]. The term "bullying" refers to violent and intentional social behavior, not only physical but also verbal and psychological, direct (toward the target) or indirect (spreading rumors or images), with negative effects on psychological dimension, physical health, social relationships, and schoolwork. Usually, bullying takes place in a relatively small and constant setting, like classes, with the presence of the same people, and with almost daily events. For this reason, in recent years, there has been growing attention to the phenomenon of bullying in school settings, considering that approximately 1 in 5 school-aged youth have been victimized by this phenomenon. The American Medical Association and the National Academies of Sciences, Engineering, and Medicine identify bullying as a serious risk to children's healthy development [2]. Although extensive research has well documented the consequences in the short-term on health and quality of life due to bullying victimization, considerably less is known about the reasons why the symptoms due to maltreatment persist even after the bullying has ceased, with effects on learning, behavior, and health [3]. It has also been seen that there is actually a kind of overlap between bullies and victims: those who behave as bullies during childhood may become victims in adolescence and vice versa [4]. In general, victims of bullying show problems regarding adaptation to stressful

events, altered emotional responses such as depressed mood and anxiety, and psychosomatic diseases [5], not only in adolescence but also during their lifetime [6]. Lack of trust in social interactions would appear to be a predisposing factor to being victimized [7,8]. Bullying can cause a worse quality of life, as documented in previous studies; however, to our knowledge, there are no studies showing which psychosocial dimensions are most affected. The possibility of understanding which dimensions are most affected by bullying would make it possible to develop strategies to prevent and reduce the adverse effects of bullying in the short and medium terms [9,10].

Therefore, in light of this gap, the purpose of this study is to investigate how the perception of being a victim of bullying compared to those who feel socially accepted affects health-related quality of life and well-being. Accordingly, we paid attention to the different well-being-related dimensions and potential sex differences.

2. Materials and Methods

2.1. Study Population

Data were collected between 2022 and 2023 from the platform of the AVATAR project "A new purpose for promotion and eVAluation of healTh and well-being Among healthy teenageRs" developed by the Institute of Clinical Physiology of the NRC (National Research Council) [11]. This platform was designed to collect data on fundamental aspects of adolescent daily life, free of charge, without a commercial license, by the scholastic community (scholars, teachers, and parents) in order to improve adolescents' overall self-esteem, resilience, and self-empowerment. Adolescent students were enrolled according to the following inclusion criteria: age 10–14 years, absence of neuropsychiatric or other diseases, informed consent signed, and filling of the entire questionnaires proposed.

Of the initial population of 5976, 586 students were excluded for the following reasons: diagnosed neuropsychiatric or other diseases (n = 20), absence of sign informed consent (n = 175), questionnaires not filled completely (n = 256), or internet connection problems (n = 135). Therefore, the final population consisted of 5390 adolescents. Participants were instructed on how to complete the questionnaires, and all tests were performed during school hours. In every school class, all the adolescents filled out the questionnaire, and whether they were not eligible due to exclusion criteria reasons were excluded from the study retrospectively. Participants were previously instructed on how to fill out the questionnaires and how to conduct the tests. One or two project members visited each school to provide the adolescents with verbal and written information about the data collection. All tests were conducted during participants' computer lessons during school time. No incentive was provided to adolescents or parents. A research assistant was available to provide information and technical support to complete questionnaires.

2.2. Ethics

All parents or legal guardians gave informed consent and authorized researchers to use their data in accordance with Italian law. All procedures performed in the study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The AVATAR project has been accepted by the Regional Pediatric Ethics Committee (Azienda Ospedaliero Universitaria Meyer) (16 February 2021, code 76).

2.3. Health-Related Quality of Life (HRQoL)

The Italian version of KIDSCREEN-52 was used to assess health-related quality of life (HRQoL), and data were acquired using the AVATAR platform [12,13]. A sociodemographic data record was used to collect information on gender and age.

The KIDSCREEN is a self-report questionnaire designed to address health-related quality of life, aimed to monitor and measure the personal experiences of children and adolescents about their perception of health status and well-being. The questionnaire, which describes physical, psychological, mental, social, and functional aspects of well-

being, consists of 52 items grouped into 10 dimensions: physical well-being, psychological well-being, moods and emotions, self-perception, autonomy, parent relations, and home life, social support and peers, school environment, social acceptance (bullying), and financial resources [14]. Some sample items are "In general, how would you say your health is?" for the physical well-being dimension; "Have you felt satisfied with your life?" for moods and emotions; "Have you been happy with the way you are?" for self-perception. Cronbach's alphas ranged from 0.77 to 0.89 for the dimensions of the 52-item version.

In further detail, physical well-being explores the level of the adolescent's physical activity, energy, and fitness; psychological well-being examines the psychological well-being of the adolescent, including positive emotions and satisfaction with life; mood and emotions cover how much the adolescent experiences depressive moods and emotions and stressful feelings; self-perception includes whether the appearance of the body is viewed positively or negatively; autonomy looks at the opportunity given to an adolescent to create his/her social and leisure time; parent relations examine the relationship between the parents and the atmosphere in the adolescent's home, with a focus on the quality of the interaction between the adolescent and parent or carer; social support and peers considers the nature of relations with friends and peers; school environment describes an adolescent's perception of their cognitive capacity, learning, and concentration; social acceptance reflects the feeling of being rejected by peers in school; and financial resources describes the quality of the perceived financial resources [12–14].

With the exception of the mood and bullying dimensions, higher values of the variables express a better health-related quality of life. KIDSCREEN questionnaires were psychometrically tested using data obtained in a multicenter European study, which included a sample of 22,827 children recruited in 13 countries [14].

2.4. Psychological Well-Being Index

The Psychological Well-Being Index (PWBI) is composed of four components correlated with health-related well-being lifestyle habits (LH), emotional status (ES), social context (SC), and mental skills (MS) as perceived by adolescents [15]. The four dimensions were calculated and analyzed, and the different dimensions of KIDSCREEN-53 were collected via the questionnaire according to the structural model previously described by Mastorci and colleagues [16]. The procedure to obtain PWBI was described by Mastorci et al. [16].

2.5. Statistical Analysis

Statistical data analyses were executed using SPSS 27 software. Data are presented as mean $\pm$ SD or mean with a 95% confidence interval (CI). A p-value ≤ 0.05 was considered statistically significant. The Shapiro–Wilk test was used to assess the normality of data distribution for continuous variables before parametric analyses. The χ^2 test was used for assessing the association between categorical variables. One-way between-groups multivariate analyses of variance were performed to evaluate differences for dimensions of health-related quality of life and PWBI between victims of bullying vs. nonvictims. In the case of overall significance for the Wilks' Lambda statistic, follow-up analyses were conducted for each dimension of health-related quality of life and PWBI to assess inter-group differences using the Bonferroni adjustment of significance. Sensitivity analyses were also conducted, including sex as an additional independent variable in the multivariate model.

3. Results

3.1. Association between Perception of Bullying and HRQoL in Study Population and by Sex

In total, 5390 participants (50% girls, mean age 13.08 $\pm$ 1.89) were included in the analyses. Age was similar between males and females (male 13.06 $\pm$ 1.69 vs. female 13.43 $\pm$ 2.28, p = ns). The social acceptance population and bullied subjects did not differ numerically by sex (p calculated using the χ^2 test). There was no sex difference between the two groups (χ^2 = 0.20, p = 0.66). Table 1 shows the results of the multivariate analysis for the dimensions of HRQoL in the order of involvement between the two groups, namely

socially accepted vs. bullied subjects; descriptive data by sex for HRQoL dimensions are presented in Table 2.

Table 1. Associations between bullying perception and dimensions of HRQoL assessed via multivariate analysis of variance.

Dimensions	Mean Difference B-SA	95% Confidence Interval	F	*p*-Value
Bullying	−21.8	−22.4 to −21.1	3807.4	<0.001
Mood/Emotion	−7.4	−8.1 to −6.6	349.9	<0.001
Self-perception	−5.8	−6.6 to −4.9	166.7	<0.001
Parent relationship	−5.4	−6.3 to −4.6	164.4	<0.001
Psychological well-being	−4.4	−5.2 to −3.6	118.8	<0.001
Financial resources	−4.4	−5.2 to −3.6	118.3	<0.001
Peers	−3.3	−4.2 to −2.5	60.9	<0.001
Physical well-being	−3.2	−3.9 to −2.5	74.1	<0.001
School environment	−2.9	−3.7 to −2.2	63.0	<0.001
Autonomy	−2.8	−3.6 to −2.1	51.2	<0.001

Data given as mean with 95% confidence interval. Data on the KIDSCREEN-52 dimension are calculated according to KIDSCREEN group [12,13]. The order of the dimensions reflects how much more impactful the perception of bullying is, i.e., results on the rows are sorted in descending order for the mean difference between groups. B: Bullying perception; SA: Social Acceptance. *p*-values were adjusted based on Bonferroni formula.

Table 2. Health-related quality of life dimensions by social acceptance and bullying students and stratified by sex.

Dimensions	Social Acceptance		*p*-Value	Bullysm		*p*-Value	*p*-Value (B)	*p*-Value (G)
	Boys (*n* = 2465)	Girls (*n* = 2394)		Boys (*n* = 264)	Girls (*n* = 267)			
Physical wellbeing	49.6 ± 9.0	46.8 ± 8.5	<0.001	47.1 ± 9.3	43.3 ± 8.1	<0.001	<0.001	<0.001
Psychological wellbeing	49.2 ± 9.1	47.6 ± 9.9	<0.001	45 ± 10.5	42.7 ± 10.5	0.01	<0.001	<0.001
Mood/Emotion	48.3 ± 9.0	46.1 ± 9.9	<0.001	40.6 ± 10	38.6 ± 10.3	<0.001	<0.001	<0.001
Self-perception	52.6 ± 10.1	49.4 ± 11.4	<0.001	47.1 ± 9.8	43.6 ± 11.2	<0.001	<0.001	<0.001
Autonomy	46.8 ± 9.4	44.4 ± 9.5	<0.001	43.9 ± 9.7	41.8 ± 10.8	0.02	<0.001	<0.001
Parent relationship	50.7 ± 9.6	49.3 ± 10.7	<0.001	45.5 ± 9.6	43.0 ± 11.4	0.01	<0.001	<0.001
Financial resources	49.6 ± 9.7	50.9 ± 9.7	<0.001	44.5 ± 93	47.7 ± 10.1	<0.001	<0.001	<0.001
Peers	49.9 ± 10.7	49.1 ± 10.0	0.01	46 ± 10.5	46.1 ± 11.4	n.s.	<0.001	<0.001
School environment	48.3 ± 8.9	49.7 ± 8.9	<0.001	45.5 ± 8.7	45.8 ± 9.5	n.s.	<0.001	<0.001

Data given as mean ± SD. Data on the KIDSCREEN-52 dimension are calculated as the mean T-scores according to KIDSCREEN group [12,13]. Comparison B: Social Acceptance vs. Bullyism in boys; G: Social Acceptance vs. Bullyism in girls; n.s.: not significant ($p > 0.05$).

Bullying was globally associated with HRQoL dimensions (Wilks' Lambda = 0.63, $p < 0.001$) and significantly associated with each dimension after adjustment for multiple tests (all adj. $p < 0.05$). Mood/emotion was the variable mostly affected by bullying perception (F = 349.9; adj $p < 0.001$), followed by self-perception (F = 166.7; adj $p < 0.001$), parent relationship (F = 164.4; adj $p < 0.001$), psychological well-being perception (F = 118.8; adj $p < 0.001$), and financial status (F = 118.3; adj $p < 0.001$). Moreover, the less altered but still affected variables were peer relations (F = 60.9; adj $p < 0.001$), physical well-being perception (F = 74.1; adj $p < 0.001$), school environment (F = 63; adj $p < 0.001$), and autonomy (F = 51.2; adj $p < 0.001$).

After adjustment for sex, the same results were maintained and expressed as the mean difference between bullying and social acceptance. Mood and emotion were always the variables most affected (adj. mean difference = −7.7, $p < 0.001$), followed by self-perception (adj. mean difference = −5.6 $p < 0.001$), parent relationship (adj. mean difference = −5.2 $p < 0.001$), financial status (adj. mean difference = −5.1 $p < 0.001$), psychological well-being perception (adj. mean difference = −4 $p < 0.001$), and peers' relations (adj. mean difference = −3.8 $p < 0.001$). The variables less altered were autonomy (adj. mean difference = −2.9 $p < 0.001$), school environment (adj. mean difference = −2.7 $p < 0.001$), and physical well-being (adj. mean difference = −2.6 $p < 0.001$).

In social acceptance conditions, several variables significantly differed according to sex. Males perceived a higher physical ($p < 0.001$) and psychological well-being ($p < 0.001$), emotional status ($p < 0.05$), self-perception ($p < 0.01$), and autonomy ($p < 0.001$) compared to girls, who instead reported a better consciousness of financial resources ($p < 0.001$). There was also a sex difference regarding social context, in particular in a school environment where girls reported significantly higher levels than boys ($p < 0.001$). If we look at the bullying condition, boys' victims of bullying continued to perceive better physical ($p < 0.001$) and psychological well-being ($p < 0.001$), mood and emotion responses ($p < 0.05$), and self-perception ($p < 0.01$) compared to girls, who once again showed a higher financial resources perception ($p < 0.001$).

3.2. Association between Perception of Bullying and Psychological Well-Being Score in Study Population and by Sex

The results of the association between social acceptance or bullying and PWBI are shown in Table 3, while in Table 4, they are divided by sex. The multivariate analysis indicates an overall effect of bullying on PWBI components (Wilks' Lambda = 0.95, $p < 0.001$), with each component being significantly associated with bullying after adjustment for multiple tests (all adj. $p < 0.005$). In particular, according to the dimensions most involved, social context (family, school, and peers) was the component most affected by bullying perception (F = 207.30; adj. $p < 0.001$), followed by emotional state (F = 140.65; adj. $p < 0.001$) and lifestyle habits (F = 57.12; adj. $p < 0.001$). The following results were maintained after adjustment for sex: social context (adj. $p < 0.001$), emotional state (adj. $p < 0.001$), and lifestyle habits (adj. $p < 0.001$). When considering the association between bullying and PWBI as a function of sex, bullied girls reported significantly lower values of emotional state ($p < 0.001$) and lifestyle habits ($p < 0.05$) than boys.

Table 3. Associations between bullying perception and components of the Psychological Well-Being Index assessed via multivariate analysis of variance.

Components	Mean Difference B-SA	95% Confidence Interval	F	*p*-Value
Social Context	−3.1	−3.6 to −2.7	207.30	<0.001
Emotional Status	−2.5	−2.9 to −2.1	140.65	<0.001
Lifestyle Habits	−1.1	−1.4 to −0.8	57.12	<0.001
Mental Skills	0.0	0.0 to 0.0	0.35	0.557

Data given as mean with 95% confidence interval. The order of the components reflects how much more impactful the perception of bullying is, i.e., results on the rows are sorted in descending order for the mean difference between groups. B: Bullying perception; SA: Social Acceptance. *p*-values were adjusted based on Bonferroni formula.

Table 4. Psychological Well-Being Index by social acceptance and bullying students and divided by sex.

PWBI Components	Social Acceptance		*p*-Value	Bullysm		*p*-Value
	Boys (n = 2465)	Girls (n = 2394)		Boys (n = 264)	Girls (n = 267)	
Social Context	18.3 ± 4.8	18.1 ± 4.5	n.s.	15.2 ± 4.0	14.9 ± 3.7	n.s.
Emotional Status	16.1 ± 4.5	15.2 ± 4.3	<0.001	13.5 ± 3.8	12.9 ± 3.9	n.s.
Lifestyle Habits	12.5 ± 3.1	12.1 ± 2.9	<0.001	11.4 ± 2.8	11.1 ± 2.5	n.s.
Mental Skills	1.2 ± 0.4	1.2 ± 0.4	n.s.	1.2 ± 0.4	1.2 ± 0.4	n.s.

Data given as mean ± SD. Data on the PWBI components are calculated as described in [16]. n.s.: not significant ($p > 0.05$).

4. Discussion

The aim of the study was to evaluate the relationship between the perception of being a victim of bullying and health-related quality of life in a sample of late adolescents.

Consistent with the literature, bullying is generally associated with a reduction in well-being, without discriminating which dimension is predominantly affected. The contribution and innovation of our data are that the assessment is more detailed and almost offers a scale saying which dimension is most impaired in the bullied and which dimension is least involved in this dysfunctional behavior. The early point of this study showed that when we considered HRQOL or well-being index as a function of the two different groups and conditions—those who consider themselves socially accepted and those who perceive themselves to be bullied—the emotional component, self-perception, family relationships, and perceived well-being were the main dimensions altered by perception of bullying.

Furthermore, the association was much closer in females than in males. If the results were analyzed independently between the two groups, female adolescents had lower scores in the psychological area, in line with previous evidence obtained in the European sample, in which boys reported higher physical appearance, self-esteem, and mood dimensions [17–20].

Thus, the main findings of this study can be summarized in the following points: (i) the perception of being bullied mainly alters emotional and relational dimensions; (ii) the perception of bullying reduces the quality of life and well-being more in females than in males; and (iii) social acceptance enhances health-related dimensions more in males than in females (Figure 1).

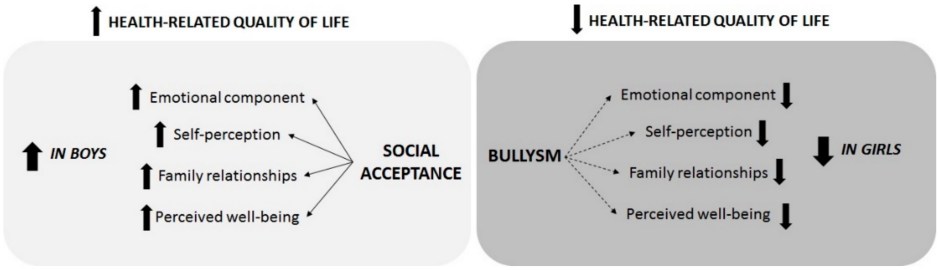

Figure 1. Descriptive results. Up arrow describes an increase/improvement; down arrow describes a decline.

These findings showed that in our sample, there were relevant associations between HRQoL and bullying, especially in psychological dimensions. However, previous results in this field are unclear, probably due to heterogeneous target populations, both clinical and healthy, by sex, and related to other different factors, such as cultural and country-specific ideology about the meaning of bullying [21–23].

This is an important aspect to consider, especially when the population is large. In fact, some cultural factors influence the idea and thus, the perception of bullying victimization so much that the meaning and the behavioral manifestations are different between countries [24]. Bullying is not a problem afflicting teenagers of the new generation from a physical, psychological, and social point of view, but rather a phenomenon that has always existed. Given the short- and long-term effects of the phenomenon, over the past decades, the community has been investigating the phenomenon from different perspectives with various and important projects [25].

A recent survey performed in Europe showed that 51% of students have experienced bullying in Lithuania, 50% of students in Estonia, 43% in Bulgaria, 31% in Greece, 25% in Latvia, and 15% in Italy, suggesting a growing dimension of bullying phenomenon in Europe communities today [25]. In a recent study conducted on 134,229 adolescents of 12 to 15 years of age, bullying victimization is considered a predictive factor of suicide attempts among adolescents globally, suggesting the urgent need to develop concrete and evidence-based interventions to address bullying and prevent psychological and health-negative outputs [26].

Another important point in the results, in line with the scientific literature in this area, is the fact that the whole female population, both bullied and socially accepted, have a lower HRQoL and well-being perception than their male counterpart, more pronounced in

bullying victimization condition. On the other hand, our results showed a sex-related effect; that is, the perception of bullying in girls starting from a lower health-related quality of life values had a greater effect than in boys. These data are in line with previous studies, where adolescent girls exhibited lower mood and emotional reactivity and higher anxiety than boys [27,28]. Although there are no studies showing the role of bullying within depression symptomatology, it is considered a possible factor involved in its beginning and relapses across the lifespan [29,30]. One study conducted on 2680 adolescents demonstrated that among subjects with a history of bullying, depression was two times more common [31]. Contrary to the findings in our study, boys are more likely to be bullied; however, as they usually have higher HRQoL values, they may have less disruptive psychological effects than bullying perceived by girls who start from lower values. An additional stressor, such as being bullied, would certainly distort an already more compromised behavioral and emotional substratum. In particular, being bullied during elementary and middle school is considered an "early life stressor" that affects neurobiological development, resulting in an overactivity of the stress system with an increased vulnerability to neural abnormalities and depression in adulthood. In fact, the consequences of bullying on emotional dimensions and thus on mental health may persist over time. In this context, our data found that students who reported being bullied showed lower self-esteem and depressive-like behaviors, such as an impairment in social relations and a poorer well-being perception. These findings therefore suggest a compromised quality of life, intended as subjects' perceptions of their position in life in the perspective of the culture and systems in which they live, concerning their objectives and expectations [32]. Thus, and our results confirm this, bullying victimization alters adolescents' HRQoL and well-being perception, modifying physical health, psychological state, level of independence, social relations, and beliefs. Also, as documented in previous studies, a range of physical health problems (e.g., headaches and stomachaches) and somatic diseases (e.g., nausea and pain) are added to the effects documented in our study. Even the link between peer victimization and subject health symptoms, involving stress hyperreactivity, inflammation, and genetic biomarkers, was more pronounced in social victimization students compared to physical victimization [33]. Thus, the importance of the social context in the healthy development of adolescents emerges once again. In a previous study, we had, in fact, shown how the social context (family, school, and peers) modulates well-being and health status in its different dimensions: emotional, lifestyle, and cognitive [16]. Our results revealed that victims of bullying had impaired social relationships, both with family and friends. Accordingly, analyzing the personalized well-being index, defined as an integrated index of health-related variables, the social component was found to be the one most affected by the presence of bullying. At the same time, however, there is evidence showing that friendship and/or family support intercede between stress events and depressive symptoms; in other words, enhancing the relationship and social environments may benefit the health and well-being of vulnerable adolescents [34]. In fact, as our data showed, socially accepted subjects had strong relationships with family and friends without alterations in emotional sphere and mood. However, if social relationships are altered by bullying, it increases vulnerability to depression and mental health problems, creating a vicious circle.

As concerns the effects of bullying on lifestyle, data to our knowledge are scarce and conflicting, and much less attention has been given to the relationship between healthy habits and bullying. Our results, both in the form of individual variables and the integrated well-being index, showed that lifestyle habits are least affected by the experience of being bullied. Only few data obtained from the Health Behavior in School-Aged Children study examined the association between physical activity and sedentary behavior in terms of the risk of bullying victimization [35,36]. These results suggest that the lowest rates of bullying victimization are found among children and adolescents with a greater focus on physical education, probably because this promotes self-esteem and socialization and thus plays a protective role against becoming a victim of bullying [37].

From another perspective, there is evidence that subjects with a history of victimization during adolescence develop regulatory mechanisms to become more resilient in adulthood [38]. This compensatory response, postulated by Newman, would seem to be enacted only if, in the long-term, the same bullied subject is exposed to stress that mimics the social stress suffered in the past. According to this theory, such protective mechanisms mainly concern physiological activation during social stress; more specifically, it appears that these individuals have a blunted cardiovascular response, a typical pattern to reduce the susceptibility to develop noncommunicable diseases.

Considering the literature, some limitations of this study need to be considered [39–42]. First, no information related to categories of peer victimization, social/relational or physical, was acquired. Second, data regarding bullying victimization and HRQoL were collected on the basis of adolescents' self-reports and subject to error and social bias. Furthermore, the study did not collect demographic information regarding living areas, whether rural or urban; in fact, this could be a factor influencing the perception of bullying. However, despite the enlarged use of "objective" health indicators, research in adolescents has been dominated by subjective (i.e., self-reported) health symptoms; certainly, also acquiring information from other informants could help us understand the results. Lastly, cultural factors that influence the meaning of bullying were not considered. In spite of these limitations, a major strength of our study was the large school samples representing very different geographic and cultural Italian settings.

5. Conclusions

The present study showed that bullying victimization reduced HRQoL mainly via the mediators of emotional and social dimensions. In addition, the results indicated that bullying was associated with an impairment of all health-related variables, more in girls than in boys. Furthermore, social relationships, encouraging communication among parents, children, and school, could facilitate earlier detection of problems, reducing subjective health risks. The research in this field shows antibullying interventions are effectively significant, with scientifically evaluated school-based programs and strategies documenting a reduction in bullying victimization of 20–30% [43].

Usually, whole-school programs are complex and multilevel, from students to the whole school), including a range of methodologies and variables, where the different components associated with bullying are considered in an integrated way and not separately [44,45].

Our findings, indicating which dimensions are most affected by the perception of bullying, provide an opportunity to prevent bullying in adolescence by potentiating specific behavioral coping strategies, such as self-esteem, social relationships, or physical education, in order to reduce health problems during one's lifespan.

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Institutional Review Board Statement: All parents or legal guardians gave informed consent and authorized researchers to use their data in accordance with Italian law. All procedures performed in the study were in accordance with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The AVATAR project has been accepted by the Regional Pediatric Ethics Committee (Azienda Ospedaliero Universitaria Meyer) (16 February 2021, code 76).

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children

MDPI

Article

Intercultural Differences between Spain and Italy Regarding School Bullying, Gender, and Age

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Abstract: The objectives of this research were to establish the differences between Spain and Italy regarding the presence of bullying in primary and secondary schools, as well as to determine whether there are differences between experiencing or perpetrating bullying and gender and age in the practice of school bullying. To assess the EBIPQ scores in terms of country and gender, the chi-squared test was used, and ANOVA was applied for age. A total of 1536 students from primary and secondary schools in Spain and Italy participated in the study. Their ages ranged from 10 to 19 years (mean = 13.01, standard deviation = 2.19). The results revealed statistically significant differences in terms of bullying categories concerning the country of origin and gender, with a higher number of Italian participants in the role of "no victim aggress" and Spanish participants in the roles of "victim" and "victim and aggress". Additionally, there were more boys in the role of "victim and aggress" and girls in the role of "no victim aggress". Regarding age, statistically significant differences were found, with older students taking on the role of "aggress" on average, while younger students assumed the role of "victim".

Keywords: bullying; Spain; Italy; primary education; secondary education; gender; age; categories

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1. Introduction

Bullying can be described as a premeditated aggressive behavior that is repeatedly carried out with the intention of causing harm over an extended period of time. This behavior occurs in an environment where there is an imbalance of power, either perceived or real, which makes it difficult for the victim to protect themselves from the aggressor [1–4]. This definition allows us to distinguish bullying from occasional fights between young people who have similar conditions of physical, psychological, or social strength. Bullying involves deliberate and repetitive aggression with a clear power imbalance [5]. Sporadic fights between young people are characterized by isolated confrontations without a systematic pattern of abuse or intimidation [6]. The distinction between both concepts is crucial to properly identify and address harassment issues in the school environment [7–9].

Currently, bullying has gained significant global attention, showing a high prevalence in all nations and becoming a public health challenge [2,10,11]. This phenomenon has led to a considerable increase in research focused on the topic in recent decades [7]. In fact, the World Health Organization (WHO) considers it one of the primary health issues affecting childhood and adolescence [12]. The growing concern surrounding this issue has resulted in a broader recognition of its negative impact on society and has driven the search for effective solutions to address this serious social problem [4].

It affects children worldwide, with estimates of 24 million children and young people being victims of bullying and mistreatment in European schools each year [13,14]. Figures for Italy in both 2021 and 2022 showed approximately 32,600 cases, while Spain had 69,554 severe bullying cases during the same years [13–15]. A study reports that around 20–25% of young people are directly involved in bullying as victims, aggressors, or both [16]. The average prevalence is estimated to be 35% for traditional bullying and 15% for cyberbullying [4,17]. Although prevalence may vary significantly depending on the sample, age, methodology, etc., the existence of this significant problem and its profound consequences on the current and future mental health of students are undeniable [15].

Indeed, until a few years ago, research on school bullying has primarily focused on analyzing the "aggress"/"victim" dyad, overlooking the role of bystanders or "no victim-aggress" individuals in these episodes. This omission is due to the complexity of the bystander's role, as it involves numerous and conflicting factors that influence their behavior in a context of intimidation [18,19].

Despite its complexity, it is essential to recognize the significance of the "no victim aggress" role in the dynamics of school bullying, as their behavior can have a significant impact on the perpetuation or prevention of these situations. Therefore, future research and intervention strategies must address the active involvement of "no victim aggress" in the bullying phenomenon to comprehensively tackle this serious issue. As a result, several roles have been identified, including the aggressor, the "victim", the "victim and aggress", and, finally, the role of the "no victim aggress" [18,20–22]. It is important to note that these roles are not static, as the same individual may assume different roles over time. Thus, to effectively address the problem of school bullying, adopting a multidimensional approach that recognizes the complexity of interactions between the different roles involved is essential [18,21].

Various studies have shown a high prevalence of bullying throughout the school years, with rates that tend to increase during early childhood and then gradually decrease towards the end of adolescence [17]. Moreover, changes in educational environments, such as the transition from primary to secondary school, can impact the frequency and manifestation of school bullying [18,20]. Social dynamics change, friend groups reconfigure, and interactions among students can become more complex [23]. Indeed, it is important to note that, although rates of school bullying may decrease in adolescence, the emotional and psychological impact of bullying experiences during childhood and adolescence can be long-lasting [24]. Therefore, it is crucial to continue working on the prevention and intervention of school bullying at all educational stages to ensure a safe and healthy school environment for all students. Creating a supportive and respectful atmosphere can contribute to the overall well-being and academic success of students, promoting positive social interactions and reducing the negative effects of bullying [7,10].

On the other hand, differences in the rates of school bullying based on gender have been observed. Research has shown that boys tend to experience higher rates of bullying compared to girls. This difference could be related to the distinct ways in which bullying is manifested between genders, where boys are often more involved in direct and physical behaviors, while girls may resort to subtler and emotional tactics [4,7,25].

Thus, the aims of this study were to establish the differences between Spain and Italy regarding the presence of bullying in primary and secondary schools. Additionally, the aim was to determine if there is a relationship between experiencing or perpetrating bullying, gender based on the country of origin, and age in the practice of school bullying.

2. Materials and Methods

2.1. Participants

The study included a total of 974 Italian students, with 513 students in secondary education distributed across the first (n = 162), second (n = 186), third (n = 187), and fourth (n = 165) grades. Additionally, 461 students were enrolled in high school, spread across the first (n = 101), second (n = 85), third (n = 125), fourth (n = 84), and fifth (n = 66) grades. In

terms of gender, the sample consisted of 398 male students and 576 female students. These data were collected from three different public schools located in the city of Gela, within the province of Caltanissetta.

Furthermore, there was a sample of 562 students in Compulsory Primary Education (EPO) and Compulsory Secondary Education (ESO). Within this subgroup, 284 were male and 278 were female. The EPO students (n = 334) were enrolled in the fifth (n = 228) and sixth (n = 186) grades, while the ESO students (n = 148) were in the first (n = 134) and second (n = 94) grades. The sample selection was carried out using a cluster sampling method and was drawn from five different schools, including both public (n = 4) and private (n = 1) educational institutions located in the Autonomous Community of Castilla y León.

2.2. Instrument

The European Bullying Intervention Project Questionnaire (EBIPQ) is a tool designed to identify the prevalence of involvement in school bullying situations, including individuals who take on the roles of aggressors, victims, or both [26,27]. This questionnaire has demonstrated strong psychometric properties in multiple European countries, including Spain [8,10]. Each of the questionnaire's subscales comprises seven items and is structured to assess the frequency of aggression or victimization, with these items encompassing various aspects of school bullying [12,28]. The initial seven items assess experiences of victimization, while the subsequent seven items pertain to involvement in aggressive behaviors. Students are asked to indicate how often they have engaged in or encountered each of the described scenarios over the past two months [29].

To identify the different participation roles, we followed the criteria defined by the scales. To determine the "victim" role, individuals who received ratings equal to or greater than 2 (once a month) in any of the items related to victimization were considered, along with scores equal to or less than 1 (one or two times) in all aggression items. Involvement in the "aggressor" role was calculated by considering individuals who obtained scores equal to or greater than 2 (once a month) in any of the aggression items and scores equal to or less than 1 (one or two times) in all victimization items. The "victim and aggress" roles were identified through scores equal to or greater than 2 (once a month) in at least one of the aggression and victimization items. Lastly, for the "no victim aggress" role, scores were lower than 1 (one or two times) in at least one of the aggression and victimization items [27,30].

The internal consistency of the instrument for the current sample collected for this study is 0.852. Additionally, the internal consistency analysis for the first 7 victimization items is 0.796 and, for the following 7 items, it is 0.804. Furthermore, the internal consistency of the scale for the samples used is 0.852 for the Spanish sample and 0.850 for the Italian sample.

The frequency is assessed over the preceding two months and is rated on a Likert-type scale ranging from 1 to 5, with the following response options: No; Yes, once or twice; Yes, once or twice a month; Yes, about once a week; and Yes, more than once a week [12,27]. In Appendix A, the EBIPQ questionnaire, in both Spanish and Italian versions, used for this study is presented.

2.3. Procedure

The study commenced with the initiation of contact with the school principals at the research site, where we communicated the research objectives. After obtaining their agreement to participate, the parents or legal guardians of the students in various classrooms provided informed consent for their children's involvement in the study. Data collection involved the use of scales, and these scales were administered anonymously. The confidentiality of the collected information was rigorously maintained, with a clear understanding that it was solely intended for research purposes. Data collection took place during regular school hours, and detailed instructions were provided to ensure accurate completion. The

questionnaires were individually filled out in an appropriate school setting, free from distractions, and the entire process adhered to ethical guidelines in accordance with the standards set by the American Psychological Association.

2.4. Statistical Analysis

The study commenced with an initial univariate analysis aimed at collecting descriptive information about the sample. Subsequently, several bivariate analyses were conducted to compare EBIPQ scores across gender and country, employing the Chi-square test. To investigate differences among various bullying-related categories derived from the EBIPQ scale and age, a one-way ANOVA was performed, followed by subsequent post hoc testing. The statistical significance level was established at $p < 0.05$, and all analyses were carried out using SPSS software version 25 (IBM Inc., Chicago, IL, USA).

3. Results

The sample consisted of a total of 562 Spanish participants, representing 36.6% of the sample, and 974 Italian participants, comprising 63.4% of the total sample. In total, 44.5% were male participants (n = 683) and 55.5% were female participants (n = 853). Likewise, the ages ranged from 10 to 19 years, with a mean age of 13.01 $\pm$ 2.19.

In the Spanish sample, there were specifically 284 male participants (50.5%) and 278 female participants (49.5%), with an average age of 11.66 $\pm$ 1.20. In the Italian sample, there were 399 male participants (41%) and 575 female participants (59%), with an average age of 13.79 $\pm$ 2.25.

3.1. Association between Bullying Categories, Country, and Gender

Statistically significant differences are observed in the categorization of subjects into types of bullying and the country of origin of the sample ($\chi 2 = 40.684$; $p < 0.001$).

Analyzing the corrected residual values, there are differences between the observed and expected frequencies for Spanish students in the categories of "no victim aggress", "victim", and "victim and agress". However, there are no significant differences for Spanish students in the category of agress. Similarly, in the Italian sample, significant differences are observed for the same categories.

There are more Italian students (72.7%) in the "no victim aggress" category than Spanish students (57.3%), and there are more Spanish students in the "victim" (24.7%) and "victim and agress" (14.4%) roles than Italian students (14.5%; 9.5%).

Similarly, it can be observed in the categories with significant results that there are fewer Spanish students (322) in the "no victim aggress" category than expected (376.9) and a higher number (139) in the "victim" category (102.4) and "victim and aggress" (81) than expected (63.7). In contrast, in the Italian sample, there is a higher number (708) in the "no victim aggress" category than expected (653.1) and a lower number for "victim" and "victim and aggress" (Table 1).

Statistically significant differences are observed in the categorization of subjects into types of bullying and the combined category of gender + country of origin ($\chi^2 = 60.476$; $p < 0.001$).

Analyzing the corrected residual values, differences are evident between observed and expected frequencies for Spanish boys in the categories of "no victim aggress", "victim", and "victim and aggress". However, no significant differences are found for Spanish boys in the "aggress" categories. For girls, significant differences exist only in the "victim" category but not in the other categories.

In Spain, among boys, 52.1% fall into the "no victim aggress" category, followed by 24.3% in "victim", 18.7% in "victim and aggress", and 4.9% in "aggress". For girls, the highest percentage is in the "no victim aggress" category at 62.2%, followed by "victim" (25.2%), "victim and aggress" (10.1%), and "aggress" (9.4%). Notably, significant results in Spanish boys are found in the "no victim aggress" category, with a lower number (148) than expected (190.4), "victim", with a higher number (69) than expected (51.8), and

"victim and aggress", with a higher number (53) than expected (32.2). Similarly, in girls, significant results are observed in the "victim" category, with a higher number (70) than expected (50.7).

Table 1. Statistical analysis using chi-squared between the bullying categories and the country.

Country of Origin of the Sample		Bullying Category				Total
		No Victim Aggress	Victim	Aggress	Victim and Aggress	
Spain	Count	322	139	20	81	562
	Expected	376.9	102.4	19	63.7	562
	% within Country	57.3%	24.7%	3.6%	14.4%	100.0%
	% within Bullying category	31.3%	49.6%	38.5%	46.6%	36.6%
	% of Total	21.0%	9.0%	1.3%	5.3%	36.6%
	Adjusted Residual	−6.2 $_{a}$	5.0 $_{b}$	0.3	2.9 $_{c}$	
Italy	Count	708	141	32	93	974
	Expected	653.1	177.6	33.0	110.3	974
	% within Country	72.7%	14.5%	3.3%	9.5%	100.0%
	% within Bullying category	68.7%	50.4%	61.5%	53.4%	63.4%
	% of Total	46.1%	9.2%	2.1%	6.1%	63.4%
	Adjusted Residual	6.2 $_{a}$	−5.0 $_{b}$	−0.3	−2.9 $_{c}$	
Total	Count	1030	280	52	174	1536
	Expected	1030	280	52	174	1536
	% within Country	67.1%	18.2%	3.4%	11.3%	100.0%
	% within Bullying category	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	67.1%	18.2%	3.4%	11.3%	100.0%

$_{a}$. Significant differences for the "no victim aggress" category; $_{b}$. significant differences for the "victim" category; $_{c}$. significant differences for the "victim and aggress" category.

Analyzing the corrected residual values, differences are observed between observed and expected frequencies for Italian boys in the categories "no victim aggress" and "victim". However, no differences are found for Italian boys in the "aggress" and "victim and aggress" categories. As for Italian girls, significant results are obtained for the categories "no victim aggress" and "victim and aggress" but not for "victim" or "aggress".

In Italy, 73.4% of boys fall into the "no victim aggress" category, followed by "victim" at 11.8%, "victim and aggress" at 11.5%, and, finally, "aggress" at 3.3%. The distribution among girls is similar, with the "no victim aggress" category at 72.2%, followed by "victim" (16.3%), "victim and aggress" (8.2%), and "aggress" (3.3%). Furthermore, in the categories with significant results for Italian boys, there are more in the "no victim aggress" category (293) than expected (267.6) and fewer in the "victim" category (47) than expected (72.7). Similarly, for girls, significant results are observed in the "victim" category, with more (415) than expected (385.6), and the "victim and aggress" category, with fewer (47) than expected (65.1) (Table 2).

Table 2. Statistical analysis using chi-squared between the bullying categories, country, and gender.

Gender		Bullying Category				Total
		No Victim Aggress	Victim	Aggress	Victim and Aggress	
Boys Spain	Count	148	69	14	53	284
	Expected	190.4	51.8	9.6	32.2	284.0
	% within Gender and country	52.1%	24.3%	4.9%	18.7%	100.0%
	% within Bullying category	14.4%	24.6%	26.9%	30.5%	18.5%
	% of Total	9.6%	4.5%	0.9%	3.5%	18.5%
	Adjusted Residual	−5.9 $_{a}$	2.9 $_{b}$	1.6	4.3 $_{c}$	

Table 2. *Cont.*

Gender		Bullying Category				Total
		No Victim Aggress	Victim	Aggress	Victim and Aggress	
Girls Spain	Count	174	70	6	28	278
	Expected	186.4	50.7	9.4	31.5	278.0
	% within Gender and country	62.6%	25.2%	2.2%	10.1%	100.0%
	% within Bullying category	16.9%	25.0%	11.5%	16.1%	18.1%
	% of Total	11.3%	4.6%	0.4%	1.8%	18.1%
	Adjusted Residual	−1.8	3.3 $_{b}$	−1.3	−0.7	
Boys Italy	Count	293	47	13	46	399
	Expected	267.6	72.7	13.5	45.2	399.0
	% within Gender and country	73.4%	11.8%	3.3%	11.5%	100.0%
	% within Bullying category	28.4%	16.8%	25.0%	26.4%	26.0%
	% of Total	19.1%	3.1%	0.8%	3.0%	26.0%
	Adjusted Residual	3.1 $_{a}$	−3.9 $_{b}$	−0.2	0.1	
Girls Italy	Count	415	94	19	47	575
	Expected	385.6	104.8	19.5	65.1	575.0
	% within Gender and country	72.2%	16.3%	3.3%	8.2%	100.0%
	% within Bullying category	40.3%	33.6%	36.5%	27.0%	37.4%
	% of Total	27.0%	6.1%	1.2%	3.1%	37.4%
	Adjusted Residual	3.3 $_{a}$	−1.5	−0.1	−3.0 $_{c}$	
Total	Count	1030	280	52	174	1536
	% within Gender and country	67.1%	18.2%	3.4%	11.3%	100.0%
	% within Bullying category	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	67.1%	18.2%	3.4%	11.3%	100.0%

$_{a}$. Significant differences for the "no victim aggress" category; $_{b.}$ significant differences for the "victim" category; $_{c.}$ significant differences for the "victim and aggress" category.

3.2. Association between Bullying Categories and Age

There is a significant difference $p < 0.001$ between the ages of students in different bullying categories ($F(3,1532) = 8.151$, $p < 0.001$).

Students belonging to the victim category are those with the lowest average age, 12.54 years (SD = 1.88), followed by "no victim aggress" at 13.05 years (SD = 2.22), "victim and aggress" at 13.25 years (SD = 2.27), and, finally, those with the highest average age belong to the "aggress" category at 13.92 years (SD = 2.20) (Table 3).

Table 3. Descriptive analysis of an ANOVA test between the bullying categories and age.

Age								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
No victim aggress	1030	13.05	2.229	0.069	12.91	13.18	10	19
Victim	280	12.54	1.883	0.113	12.32	12.76	10	18
Aggress	52	13.92	2.204	0.306	13.31	14.54	10	18
Victim and aggress	174	13.25	2.279	0.173	12.91	13.59	10	19
Total	1536	13.01	2.190	0.056	12.90	13.12	10	19

A post hoc test was conducted to compare the means pairwise for each of the bullying categories.

Significant differences were observed between students with the "no victim aggress" category and students in the "victim" ($p = 0.001$) and "aggress" ($p = 0.005$) categories. Furthermore, significant differences were also observed between the "victim" category and students in the "aggress" ($p < 0.001$) and "victim and aggress" ($p = 0.001$) categories. Finally, those in the "aggress" category were significantly different from those belonging to the "victim and aggress" category ($p = 0.049$).

4. Discussion

The phenomenon of school bullying is a pervasive issue worldwide, and large-scale studies have been conducted in various countries, revealing a wide range of prevalence rates, spanning from a minimum of 10% to a maximum of 70% [3], despite the existence of antibullying protocols in nearly all regions.

In Spain, existing action protocols, such as those implemented by the Spanish Association for the Prevention of School Bullying (AEPAE), are primarily geared toward immediate victim protection, based on daily experiences with victims and their families. These protocols come into play once a bullying case has already occurred, and their nature is advisory, deliberate, and bureaucratic, focusing on documenting the case and delineating responsibilities. There is a proposal to extend the role of action protocols to include preventive measures, emphasizing raising awareness to reduce the incidence of bullying [31]. Furthermore, Spain addresses bullying through various national and regional laws, regulations, and protocols, such as the "Organic Law 2/2006 of May 3, on Education", which establishes the foundations for preventing and intervening in cases of bullying [32].

In Italy, the fight against bullying is addressed through a combination of national, regional, and local policies and laws, including Italy's Law No. 71, enacted on May 29, 2017. These action protocols encompass prevention and awareness measures, with a focus on promoting respect, empathy, and a zero-tolerance approach to bullying. Procedures for reporting incidents and providing psychological and emotional support to victims are in place. Disciplinary measures define sanctions and consequences for perpetrators. Additionally, there is an emerging trend of providing training to teachers and school staff on bullying-related materials for effective intervention. Parents play an active role in prevention and case resolution [33].

From a global perspective, the primary contribution of this study lies in providing insights into how bullying is distributed between two countries, Spain and Italy, as well as among different age groups and genders. These data can serve as a foundation for developing more precise and specific interventions aimed at combating bullying effectively.

The study's first objective was to determine the differences in the prevalence of bullying in primary and secondary schools between Spain and Italy.

The results reveal significant differences in the categorization of students based on the types of school bullying and their country of origin. In the Spanish sample, these differences are particularly evident in the categories of "no victim aggress", "victim", and "victim and aggress", with a higher percentage of students in the roles of "victim and aggress" and "victim" compared to the Italian sample. Conversely, in the Italian sample, significant differences are observed for the same categories, with a higher percentage of students in the role of "no victim aggress" compared to the Spanish sample.

Consequently, these significant findings lead to the conclusion that residing in Spain or Italy does indeed impact the categorization of bullying. It becomes apparent that being Spanish increases the proportion of students categorized as "victim and aggress" and "victim" while decreasing the representation in the "no victim aggress" category. Conversely, being Italian is associated with an increase in the "no victim aggress" category and a decrease in "victim" and "victim and aggress".

From an educational perspective, school bullying predominantly occurs among children and adolescents aged between 7 and 16, encompassing both the roles of the "aggress" and the "victim" [11]. While several European countries, such as Scadinavian nations, have been researching and addressing bullying since the 1970s, Italy began studying this phenomenon later, in the late 1990s, through research conducted by the Department of Psychology at the University of Florence. Since then, numerous scientific publications and educational initiatives have focused on this topic within specific schools and local contexts [11].

The initial investigation into violent behaviors in schools was conducted through questionnaires directed at students and teachers. Among the subjects who responded to these questionnaires, from December 2007 to April 2008, there were 5418 students and

592 teachers from secondary schools. The majority of them came from southern Italy and the surrounding islands. This study concluded that more than half of the students (51%) and over a third of the teachers (36%) had witnessed episodes of violence in school. Additionally, 37% of the students, also more than a third, reported personally experiencing school bullying by their peers [34].

However, upon additionally incorporating institutional data, which pertain to the values of the working group, it becomes evident that school bullying in Italy continues to be a widely spread phenomenon, characterized by territorial peculiarities and a higher frequency than that recorded in neighboring countries or areas with similar sociodemographic characteristics. Furthermore, it has been observed that only a few studies (n = 13) worldwide have accurately examined the prevalence of school bullying in the last decade, despite it being considered a significant global public health issue. This current study contributed to a precise assessment of the actual prevalence of bullying among school-age children in one of Italy's most populous cities [34].

Similarly, Spain has also reported a significant increase in school bullying in recent years, now recognized as an active social problem [35]. However, unlike other European countries, Spain lacks a single program for intervention; instead, numerous plans are based on the autonomous communities and individual schools, which may negatively impact this phenomenon [36], as evidenced by our results. Additionally, teacher training is an essential aspect that has yet to be adequately addressed [37].

The second objective aimed to examine the differences in gender based on the country of origin and age among students regarding their experiences or involvement in school bullying.

The results revealed significant differences between gender and country concerning bullying categories. Specifically, these differences are observable in the categories of "no victim aggress" (14.4%) and "victim and aggress" (30.5%) in boys in Spain. Similarly, significant differences were noted in the "victim" category (25.0%) among girls in Spain. In the Italian sample, significant differences were found in the categories of "no victim aggress" (28.4%) and "victim" (16.8%) among Italian boys, as well as in the category of "no victim aggress" (40.3%) among Italian girls. No significant differences were observed for the remaining categories in all groups.

It is worth noting that the distribution of percentages by gender and country in relation to bullying categories is the same for Italian boys and girls and for Spanish boys and girls. In each of these groups, the category of "no victim aggress" has the highest percentage of students, followed by "victim", "victim and aggress", and, finally, "aggress".

Therefore, the significant results from the comparison between gender and country lead to the conclusion that the combination of these variables does indeed influence the categorization of bullying. In this way, it can be observed that being a Spanish boy increases the proportion of "victim" and "victim and aggress" categories and decreases that of "no victim aggress", while being a Spanish girl increases the proportion of being a "victim". Conversely, being an Italian boy reduces the proportion of being a "victim" and increases the "no victim aggress" category, similar to being an Italian girl, while also decreasing the "victim and aggress" category.

Other studies also find a higher prevalence of aggressors and "victim and aggress" roles among males, while simultaneously observing a higher prevalence of "victims" and "no victim-aggress" roles among females [12,18,27,38,39]. In contrast, the results of the study by Górriz et al. [21] show significant findings with a higher presence of males in the victim role and females in the aggressor role. Thus, other research suggests that boys and male adolescents are more involved in the roles of "victims" and "no victim-aggress", which does not align with the results of this study, where a higher percentage of girls are observed in these categories compared to boys [40].

The types of behaviors associated with school bullying also differ by gender. Physical violence, insults, or threats are more common among boys, while girls are associated with relational behaviors such as exclusion, spreading rumors, or being ignored by their

peers [12,41,42]. The figures found within these gender and behavior categories can be explained by considering gender socialization and associated normative expectations, as school bullying can be understood as a behavior in which different genders act in accordance with what is expected of them [12,41,43].

These results suggest that both boys and girls internalize social stereotypes. For instance, the stereotype associated with masculinity, which includes traits of virility and violence, contrasts with the stereotype of femininity. These stereotypes are assimilated from an early age. Therefore, it would be logical for intervention strategies against bullying to be directed at challenging and dismantling these deeply rooted sexist stereotypes in society [44].

Regarding age and school bullying, significant differences were also found, with students with a lower average age being in the "victim" category, followed by the "no victim-aggress" category as age increases. Those with a higher average age are in the "agress" category. Likewise, significant differences were obtained between the "no victim-agress" category, the "victim" category, and the "agress" category based on age. Furthermore, significant differences were also observed between the "victim" category and students in the "agress and victim and agress" categories. Lastly, significant differences were observed based on the age of the students for the "agress" category compared to those in the "victim and agress" category.

In contrast to this research, other studies did not find significant differences in the various categories with respect to students' age [21,40]. Some studies show higher results in the aggressor role between the ages of 11 and 15, as well as in another study where it was noted that students with higher involvement are in the middle grades of secondary school, decreasing in the higher grades [27].

As emphasized in other research, there is an urgent need to establish interventions to prevent both victimization and aggression in school bullying among school-age students [45]. Evidence shows that the most effective antibullying interventions are those that emphasize violence prevention and, even more so, promote positive coexistence and a school culture based on respect and good treatment. However, educational institutions often develop strategies to address bullying only when it is already present in the institution, which means that these measures are reactive rather than proactive [46].

Lastly, with regard to the research's limitations, it is important to acknowledge that the findings may not be universally applicable to all children and adolescents in Spain, Italy, or other regions, which could potentially undermine their external validity. Additionally, the use of self-report questionnaires like the EBIPQ presents a potential limitation in research, as it necessitates cautious interpretation. Despite this, it is worth noting that the EBIPQ is a questionnaire with robust psychometric properties and validation. A key takeaway from this research is the imperative of continuing to explore interventions aimed at mitigating this issue. Furthermore, the significant variations observed across countries, as well as by gender and age, offer valuable insights that can inform the development of more suitable psychoeducational intervention objectives.

The study on bullying in the countries of Spain and Italy yields significant practical implications in the field of education and society at large. Some of the key conclusions include the need for awareness and prevention; both countries should prioritize raising awareness about bullying and implementing prevention programs in schools. This would help reduce the incidence of bullying cases and foster a safe and healthy school environment. Additionally, the gender differences identified in the study require specific attention, underscoring the need to address gender disparities in prevention and support strategies while promoting gender equality in education. Early detection and intervention are also essential; educational systems and healthcare professionals need to be trained to effectively identify and address bullying, offering support to both victims and aggressors. Thus, this study emphasizes the importance of addressing this significant issue from a multidisciplinary and gender perspective, aiming to create a safe and respectful educational environment

for all students. Awareness, prevention, and support for victims are fundamental steps towards eradicating bullying in these societies.

5. Conclusions

Statistically significant differences were found in the categorization of subjects in terms of bullying types and country, indicating that there were more Italians than Spaniards in the "no victim aggress" category and more Spaniards in the roles of "victim" and "victim and aggress".

Similarly, statistically significant differences were found between bullying categories and gender combined with the country of origin. Differences were observed for Spanish boys in the categories "victim and aggress" and "no victim aggress" and for Spanish girls in the "victim" category. Regarding Italian boys, differences were found in the "aggress" and "victim and aggress" categories and for Italian girls in the "no victim aggress" and "victim and aggress" categories. It is noteworthy that all of them had a higher percentage of students in the "no victim aggress" category, followed by "victim", "victim and aggress", and, finally, "aggress".

Significant results were also obtained between students' age and bullying categories, with students with the lowest mean age belonging to the "victim" category, followed by "no victim aggress", "victim and aggress", and, finally, those with the highest mean age in the "aggress" category.

The statistically significant differences identified in the research, involving the students' country of origin (Spain vs. Italy), along with gender and age in relation to school bullying, provide contemporary insights that could be valuable in formulating unified approaches across countries. These interventions are designed to curb the continuation of school bullying, which can have consequences in education, including a negative impact on academic performance and an increased risk of students dropping out. Additionally, it can have adverse effects on the mental health and overall quality of life for children and adolescents.

In summary, these findings underscore the significance of addressing school bullying through a gender-oriented lens and tailoring strategies to accommodate the distinctive characteristics of each educational stage. The implementation of prevention measures and fostering of safe and respectful school environments for all students, regardless of the roles they may occupy in bullying dynamics, are essential aspects of this effort.

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

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Here is the EBIPQ questionnaire used in the Spanish version:

BULLYING

EN ESTE APARTADO TE PREGUNTAMOS SOBRE TUS POSIBLES EXPERIENCIAS RELACIONADAS CON BULLYING EN TU ENTORNO (CENTRO ESCOLAR, AMIGOS, CONOCIDOS), COMO VICTIMA Y/O AGRESOR. TUS RESPUESTAS SERÁN CONFIDENCIALES.

¿Has vivido algunas de las siguientes situaciones en los últimos dos meses? (por favor, haz una cruz en la casilla de la respuesta más apropiada para ti)

	No	Sí, una o dos veces	Sí, una o dos veces al mes	Sí, alrededor de una vez a la semana	Sí, más de una vez a la semana
1. Alguien me ha golpeado, me ha pateado o me ha empujado.	☐	☐	☐	☐	☐
2. Alguien me ha insultado.	☐	☐	☐	☐	☐
3. Alguien le ha dicho a otras personas palabras malsonantes sobre mi	☐	☐	☐	☐	☐
4. Alguien me ha amenazado	☐	☐	☐	☐	☐
5. Alguien me ha robado o roto mis cosas.	☐	☐	☐	☐	☐
6. He sido excluido o ignorado por otras personas.	☐	☐	☐	☐	☐
7. Alguien ha difundido rumores sobre mí.	☐	☐	☐	☐	☐
8. He golpeado, pateado o empujado a alguien	☐	☐	☐	☐	☐
9. He Insultado y he dicho palabras malsonantes a alguien	☐	☐	☐	☐	☐
10. He dicho a otras personas palabras malsonantes sobre alguien.	☐	☐	☐	☐	☐
11. He amenazado a alguien	☐	☐	☐	☐	☐
12. He robado o estropeado algo de alguien	☐	☐	☐	☐	☐
13. He excluido o ignorado a alguien	☐	☐	☐	☐	☐
14. He difundido rumores sobre alguien	☐	☐	☐	☐	☐

Este es el cuestionario EBIPQ utilizado en la versión italiana:In questa sezione ti chiediamo delle tue possibili esperienze legate al bullismo nel tuo ambiente (scuola, amici, conoscenti), come vittima e/o aggressore. Leggi attentamente e seleziona il numero che indica la risposta più adatta a te. Le tue risposte saranno riservate.

Le opzioni di risposta per tutte le domande sono: No; Si, una o due volte; Si, una o due volte al mese; Si, circa una volta a settimana; Si, piu' volte a settimana

1. Negli ultimi due mesi qualcuno ti ha picchiato, preso a calci o spinto
2. Negli ultimi due mesi qualcuno mi ha insultato
3. Negli ultimi due mesi, qualcuno ha detto parolacce su di me ad lter persone
4. Negli ultimi due mesi qualcuno mi ha minacciato
5. Negli ultimi due mesi qualcuno ha rubato o rovinato le mie cose
6. Negli ultimi due mesi sono stato escluso o ignorato da lter persone
7. Negli ultimi due mesi qualcuno ha sparso voci negative su di me
8. Negli ultimi due mesi ho picchiato, preso a calci o spinto qualcuno
9. Negli ultimi due mesi ho insultato e insultato qualcuno
10. Negli ultimi due mesi, ho detto ad altre persone parolacce su qualcuno
11. Negli ultimi due mesi ho minacciato qualcuno
12. Negli ultimi due mesi ho rubato o rovinato qualcosa a qualcuno
13. Negli ultimi due mesi ho escluso o ignorato qualcuno
14. Negli ultimi due mesi ho diffuso voci negative su qualcuno

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children

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Review

Empowering Students against Ethnic Bullying: Review and Recommendations of Innovative School Programs

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Abstract: Despite research on anti-bullying interventions, there is no systemic approach or resources for teachers to address ethnic and race-related bullying in schools. In this article, we selectively reviewed theories and programs to help teachers identify and address ethnic bullying in their classrooms. We provide recommendations for workshops (e.g., cultural awareness training, empathy-building activities, bystander intervention, and stigma-based intervention). These anti-ethnic bullying workshops should promote understanding of different cultures, strengthen empathy for those who are different, encourage bystanders to take action, and reduce stigma and stereotypes. Through the sharing of diverse perspectives, expertise, and experiences, we hope this article can cultivate interactive dialogues and collaborations between educators and researchers to effectively address ethnic and race-related bullying.

Keywords: ethnic bullying; intercultural contact; program; intervention; school; diversity

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1. Introduction

Globalization has facilitated the more frequent movement of people between countries in the present day, enhancing the process of migration. Approximately 1 out of 30 people in a global population of 7.7 billion were international migrants in 2019. Furthermore, a growing number of children and teenagers are members of ethnic minorities attending school today [1]. Globalization and migration processes have created a more diverse and multicultural society, with an ever-increasing number of children and adolescents from ethnic minority backgrounds attending schools around the world [1]. Our communities have benefited from this diversity, but it has also brought about new challenges, such as ethnic bullying [2,3]. Students who are members of racial or ethnic minorities may be bullied, victimized, and excluded by their peers [4].

As cultural and ethnic diversity increases in school settings, ethnic bullying is a growing concern [5,6]. Ethnic bullying is a type of aggression directed at individuals based on their ethnic origins [7]. In turn, this can negatively impact a student's mental health and academic performance, effects which may last into adulthood [8,9]. As global migration continues to increase and school environments become more diverse, the urgency of addressing this issue has been highlighted [3].

Positive school environments have been shown to reduce bullying and victimization across diverse groups through a greater disciplinary structure, high academic standards, and teacher support [10]. In addition to respecting differences among students, exposure to racial and ethnic diversity is associated with a reduction in bullying reports [11,12]. Creating a respectful culture and maintaining a diverse student population can help prevent bullying in schools. The negative opinions and expectations about ethnic minority students in schools may negatively impact bullying and school culture. The prevalence of ethnic bullying decreased in schools with a positive climate and more diverse teachers [13,14].

Although researchers have developed anti-bullying interventions, there is no specific strategy in place to address ethnic and race-related bullying at the school level [15,16]. In addition, many anti-bullying programs were not culturally appropriate nor accessible to schools with a diverse student population [17]. An anti-ethnic bullying program implemented by schools should clearly outline steps to provide teachers with the tools and resources necessary to identify and prevent ethnic bullying. In this article, we discuss both classic theories and recent studies on traditional and ethnic bullying. By combining theories and practices, we can create a comprehensive and dynamic framework for understanding and combating ethnic bullying. In the following sections, we selectively review the literature of ethnic bullying and recommended four anti-ethnic bullying programs, including (1) cultural awareness training, (2) empathy-building activities, (3) bystander intervention workshops, and (4) stigma-based interventions. We intend to cultivate interactive dialogues and partnerships between educators and researchers through the discussion of diverse outlooks, expertise, and experiences.

2. The Risk of Ethnic Bullying in Schools

Ethnic bullying, a form of bias-based bullying, targets an individual's race, ethnicity, or cultural background, which can result in more serious and lasting consequences than non-biased bullying [18]. A variety of detrimental physical, emotional, and mental outcomes have been linked to this type of bullying [19,20], including depression, suicidal ideation, self-harm, and substance abuse. Ethnic bullying can also negatively impact a victim's academic performance and school-related problems, illustrating the importance of addressing this issue in educational settings [21–23].

The most common example of bias-based peer victimization is racial harassment and bullying [15,24,25]. When compared with general bullying, ethnic, racial, or bias-based bullying has a greater impact on mental health, harmful behaviors, and adjustment issues. According to Carter's theory of race-based traumatic stress [15,19,20,26], racial discrimination may cause emotional, psychological, and even physical harm to its targets. Bullying can have negative health effects when combined with additional stressors, such as race-based trauma [15,16]. It has been observed that bullying at school is associated with poorer mental health outcomes in Canadian adolescents, particularly among immigrant children (as compared with non-immigrant children) [27]. Additionally, white students were less likely to drop out of school as a result of peer victimization, compared with African American and Latino students, who were more likely to do so [28]. It has also been shown that Chinese and other ethnic minority adolescents experiencing bias-based bullying were more likely to experience depression, suicidal ideation, and injury because of victimization [29]. In U.S. schools, Black and Latino students experience poor self-esteem, self-harm, illegal drug use, and depression [15,24,30,31].

In addition to adversely affecting health outcomes, ethnic bullying may also negatively affect academic and school performance. Several studies have highlighted the negative consequences experienced by ethnic minority students in relation to their educational experiences and outcomes. In a study conducted by D'hondt and colleagues [21] in Belgium, ethnic minority students who faced ethnic harassment were more likely to feel a diminished sense of belonging at school. This feeling of exclusion and alienation can have a significant impact on their academic engagement, motivation, and overall school performance. In addition, longitudinal studies conducted in Sweden have demonstrated that prolonged exposure to ethnic bullying can result in a decrease in self-esteem and lowered academic expectations among immigrant students [32]. Experiencing discrimination and victimization on a regular basis can undermine their confidence, diminish their aspirations, and hinder their progress in the classroom.

Furthermore, the cultural context and knowledge of students plays a significant role in their experience of ethnic bullying. Research conducted by Rivas-Drake and colleagues [33] found that Latino students who had a strong connection to either Latino or American culture reported more positive experiences and a reduced perception of prejudice within

their schools. On the other hand, students with limited cultural knowledge or identification with either culture were more likely to perceive high levels of prejudice and to have fewer positive experiences within the school environment. It is likely that these negative experiences will further exacerbate the impact of ethnic bullying on their academic performance and overall school experience.

3. Developing Anti-Ethnic Bullying Intervention Programs

Schools have implemented anti-bullying programs to combat the harm caused by bullying [34]. Traditional bullying was prevented and reduced by roughly 19–20% in most of these anti-bullying programs. Approximately 15–16 percent of victimization was reduced by the programs [35]. For example, the Olweus Bullying Prevention Program (OBPP) is a comprehensive, school-based intervention program that reduces bullying in schools, prevents the recurrence of bullying problems, and improves peer relations [32,36,37]. The school environment has been restructured in order to achieve these goals. As described by Olweus [36,37], the purpose of this restructuring is to reduce the opportunities and rewards for bullying within the school environment while fostering a sense of community. Four major principles underlie the OBPP. When teaching students at school (and at home), adults should (a) maintain a warm and positive relationship; (b) set clear limits on unacceptably aggressive behavior; (c) enforce rules in a consistent, nonphysical manner; (d) provide positive role models and authority figures [36–38]. Four levels of intervention have been developed based on these principles: school, classroom, individual, and community, across different cultural contexts [38].

While these programs may be attributed to the relatively small number of ethnic minority students in comparison to their native counterparts, the effectiveness of these anti-bullying programs does not extend to reducing victimization among students from ethnic minority communities [15–17,21,39,40]. In the following section, we provide suggestions and resources regarding theoretical, methodological, and practical aspects of anti-ethnic bullying program design. These suggestions are not comprehensive, and alternative tools can be considered based on the requirements of the specific programs and cultures in schools. A multidisciplinary approach involving mental health professionals, teachers, and families will be crucial to the success of the intervention.

4. Theoretical Orientation of Anti-Ethnic Bullying Programs

The theoretical framework for designing effective ethnic bullying prevention programs should take into account social, cognitive, and environmental influences on student behavior. We selected several well-established theories and models, including Social Learning Theory, Contact Theory, Stigma Theory, and the Proactive Bystander Intervention Model. Based on these theories, it is possible to understand the complex mechanisms underlying ethnic bullying, in addition to devising strategies for addressing and preventing such acts.

According to the Social Learning Theory [41], individuals learn and model behaviors by observing others, particularly those they perceive as influential or similar to them. Family members could serve as role models in anti-bullying programs. In an intervention program titled "Working with Parents in Creating a Please school", van Niejenhuis et al. [42] designed a training course with a toolkit for teachers to cooperate with parents to reduce bullying behaviors. Although the program did not yield a change to teachers' competence or students' victimization, parent-school cooperation had a positive effect on parents' perception and communication with their child regarding bullying. Similarly, Gomez et al. [43] invited family members with minority backgrounds (Romanian and Arab Muslim adults) as role models to schools and worked with children (e.g., participating in learning activities, sharing cultural stories, et cetera). They found that participation in these activities as role models helped reduce cultural stereotypes and bullying at school.

Contact Theory [44] proposes that increased interaction and positive contact between individuals from diverse backgrounds can reduce prejudice and improve intergroup relations. Intergroup contact, cooperation, and communication among students of various

ethnic backgrounds is incorporated as part of the intervention design, fostering a more inclusive school environment. For example, Ruck et al. [45] and Killen et al. [46] found that intergroup contact raised the awareness of stereotypes and reduced interracial peer exclusion (e.g., lunch, party, dance). Killen et al. [46–48] argued that schools should design programs to promote intergroup friendships and encourage students to reflect on interracial peer experiences, which in turn promotes mutual respect. In their Developing Inclusive Youth program across 48 classrooms and six schools, they used the interactive web-based course for intergroup contacts across races and ethnicities (e.g., excluding a peer who is an immigrant at bowling games). Following each video, several prompts such as feeling, judgment, decision, and reasoning were asked. They found that the intervention program was effective at changing children's attitudes and recognizing the wrongfulness of interracial peer exclusion.

According to Tajfel et al. [49], stigmatized attitudes and behaviors are shaped by social norms, stereotypes, and individual beliefs. Intervention design should include stigma-based interventions that aim to reduce ethnic bullying by addressing social norms, stereotypes, and prejudice. Through activities that challenge biases and promote inclusivity, the intervention aims to modify the cognitive and social factors that contribute to ethnic bullying. For example, Earnshaw et al. [17] conducted a systematic review of stigma-based bullying intervention. They found 21 intervention programs (between 2000–2015) that were associated stigma-based bullying (e.g., disability, sexual minority, and physical appearance), but only one program focused on racial/ethnic bullying.

A bystander intervention model [50] emphasizes the importance of bystanders' involvement in the prevention and resolution of ethnic bullying. During the intervention design, students are exposed to activities designed to enhance their understanding of their roles as bystanders and provide them with the necessary tools to intervene effectively in cases of racial discrimination or ethnic bullying. For example, Moran et al. [51] conducted a brief bystander intervention for anti-ethnic bullying toward Hispanic students. The program included using culturally relevant language, role-playing bullying experiences, and training in diverse values and norms. The researchers found that students participating in the anti-bullying intervention reported an increase of knowledge and confidence to intervene in ethnic bullying. Priest et al. [52] designed a "Speak Out against Racism" program to promote effective bystander responses to racial bullying in schools. The program included school policies, community involvement, curriculum designs, and training for teachers, parents, and students regarding knowledge and practical skills to reduce racism at school. They found the program effectively increased the proactive bystander responses to intervening in racial bullying.

Through the integration of these theoretical perspectives, the intervention design should attempt to address and prevent ethnic bullying in schools in a comprehensive manner. By promoting positive intergroup relationships, challenging stereotypes, encouraging inclusion, and empowering students to become proactive bystanders, the potential program should promote positive intergroup relationships. By combining these elements, the goal of any intervention programs should aim to create an academic and social environment that is supportive of students of all backgrounds and free from the damaging effects of ethnic bullying.

5. Recommendations of Anti-Ethnic Bullying Programs

The tasks and programs for anti-ethnic bullying were generated through a selective review above. Our aim was to make recommendations based on both traditional anti-bullying programs and recent research on racial bullying. There is a common interest among these programs in providing students with the necessary knowledge, skills, and strategies that will enable them to effectively deal with bullying situations. Additionally, these programs emphasize the need to create a safe and supportive learning environment and a culture of respect and acceptance of diversity for all students. By combining these two

areas of expertise, we can formulate an effective strategy for dealing with and combating anti-ethnic bullying.

5.1. Cultural Awareness Workshops

Different cultures, customs, and traditions should be introduced to students at school through workshops that promote appreciation and respect for diversity. Understanding various cultures and the unique characteristics of each should be expected of students.

This workshop includes five parts: group cultural presentations, individual storytelling, cultural trivia, cultural food tasting, and a world map activity. Using a combination of experiential learning [53] and cooperative learning [54], this workshop has been developed based on a concept known as social identity theory [55], which posits that individuals derive a sense of belonging from belonging to a social group. During the workshop, students participate in hands-on activities, such as food tastings and cultural presentations, which allow them to actively engage with and learn about diverse cultures [53]. Students benefit from activities such as group presentations and cultural trivia, which promote teamwork, interdependence, and shared responsibility among them [54]. It aims to establish an inclusive and diverse environment where students from minority cultures feel accepted and welcomed, thereby reinforcing a positive social identity and reducing ethnic bullying [56].

Students can be divided into groups for a presentation on a specific culture. Next, students will share stories, folktales, or personal experiences reflecting their culture. They will be encouraged to ask questions and listen actively in order to learn about the speaker's culture. Afterward, students will answer questions about the speaker's culture in a trivia game. This activity promotes friendly competition and teamwork in addition to teaching new information. A cultural food tasting will follow, where students can sample and learn about traditional dishes. Each dish will be discussed in relation to its ingredients, preparation methods, and cultural significance. At the end of the lesson, students will be provided with a world map and asked to locate and label countries from which classmates, school personnel, or members of the community originate. Students from minority cultures can feel peer support, become aware that their ethnic background is accepted and welcomed, reduce their negative feelings, and establish a sense of belonging. Additionally, students can develop a newfound understanding and respect for different cultures, which can help prevent and decrease ethnic bullying in schools.

5.2. Empathy and Perspective Building Activities

A study by McLoughlin and Over [57] demonstrated that encouraging children to mentalize about perceived outgroup results in increased prosocial behavior towards outgroup members. This study suggests that when children were asked about the thoughts and feelings of members of immigrant groups or to explain their actions, there was an increase in their willingness to share with a novel member of the immigrant group who had been the victim of a minor transgression. This finding led to empathy-building activities. The section can be held on a weekly basis, divided into multiple sessions. Each weekly event begins with a session in identifying different feelings and how others may feel. Students will be divided into pairs or small groups. Each group will be given a list of emotions (such as happiness, sadness, anger, fear, embarrassment, etc.), and instructed to take turns acting out an emotion while their group members attempt to guess what emotion they are portraying. A component of this activity will assist students in developing their emotional literacy. They will become more aware of other people's feelings when they recognize and understand different emotions [58].

The next part of the activity is a perspective-taking task. Students will be divided into small groups by their teachers, and each group will be assigned a scenario relating to ethnic bullying. Teachers will instruct groups to discuss the scenario from the perspective of the target, perpetrator, and bystander. Following the discussion, each group will present their findings to the entire class. The purpose of this activity is to encourage students to consider multiple perspectives and foster empathy for those who have been victimized by ethnic

bullying. Students are encouraged to consider multiple perspectives in scenarios related to ethnic bullying, fostering empathy toward those involved [59,60].

The next activity will be the empathy mapping activity. Each group will be provided with poster paper and markers by the teachers. The teacher will instruct students to create an empathy map for a person experiencing ethnic bullying, addressing the following questions: (i) What do they think? (ii) What do they feel? (iii) What do they say? (iv) What do they do? Teachers will encourage groups to think about the emotional, physical, and social consequences of ethnic bullying. Students will be asked to present their empathy maps to the whole class after they have completed the empathy maps. Through this activity, students will gain a better understanding of the impact of ethnic bullying on individuals, as well as foster empathy. Empathy maps can help students understand the emotional, physical, and social consequences of ethnic bullying, fostering empathy for those who are affected. This activity was developed based on the concept and techniques of empathy mapping, which helps teams develop a deep, shared understanding and empathy for others [61].

Finally, there will be a reflection and action planning session [62]. Each teacher will distribute sticky notes to students and instruct them to write one thing they learned from the workshop, as well as one action they will take in order to promote empathy and prevent ethnic bullying in their school. All students will be invited to share their reflections and action plans with the class. As a reminder of the students' commitments, teachers will collect the sticky notes and distribute them in a prominent location.

5.3. Bystander Intervention Training

According to Moran et al. [51], an ethnically mixed group may benefit from a brief implementation of a bystander bullying intervention. This intervention is based on Bandura's Social Learning Theory [41], which suggests that children imitate influential individuals' behaviors to shape their own behavior. In their six-weekly program, researchers found a significant decrease in ethnic bullying victimization. As another example, Priest et al.'s "Speak Out Against Racism" (SOAR) initiative aims to educate primary school students about bystander responses to racism and discrimination. Students in this program learn about racism, its effects, and how to intervene when it occurs. After conducting a mixed-methods evaluation, researchers found that students gained a better understanding of racism, were able to recognize racial discrimination, and were more likely to intervene.

In line with the research, we recommend a school-wide program that focuses on proactive bystander intervention. This program will be divided into two sections: role plays and reflections. In this program, teachers will present a definition of ethnic bullying and discuss its impact on individuals and communities. Case studies and real-life examples of ethnic bullying will be encouraged by students. Teachers will encourage students to reflect on their own experiences and discuss them in pairs or small groups.

Role-plays and Scenarios: Oyekoya et al. [63] recommended that interventions reflect the perspective of the student who bullies and the student who is bullied, as well as that of the bystander, in order to demonstrate desirable intervention behaviors. Through role-playing, the students are expected to explore different perspectives and learn how to respond to bullying situations [63]. Role-playing is an effective method for teaching bystander intervention skills, as it provides individuals with the opportunity to practice intervening in a safe environment [64]. In the second part of the activity, teachers will present participants with multiple scenarios related to ethnic bullying and bystander intervention opportunities. Participants will be divided into small groups and assigned a scenario. They will analyze the situation and then participate in a role-playing exercise to demonstrate their selected strategy. Following each role-play, a group discussion will provide feedback, identify alternative strategies, and share insights.

5.4. Stigma-Based Intervention

A stigma-based intervention targets bullying perpetrated against individuals based on race, ethnicity, sexual orientation, or disability. The approach targets the social precursors of stigmatized behavior and shared social norms and individual beliefs that contribute to the maintenance of stigma-based attitudes [17]. However, in a systematic review, twenty-two stigma-based bullying interventions were evaluated, but only one focused on ethnic minorities [17,65,66]. For example, Aboud and colleagues [65] have demonstrated that interventions informed by intergroup contacts [44] led to positive changes in attitudes, particularly among youth from racial and ethnic minorities. McCown [66] also stated that stigma can be reduced when these conditions are met among members from different backgrounds within the group. Therefore, a stigma reduction workshop can aim to reduce ethnic bullying by interacting with peers from different racial groups.

Understanding stigma and challenging bias: As a first step, teachers will provide a brief overview of stigmas, stereotypes, prejudices, and discrimination. Ethnic bullying can be described in real-life examples with its consequences. During the discussion period, students will be encouraged to discuss how stigma and ethnic bullying harm individuals and schools alike. As a next step, students will participate in a small group activity designed to challenge stereotypes and biases related to ethnicity that may appear in schools. Based on the contact hypothesis [44,67], interactive workshops can provide students with opportunities to participate in discussions and activities that challenge stereotypical beliefs, prejudices, and discriminatory attitudes. Each group will present their findings and engage in a discussion about strategies for countering biases and stereotypes.

According to Pettigrew and Tropp [67], intergroup contact can lead to reduced prejudice when conditions such as equal status and cooperation are met. Students from different ethnicities will participate in a collaborative problem-solving activity. Teachers will divide participants into diverse groups (5–6 students per group), ensuring that each group includes students from a variety of ethnic backgrounds. In addition, each group will receive a group number for easy identification, and the problem-solving task will immediately follow. Groups will receive handouts containing problem-solving scenarios. Teachers will explain the task to the groups: they must collaboratively develop solutions to the scenarios presented in their handouts. Cultural perspectives and experiences should be incorporated into problem-solving, and teachers will instruct students to discuss scenarios, share cultural perspectives, and find a solution together. All group members will be encouraged to communicate openly, listen actively, and respect each other. Teachers will move between groups, offering support and guidance as required.

Parents & Community Involvement Campaign: Sanders and Epstein's [68] study on the National Network of Partnership Schools demonstrated that parental and community involvement is essential for promoting positive school outcomes, including reducing stigma and ethnic bullying. The purpose of this activity is to challenge misperceptions regarding the prevalence and acceptability of certain behaviors, such as ethnic bullying, and to promote positive, inclusive behaviors [68]. Students can feel more connected and committed to inclusivity if they are involved in the creation of campaign materials. It is expected that students will reflect on their experiences and formulate their own strategies to promote diversity and inclusivity in the classroom. Positive intergroup contact, intercultural understanding, and inclusivity can be promoted in schools to reduce and prevent ethnic bullying.

6. Conclusions

In a multicultural society, schools play a critical role in promoting tolerance, understanding, and mutual respect. In this article, we review different frameworks that incorporate theories, programs, and practical materials to cultivate students' empathy, compassion, and a sense of responsibility. These frameworks should enable students to proactively counter bullying while reducing discrimination and stigma. We also intend to provide schools and teachers with the resources they need to implement an effective

anti-ethnic bullying program. They can prevent ethnic bullying through empathy, diversity promotion, and targeted interventions. Indeed, many schools have already established such programs. For example, Mt. Olive School District in New Jersey (where the second author resides) implemented the Equity Task Force in 2020. A wide range of topics were reported in the initiative, including creating an inclusive curriculum, reviewing disciplinary policies, fostering relationship building through social-emotional learning, and diversifying recruitments of teachers and staff [69,70]. In 2023, Dr. Sumit Bangia and her colleagues in the school district also introduced a student-led Equity & Inclusion Student Council to ensure all students have a voice and promote an inclusive learning environment. However, anti-ethnic bullying programs cannot solely rely on the participation of teachers and schools. Salmivalli et al. [71] argue that curriculum-based, class-level work is insufficient to prevent bullying behaviors in schools. Educating students about ethnic bullying requires collaboration between teachers, parents, administrators, and community members. It is possible to establish an inclusive and healthy school environment by revising curriculums to include multicultural content, providing staff training on how to handle ethnic bullying, and providing parents with guidebooks on how to promote respect and tolerance at home [15,16]. Anti-ethnic bullying can be raised by organizing programs and workshops that teach effective interventions and prevention strategies.

In conclusion, we hope that this article will provide a selective review of ethnic/racial-related bullying in schools and serve as a starting point for further research and collaboration. We would also like to emphasize that the primary purpose of this article is not to provide an exhaustive review of the literature. As an alternative, we advocate for specific programs that address both traditional bullying and racial bullying in schools and provide educators with the necessary resources to effectively implement anti-ethnic bullying programs. Future research should examine the effectiveness of the recommended tasks in specific contexts. A systematic review or meta-analysis of existing interventions could provide additional evidence of their effectiveness. Finally, we hope that the article will serve as an informative tool for guiding policy decisions and for creating more effective strategies for preventing and addressing ethnic bullying.

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Article

The Association between Internalizing Symptoms and Witnessing School Bullying and Defending Behavior: An Analysis of Gender Differences among Elementary and Middle School Students

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Abstract: Bullying is a significant public health concern that begins as early as elementary school and peaks in middle school. Although researchers have demonstrated the relationship between internalizing symptoms and being a target of bullying, there is limited research examining the association between internalizing symptoms and witnessing school bullying and defending targets or gender differences in these relationships. In this cross-sectional study, we examined gender as a moderator of the relationships between internalizing symptoms (e.g., depressive symptoms and social anxiety) and witnessing school bullying and defending behavior in a sample of elementary and middle school students (N = 126; 51.6% female; 3rd–8th grade). Results demonstrated that witnessing school bullying was a significant predictor of depressive symptoms. For social anxiety, the gender x witnessing school bullying interaction was significant for social avoidance and distress (SAD), such that among female students, SAD was positively related to witnessing school bullying. In contrast, the gender x defending behavior interaction was significant for fear of negative evaluation (FNE), such that among male students, FNE was positively related to defending behavior. Findings suggest bullying prevention should incorporate bystander training programs that include a focus on gender differences in social anxiety associated with being a bullying bystander.

Keywords: bullying; bystander; defending behavior; depressive symptoms; social anxiety; elementary school; middle school

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1. Introduction

Bullying has been defined as "the repetitive, intentional hurting of one person or group by another person or group, where the relationship involves an imbalance of power" [1]. According to United States (U.S.) national survey data, among students aged 12–18, 22.2% report bullying victimization [2]. School bullying victimization is reported by elementary school students (22%) [3] and peaks in middle school (27.6%) [2], suggesting elementary and middle school youth are the most vulnerable to bullying victimization. Additionally, 25.5% of females report school bullying victimization relative to 19.1% of males [2]. Further, results from a meta-analysis investigating the impact of bullying victimization on youth demonstrate that targets report a wide range of socio-emotional consequences, including anxiety, post-traumatic stress, depressive symptoms, suicidal ideation and attempts, and poor mental and physical health [4].

1.1. Bullying Bystanders

A bystander can be defined as someone who observes bullying but is not involved in bullying perpetration and is not the target of bullying [5]. Students who witness bullying

can act in several ways, including directly helping the bully by joining in the bullying behavior as "assistants", promoting the bullying and motivating the bully as "reinforcers", ignoring or leaving the bullying situations as "outsiders", or doing something to interrupt or stop the bullying as "defenders" [6]. Research suggests that up to 80% of youth observe bullying behavior at school [7]. The Bystander Intervention Model [8] provides a conceptual framework for understanding the defending behavior among bystanders. The Bystander Intervention Model suggests that bystanders must move through a series of five sequential steps to defend targets: (a) notice the bullying event, (b) interpret the bullying event as an emergency that requires assistance, (c) accept responsibility for intervening in the observed bullying situation, (d) know how to intervene in the bullying situation, and (e) intervene in the bullying situation. Research with middle school students demonstrates that each step of the Bystander Intervention Model is positively associated with defending behavior [9]. A recent review of the literature examining the factors that contribute to students taking action as "defenders" indicates that altruism, social competence, self-esteem, self-efficacy, perspective taking, and empathy are all positively related to defending behavior [10]. There is, however, a need to extend the literature beyond factors associated with bystander intervention to research investigating the negative mental health outcomes related to witnessing bullying and defending behavior.

1.2. Mental Health Outcomes for Bystanders

Researchers have extended the examination of mental health consequences among targets of school bullying to mental health risks experienced by student bystanders. For example, internalizing symptoms are positively associated with witnessing school bullying [11,12]. One explanation for this association is that bystanders may feel helpless [11], anxious about their own safety, or experience vicarious trauma [13] when observing bullying. Similar to witnessing bullying, depressive symptoms [7,11,14,15], anxiety [11,14], and social anxiety [7,15] are also related to intervening in bullying situations. Research indicates that the decision to intervene in bullying situations is impacted by social norms [16]. Internalizing symptoms associated with defending behavior may be related to pro-bullying norms, with "defenders" becoming socially isolated as a result of intervening when they witness bullying [7]. Further, bystanders may fear retaliation when defending targets [17].

1.3. Gender Differences in Witnessing Bullying and Defending Behavior

Research indicates that rates of witnessing bullying [14] and defending behavior [18] are higher for female students relative to male students. Research examining the Bystander Intervention Model provides evidence that female students are more likely to notice bullying and to understand that bullying is a situation that needs to be acted upon [19]. Researchers have also identified gender differences when investigating mental health risks among bullying bystanders. Specifically, female students report depression and social anxiety related to witnessing bullying, whereas males do not [15]. This gender difference may be related to developmentally higher levels of empathy and perspective taking among females in this age group [20]. Additionally, for females, internalizing symptoms associated with witnessing bullying may be associated with interpreting bullying as a serious situation that needs intervention [19]. In contrast, males report depression [14,15] and anxiety [14] related to defending, while depression and anxiety are not related to defending among females [14,15]. It is possible that defending behavior is positively associated with internalizing symptoms among males, as males may use aggressive behavior when defending [14] and peers are more likely to socially reject males who defend targets [6].

Although researchers have identified gender differences in internalizing symptoms among bystanders [14,15], each study has its limitations. Lambe et al. (2017) [14] assessed depression and anxiety by combining two items to create an internalizing scale. The internal consistency of the scale was low (a = 0.64), potentially due to combining two distinct constructs. Additionally, Lambe et al.'s data analysis did not include bullying victimization as a control variable. Further, Lambe et al. investigated the impact of general

anxiety, but not social anxiety, on defending behavior. In contrast, although Midgett et al. (2021) [15] controlled for experiences of bullying victimization and investigated social anxiety specifically, the constructs of social avoidance and distress (SAD) and fear of negative evaluation (FNE) were combined. Further, the study sample was limited to sixth grade students.

1.4. The Current Study

The limited research on gender differences in internalizing symptoms among bystanders suggests that emotional outcomes for female and male students may be different. The aim of this study was to extend the research on gender differences by investigating these relationships among elementary and middle school students with the goal of providing information to guide prevention programming. We utilized cross-sectional methodology to investigate the association between internalizing symptoms and witnessing school bullying and defending behavior. To extend the literature specific to social anxiety, we examined two constructs: social avoidance and distress (SAD) and fear of negative evaluation (FNE). Our hypotheses were (a) gender would moderate the relationship between depressive symptoms and witnessing bullying and defending behavior and (b) gender would moderate the relationship between social anxiety (i.e., SAD and FNE) and witnessing bullying and defending behavior.

2. Materials and Methods

2.1. Participants and Procedures

Participants were 126 students (51.6% female; 48.4% male) enrolled in two elementary schools and one middle school in the northwest region of the U.S. The age range of participants was ages 7–14 (M = 10.45 and SD = 1.71). In total, 88 students (69.8%) were in elementary school (grades 3–5) and 38 students (30.2%) were in middle school (grades 6–8). The sample was predominantly White (63.7%), with 12.9% identifying as more than one race, 11.3% as Hispanic, 3.2% as Black, 1.6% as Asian American, and 7.3% as Other.

The research team recruited all students in the third through fifth grade from two elementary schools and sixth through eighth grade from one middle school (N = 468) to participate in this study. The school sent an email to parents/guardians that included study information and an informed consent form. Additionally, during classroom time, the school counselor provided consent forms that students could take to their parents/guardians for a signature. Students with parent/guardian signed consent forms provided assent prior to beginning data collection procedures. Parental/guardian consent was obtained for 272 students (58.1%). A total of 253 (54.1%) students assented to participate. Study procedures were implemented during class time. The questionnaire took 20 min to administer. Incentives included pizza at the completion of study procedures. For this study, we included students who reported witnessing bullying in the month prior to this study (N = 126; 49.8%).

2.2. Measures

Demographic Survey. This survey included questions about gender, grade, age, and race/ethnicity. Participants indicated their gender, grade, and age through open-ended questions and provided their race/ethnicity through response choices.

Witnessing Bullying. The global Olweus Bullying Questionnaire [21] was used to measure the frequency of witnessing bullying in the past 30 days. The global bystander item was used. The item was rated on a 5-point Likert Scale with anchors of 0 (I Have Not) to 4 (Several Times a Week). The questionnaire has a good construct validity [22].

Defending Behavior. The 3-item Defender Subscale of the Participants Roles Questionnaire (PRQ) [23] was used to measure defending behaviors. The items were rated on a 3-point Likert Scale with anchors of 0 (Never) to 2 (Often). Researchers have demonstrated a good construct validity [6] and moderate to good internal reliability (α = 0.79–0.93) [23,24]. For the current sample, α = 0.80.

Depressive Symptoms. The 20-item Center for Epidemiological Studies Depression Scale for Children (CES-DC) [25] was used to measure depressive symptoms. The items were rated on a 4-point Likert Scale with anchors of 0 (Not at All) to 3 (A Lot). Scale psychometrics include a demonstrated construct validity [25], good test–retest reliability [26], and good internal reliability (α = 0.89) [27]. For the current sample, α = 0.90.

Social Anxiety. Social anxiety was measured using the 22-item Social Anxiety Scale for Adolescents (SAS-A) [28]. We used the 10-item Social Avoidance and Distress Scale (SAD) and the 8-item Fear of Negative Evaluation Scale (FNE). The SAD Scale measures social avoidance of peers and social distress in new and typical situations; the FNE Scale measures anxiety related to peer's negative evaluations. The items were rated on a 5-point Likert Scale with anchors of 0 (Not at All) to 4 (All the Time). The scale has a good construct validity [28,29], moderate test–retest reliability [30], and good internal reliability (α = 0.76–0.91) [29]. For the current sample, for SAD, α = 0.89, and for FNE, α = 0.80.

2.3. Statistical Analyses

IBM SPSS Statistics for Windows, Version 28.0 was used to conduct all analyses. Data were examined for missing values and we used linear interpolation to impute missing data [31]. We examined all variables for normality, with skew and kurtosis values of −2 and +2 considered as acceptable [32]. We also calculated bivariate correlations to examine multicollinearity among predictor variables and associations among predictor and dependent variables. We considered variance inflation factor (VIF) values below 10 as acceptable [33]. We then conducted three hierarchical regression analyses, with moderation tested through interaction effects. Because our equations contained interaction terms, we mean centered predictor variables to decrease issues related to multicollinearity [34]. In Step 1, we entered the control variables bullying victimization and grade. In Step 2, we entered gender, witnessing school bullying, and defending behavior. In Step 3, we entered the interaction terms gender x witnessing school bullying and gender x defending behavior. For significant interactions, we examined the direction and magnitude by plotting simple slopes [34]. All analyses were considered significant at $p < 0.05$. We set effect size (R^2) magnitude values at small = 0.01, medium = 0.09, and large = 0.25 [35].

2.4. Power Calculations

We used G*Power 3.1.3 [36] to conduct a power analysis to determine the sample size. For a regression model with five tested predictors and seven total predictors, a sample size of 92 is required for a power of ≥0.80 to detect a medium effect size for R^2 increases with a 0.05 alpha level. Thus, our sample of 126 participants provided adequate power for our analyses.

3. Results

3.1. Preliminary Analyses

Means and standard deviations are presented in Table 1. For all variables, skew and kurtosis were acceptable; skew ranged from −0.38 to 1.06 and kurtosis ranged from −0.10 to −1.05. Bivariate correlations are presented in Table 2. Multicollinearity was also acceptable; VIF ranged between 1.01 and 1.82.

Table 1. Means and Standard Deviations by Gender.

Variable	Gender		Total Sample
	Female	Male	
Depressive Symptoms	28.72 (13.75)	23.65 (12.96)	26.26 (13.56)
Social Anxiety—SAD	15.65 (10.34)	12.52 (10.75)	14.14 (10.64)
Social Anxiety—FNE	14.08 (9.72)	10.07 (10.35)	12.14 (10.12)
Witnessing Bullying	1.95 (1.18)	2.03 (1.24)	1.99 (1.20)
Defending Behavior	3.72 (1.81)	4.05 (1.79)	3.88 (1.80)

Table 2. Bivariate Correlations by Gender.

Variable	Females				
	1	**2**	**3**	**4**	**5**
1. Depressive Symptoms	-				
2. Social Anxiety—SAD	0.61 **	-			
3. Social Anxiety—FNE	0.67 **	0.68 **	-		
4. Witnessing Bullying	0.36 **	0.42 **	0.26 *	-	
5. Defending Behavior	0.10	0.00	−0.10	0.08	-
Variable	**Males**				
	1	**2**	**3**	**4**	**5**
1. Depressive Symptoms	-				
2. Social Anxiety—SAD	0.66 **	-			
3. Social Anxiety—FNE	0.66 **	0.77 **	-		
4. Witnessing Bullying	0.26 *	0.01	0.15	-	
5. Defending Behavior	0.04	0.14	0.27 *	0.25	-

* $p < 0.05$, ** $p < 0.01$.

3.2. Depressive Symptoms

Table 3 presents the regression analysis for depressive symptoms. The adjusted R^2 for the model was $R^2 = 0.13$. The effect size is medium. Witnessing school bullying was a significant predictor of depressive symptoms ($p < 0.03$), with findings demonstrating a positive association. In contrast, defending behavior was not a significant predictor of depressive symptoms ($p = 0.63$). Additionally, neither the gender x witnessing school bullying ($p = 0.27$) nor the gender x defending behavior ($p = 0.51$) interaction terms were significant, suggesting gender was not a significant moderator.

Table 3. Hierarchical Regression Analyses for Depressive Symptoms.

Predictor	ΔR^2	B	SE B	β	95% CI
Step 1	0.10 **				
Grade		0.71	0.83	0.08	[−0.93, 2.35]
Bullying Victimization		3.15	0.86	0.32 ***	[1.44, 4.86]
Step 2	0.07 *				
Gender		−2.38	1.13	−0.18 *	[−4.61, −0.15]
Witnessing Bullying		2.34	1.09	0.21 *	[0.25, 4.59]
Defending Behavior		0.31	0.65	0.04	[−0.98, 1.60]
Step 3	0.01				
Gender x Witnessing Bullying		−1.06	0.97	−0.13	[−2.97, 0.85]
Gender x Defending Behavior		−0.42	0.64	−0.06	[−1.68, 0.84]
Total R^2	0.18 ***				

Note. $N = 126$. SE = standard error. CI = confidence interval. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

3.3. Social Avoidance and Distress (SAD)

Table 4 presents the regression analysis for SAD. The adjusted R^2 for the model was $R^2 = 0.09$. The effect size is medium. Neither witnessing school bullying ($p = 0.23$) nor defending behavior ($p = 0.77$) were significant predictors of SAD. Additionally, the gender x defending behavior interaction was not significant ($p = 0.31$). However, the gender x witnessing school bullying interaction term was significant ($p < 0.005$). As seen in Figure 1, among female students, witnessing school bullying was positively associated with SAD ($p < 0.006$), whereas the association between witnessing school bullying and SAD was not significant among male students ($p = 0.26$).

Table 4. Hierarchical Regression Analyses for Social Distress and Avoidance.

Predictor	ΔR^2	B	SE B	β	95% CI
Step 1	0.04				
Grade		−0.17	0.68	−0.02	[−1.51, 1.17]
Bullying Victimization		1.55	0.70	0.20 *	[0.75, 3.37]
Step 2	0.03				
Gender		−1.50	0.94	−0.14	[−3.36, 0.36]
Witnessing Bullying		1.11	0.91	0.13	[−0.70, 2.91]
Defending Behavior		0.16	0.54	0.03	[−0.92, 1.23]
Step 3	0.06 *				
Gender x Witnessing Bullying		−2.22	0.78	−0.33 **	[−3.77, −0.67]
Gender x Defending Behavior		0.53	0.52	0.09	[−0.50, 1.55]
Total R^2	0.13 *				

Note. N = 126. SE = standard error. CI = confidence interval. * $p < 0.05$, ** $p < 0.01$.

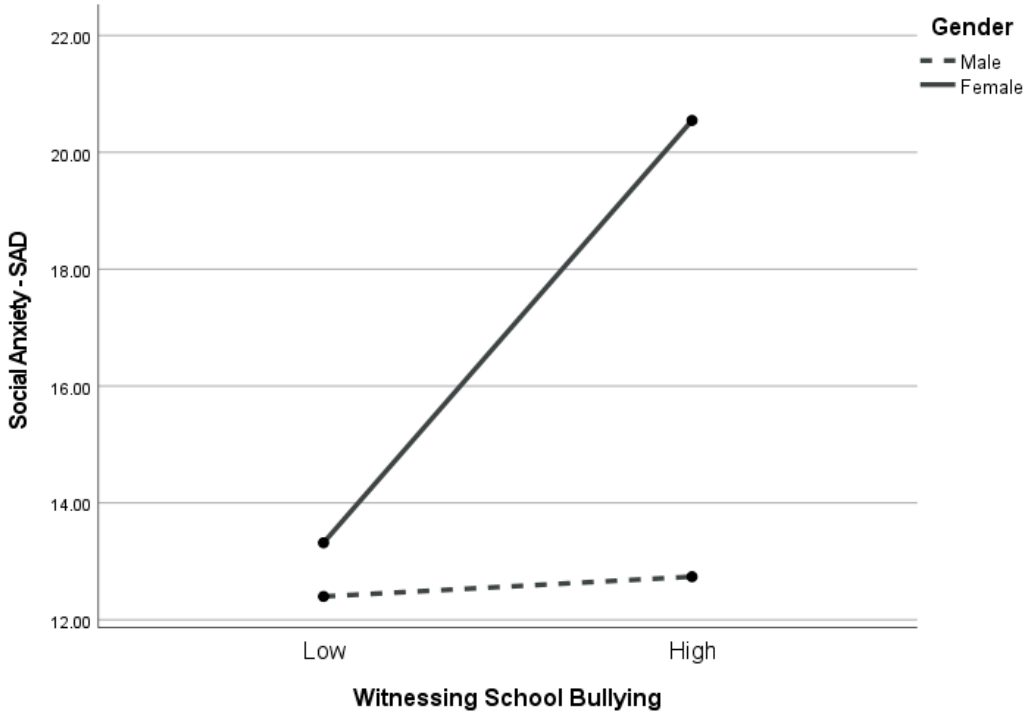

Figure 1. Simple slopes for social distress and avoidance and witnessing school bullying by gender. Note. The figure illustrates the direction and degree of the significant interaction effect (i.e., gender x SAD) depicted by simple slopes for witnessing school bullying (p = 0.005). SAD was significantly associated with witnessing school bullying among female students (p = 0.006) but not among male students (p = 0.26).

3.4. Fear of Negative Evaluation (FNE)

Table 5 presents the regression analysis for FNE. The adjusted R^2 for the model was R^2 = 0.13. The effect size is medium. Neither witnessing school bullying (p = 0.22) nor defending behavior (p = 0.34) were significant predictors of FNE. Additionally, the gender x witnessing school bullying interaction (p = 0.12) was not significant. However, the gender x defending behavior interaction term was significant ($p < 0.05$). As seen in Figure 2, among male students, defending behavior was positively associated with FNE ($p < 0.04$), whereas the association between defending behavior and FNE was not significant among female students (p = 0.49).

Table 5. Hierarchical Regression Analyses for Fear of Negative Evaluation.

Predictor	ΔR^2	B	SE B	β	95% CI
Step 1	0.08 **				
Grade		1.14	0.64	0.16	[−0.12, 2.40]
Bullying Victimization		2.06	0.66	0.28 **	[0.75, 3.37]
Step 2	0.05				
Gender		−1.94	0.87	−0.19 *	[−3.67, −0.23]
Witnessing Bullying		1.03	0.84	0.12	[−0.65, 2.70]
Defending Behavior		0.49	0.50	0.09	[−0.51, 1.48]
Step 3	0.04				
Gender x Witnessing Bullying		−1.14	0.74	−0.17	[2.60, 0.31]
Gender x Defending Behavior		0.98	0.49	0.18 *	[0.02, 1.94]
Total R^2	0.17 **				

Note. N = 126. SE = standard error. CI = confidence interval. * $p < 0.05$, ** $p < 0.01$.

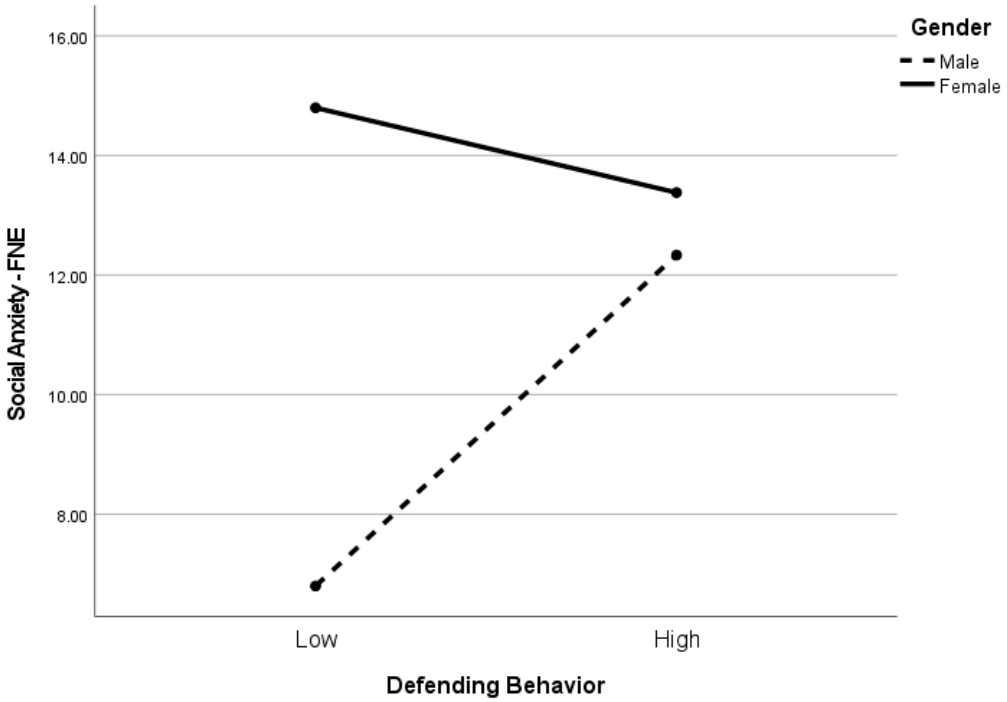

Figure 2. Simple slopes for fear of negative evaluation and defending behavior by gender. Note. The figure illustrates the direction and degree of the significant interaction effect (i.e., gender x FNE) depicted by simple slopes for defending behavior (p = 0.05). FNE was significantly associated with defending behavior among male students (p = 0.04) but not among female students (p = 0.49).

4. Discussion

The purpose of this study was to examine gender differences in internalizing symptoms among elementary and middle school students who witness bullying and act as "defenders". Results indicate that depressive symptoms were positively associated with witnessing school bullying for both male and female students. In contrast, for social anxiety, we found a significant interaction effect for gender, revealing gender differences in the association between social anxiety and both witnessing school bullying and defending behavior. Gender effects, however, were different depending on the type of social anxiety reported. Specifically, for females, SAD was positively related to witnessing school bullying; for males, defending behavior was positively related to FNE.

Results are not consistent with our first hypothesis that we would find significant gender differences in the relationship between depressive symptoms and witnessing school bullying and defending behavior. Prior research indicates that for females, depression is associated with witnessing school bullying, whereas for males, depression is associated

with defending behavior [14,15]. Although our results are consistent with prior research for females, we did not find evidence that depression was associated with defending behavior for males. Instead, similarly to females, depression was positively associated with witnessing school bullying. Thus, both female and male students in the current study experienced depressive symptoms related to witnessing school bullying, but not related to defending behavior. The discrepancy in our results may be due to differences in sample characteristics compared to prior studies. Specifically, the prior samples included sixth grade students only [15] or fourth through twelfth grade students [14]. Additionally, inclusion criteria varied, with one study including all students regardless of bystander status [15] and another study including students who witnessed bullying but were not involved in bullying perpetration and had not experienced bullying victimization [14].

Consistent with our second hypothesis, we did find evidence to support gender as a moderator of the relationship between social anxiety and witnessing school bullying and defending behavior. Results parallel previous research examining gender differences in anxiety and witnessing bullying [15] and defending behavior [14,15] while extending the literature by including SAD and FNE as two distinct constructs of social anxiety. Findings from the current study demonstrate that among female students, SAD was positively related to witnessing school bullying, whereas among male students, FNE was positively related to defending behavior. One explanation for these gender differences is that female bystanders may experience social distress when they observe a bullying situation due to higher levels of empathy and perspective taking [20]. Further, females are more likely than males to understand that bullying is associated with negative outcomes [19]. Thus, when witnessing school bullying, females may experience psychological co-victimization [37], leading to higher levels of SAD in females relative to males. Additionally, research indicates bullying victimization may increase the anticipatory anxiety of being bullied again, which, in turn, increases the risk of developing social anxiety [38]. A similar pattern may be true for witnessing bullying, in which female bystanders may experience higher rates of anticipatory anxiety related to witnessing bullying due to heightened perspective taking, empathy, and understanding of the consequences of bullying. In contrast, males may experience higher levels of social evaluative anxiety when defending targets as males are more likely to use maladaptive strategies (e.g., aggressive behavior) relative to female students who generally use pro-social strategies (e.g., comforting targets or reporting bullying to adults at school) [39]. Further, peers are more likely to socially reject males who take action to defend students in bullying situations [6]. Thus, males may experience fear of negative evaluation due to using maladaptive forms of defending behavior and the associated social rejection from their peer group [15].

As for limitations, our research design was cross-sectional; future research using a longitudinal design is necessary to examine causality. Further, although we recruited students from three schools, all schools were recruited from the same region in the U.S. Additionally, the sample size was small. To increase generalizability, research with larger samples, including participants from a wide range of geographical locations, is needed. Finally, although the inclusion of both elementary and middle school students is a strength of this study, there are developmental differences between elementary and middle school students. Although we did control for grade in the analyses, and grade was not a significant predictor of any of the outcome variables, there are other cognitive, emotional, and social characteristics that were not addressed in this study.

Findings from the current study have several implications for practice. First, 49.8% of students in the current sample reported witnessing school bullying in the past month. Further, results indicate that both witnessing school bullying and defending behavior are positively related to depression and social anxiety, over and above being a target. Thus, the impact of bullying extends to bullying bystanders, with one half of students at risk for experiencing depression and social anxiety related to witnessing and/or intervening in school bullying. These data highlight the need for mental health and school profession-

als to assess and address internalizing symptoms among bystanders as part of bullying prevention at the elementary and middle school levels.

Further, findings from the current study reveal important gender differences for bystanders. Specifically, for female students, internalizing symptoms was positively related to witnessing school bullying only. In contrast, for male students, internalizing symptoms was positively related to both witnessing school bullying and defending behavior. Because 80% of students observe bullying [7], mental health and school professionals need to focus on bystanders' mental health needs when implementing bullying prevention programs. Results from this study indicate that it is important for mental health and school professionals to recognize that students who report witnessing school bullying should be screened for internalizing symptoms. Additionally, mental health and school professionals need to understand that male and female student bystanders have different experiences. Female students may benefit from identifying feelings of both depression and social avoidance and distress related to witnessing school bullying. For males, in addition to providing coping skills, males may also benefit from learning skills that they can utilize when they observe bullying. Training male students to use pro-social skills may minimize the fear of negative evaluation associated with defending behavior. Additionally, creating a culture that supports defending behavior may decrease evaluation anxiety. Research indicates that when defending targets is perceived as the school norm, students are more likely to intervene in bullying situations [40], which may be particularly important for males who believe they will be negatively evaluated if they defend targets.

Bullying prevention programs, including comprehensive, school-wide programs with bystander training components [41] and stand-alone bullying bystander interventions [42,43], are effective in decreasing bullying behavior among elementary and middle school students. Additionally, research indicates that both comprehensive bullying programs with a peer focus [44] and stand-alone bystander programs [42,45] are effective in the decrease of internalizing symptoms among youth in this age group. Therefore, implementing school-based programs that focus on bystander training may be effective implementation strategies for decreasing internalizing symptoms. Tailoring programs to address differing needs of female and male students is also an important implementation consideration.

5. Conclusions

Findings from the current study indicate that for both female and male students, depressive symptoms are positively associated with witnessing school bullying. Gender differences related to social anxiety suggest that for females, witnessing school bullying is positively related to social avoidance and distress. In contrast, defending behavior is positively related to fear of negative evaluation for males. Results underscore the need for mental health and school professionals to attend to gender differences when implementing bullying bystander interventions to decrease internalizing symptoms among bystanders.

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Article

The Influence of Bullying on Positive Emotions and Their Effect as Mediators between Controllable Attributions of Success and Academic Performance

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Abstract: Academic performance (AP) is a topic of particular interest in the academic context. Attributions for academic success (AAS) have been shown to have a significant impact on AP, and more specifically internal controllable attributions (ICA) are closely linked to academic success. Similarly, positive emotions (PE) have a significant influence on AP and may in turn be influenced by bullying. This study examines the connections between ICA of academic success and AP mediated through PE in late primary and early secondary school students and analyzes the relationships between PE and bullying categories. Students (N = 562, 49.46% female, M_{age} = 11.6 SD = 1.2) reported on their perceptions of ICA and PE in relation to exams and their relationship with bullying through validated questionnaires. The AP was obtained as the average mark of all subjects in the immediately preceding assessment. First, a multiple linear regression analysis considering ICA and PE as predictor variables was carried out, which showed a significantly positive link between ICA and PE, between ICA and AP, and between PE and AP. Subsequently, using the SPSS macro PROCESS, a simple mediation model was implemented to quantify the effect of ICA on AP through PE in exams, and finally an ANOVA between the categories of bullying and PE was performed. The results showed a significant indirect relationship with a positive predictive relationship for AP. The model shows that PE proves to be a significant mediator between ICA and AP, and it is shown that students disengaged from bullying score higher in PE.

Keywords: positive emotions; internal controllable attributions; academic performance; exams; bullying; primary school; secondary school; educational context

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1. Introduction

In the educational field, academic performance (AP) is a topic of special interest and the subject of considerable research. AP refers to a student's performance in his or her studies and can be measurable through examinations and/or grades. It can be related to various factors, such as cognitive skills, motivation, effort, or student characteristics [1,2]. Some educational models go beyond individual non-cognitive factors that increase the predictability of AP, such as personal or contextual factors [3]. Motivation, personality traits, personal factors, emotions, and their involvement or not in bullying can be included as factors determining successful AP [4].

One variable that has been shown to have a significant impact on AP is attributions for academic success (AAS). This refers to the explanations that people give for their success in a particular event. These can also be internal, such as effort or innate characteristics/skills, or external, such as help from others or luck [5].

Weiner's theory tries to understand how the causes of success are related to AP [6,7]. Each attributional style favors or hinders learning by determining the motivation with which students carry out academic tasks and influences their self-perception and AP [8]. Many studies have agreed that success is closely linked to internal controllable attributions (ICA) such as effort, hard work, or learning, i.e., factors that are internal and controllable by the individual [8–10].

Some studies have already shown that if students attribute their successes to their efforts or abilities, they are likely to feel proud and motivated to continue performing well; this has important implications for their academic growth [11,12]. The changes in children's problem-solving attributions result from metacognitive developments that not only determine their emotional reactions but also their task orientation [13].

Thus, ICAs have a positive effect on AP, fostering motivation and self-regulation, leading to greater effort and thus better AP [3]. Moreover, when students attribute their AP to internal controllable factors, such as effort, they demonstrate higher self-efficacy and greater persistence in complex academic tasks [14]. This can lead to a greater sense of control and responsibility for one's own success, leading to greater motivation and effort to achieve future goals [15,16].

Similarly, the role of emotions in the academic context is worth noting. In these educational contexts, students experience emotions that are related to learning in different pedagogical moments, such as performing an individual task or completing an exam [17,18]. Emotions directly linked to achievement activities are present in all teaching–learning processes and it is essential to understand them in order to maximize learning [19].

In this regard, positive emotions (PE) experienced by students have been shown to have a significant impact on their AP as well as their general well-being [20]. When students have these types of emotions, such as joy, gratification, or motivation, they have a greater capacity to learn and retain new information, a greater ability to cope with new challenges, and greater resilience. In addition, those who experience PE have higher intrinsic motivation, which translates into greater effort and better AP [21,22]. Some studies have shown that students who have greater emotional regulation tend to have better academic results and greater satisfaction with academic life compared to other students who have difficulties in regulating their emotions [23].

Thus, we have found two variables, PE and ICA of academic success, to have an important and significant influence on another variable, AP. However, to our knowledge, no studies have been published on how these three interact together. Mediation analysis is a statistical technique that determines whether a mediating variable, in this case PE, can interpose itself between two other variables, AP and ICA, to explain a relationship between them. It attempts to determine whether the relationship between an independent variable and a dependent variable is largely explained by the relationship between the independent variable and the mediating variable, and between the mediating variable and the dependent variable [24].

As a final point, it is worth noting the important role that bullying plays in PE and AP. Finally, it is worth highlighting the important role that bullying plays in positive emotions and academic performance. Additionally, bullying should be considered a social phenomenon that can have serious consequences, causing physical, psychiatric, and emotional symptoms, including low academic achievement. This is associated with a deterioration in quality of life and problems in social relationships [25–30]. Physical, verbal, and/or social abuse represents a significant health problem for students. Victims may experience worse emotional, social, academic, and health development, while aggressors often exhibit delinquent and aggressive behaviors later on [30,31]. It has also been demonstrated that engaging in bullying behaviors, both as a victim and as an aggressor, is associated

with negative outcomes among students, ultimately resulting in school dropout. Greater involvement in bullying is associated with greater negative consequences for academic achievement [32,33]. Previous research has shown a strong relationship between PE and the different categories of bullying [34]. It has been observed that lower PE is related to bully/victim behaviors, while higher PE is demonstrated by students not involved in bullying. However, it is currently unknown whether there is a relationship between PE and the different categories of bullying, which in turn influence students' AP.

This study (Figure 1) aimed, on the one hand, to test a model in which the independent variable was ICA of academic success, the mediating variable was PE on exams, and the dependent variable was AP. More specifically, it sought to quantify the effect of ICA of academic success on performance through PE in relation to exams and, on the other hand, to demonstrate the existence of a relationship between the different categories of bullying and PE.

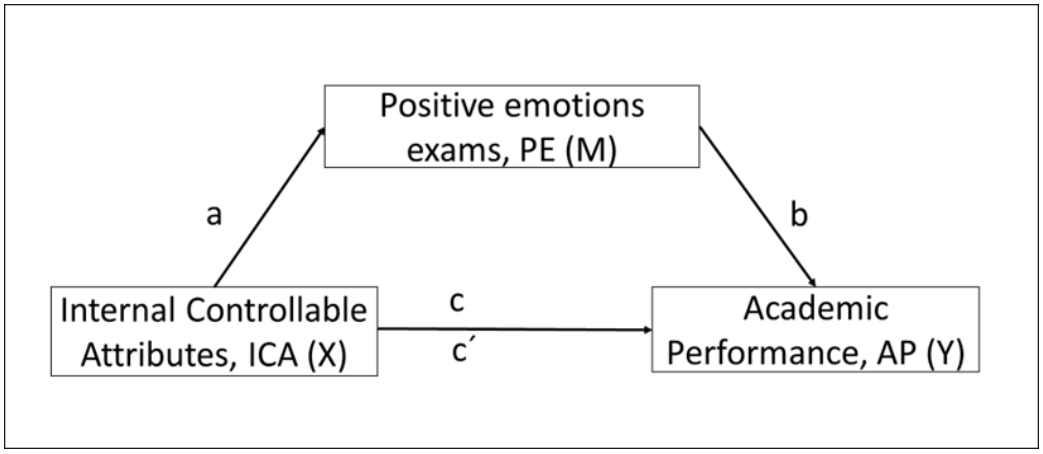

Figure 1. Diagram of the simple mediation model. Indirect effect of internal controllable attributions (ICA) to academic success on academic performance (AP) through positive emotions about exams (PE).

2. Materials and Methods

2.1. Participants

An ex post facto cross-sectional research design was followed to assess connections between variables without direct intervention. Participants were selected by means of stepwise cluster sampling in public and private schools in Castilla y León, located in urban areas.

The sample consisted of 562 students in five schools, public (n = 4) and private (n = 1), of Compulsory Primary Education (EPO) and Compulsory Secondary Education (ESO). The mean age was 11.66 years (SD = 1.2, range = 10–15). EPO students (n = 334) were in the fifth (n = 228) and sixth (n = 186) years, and ESO students (n = 148) were in the first (n = 134) and second (n = 94) years. Of these, 284 students (0.51%) were boys and 278 (0.49%) were girls.

2.2. Procedure

In accordance with the ethical guidelines set forth by the American Psychological Association regarding consent, confidentiality, and anonymity, a member of the research team reached out to school principals to inform them about the research objectives.

Although a total of 8 schools were contacted, only 5 of them agreed to participate in the research. The schools that declined cited time constraints in the classroom and diffi-culties in obtaining parental consent as reasons for non-participation.

Once the collaboration was approved, participants were approached in their classrooms. After securing informed consent from their parents or legal guardians, the participants proceeded to complete the scales. The completion of the scales was conducted

anonymously to ensure the confidentiality of the collected data, which would be exclusively used for research purposes. The administration of the scales took place during school hours, with detailed instructions provided and any questions addressed during the process. Emphasis was placed on the anonymous nature of the investigation. The questionnaires were filled out individually in a suitable environment, free from distractions. The questionnaire completion process lasted approximately 15 min. All question-naires collected were included in this study.

The research included all students from the selected grades, without any exclusion based on their culture, language, religion, race, disability, sexual orientation, ethnicity, gender, or age.

The research was approved by the Bioethics Committee of the University of Burgos, with reference number UBU 032.2/2021, adhering to all requirements outlined in the 1975 Declaration of Helsinki.

2.3. Assessments

Three scales with good psychometric properties, translated and validated in the Spanish population, were used for data collection.

The Academic Success Attribution Questionnaire [35,36] is a scale composed of 12 items grouped around 3 factors or dimensions: internal controllable attributions (e.g., "I pass because I work hard in class", "I pass because I spend a lot of time preparing for exams") related to effort, internal uncontrollable attributions (e.g., "I pass because I am very intelligent", "I pass because I have a calm character and do not get nervous in exams") related to ability, and external attributions (e.g., "I pass because teachers make exams easy", "I pass because I am lucky") related to luck and difficulty. These three dimensions correspond, respectively, to loci of controllability, stability, and causality [36,37].

Students responded to the root "I pass because . . . " using a Likert-type scale scoring from 1 to 5, with 1 not agreeing at all and 5 strongly agreeing.

Confirmatory factor analysis (CFA) showed a good fit of the data (χ^2 ($p < 0.001$); $\chi^2/df = 2.49$; RMSEA = 0.05; SRMR = 0.043; CFI = 0.96; TLI = 0.95). The Cronbach's alphas obtained were 0.744, 0.781, and 0.734, respectively, and indicated adequate internal consistency.

The results of the exploratory and confirmatory factor analysis revealed the adequate factor structure, internal consistency, and validity of the instrument. In addition, the ASAQ is invariant with respect to gender.

The present study takes the internal controllable attributions factor regarding academic success (Cronbach's alpha 0.744), related to effort, as the independent variable of the mediation model.

The Exams-Related Emotions Scale (EES) [35,36] was created to measure the emotions experienced by students at different times (before, during, and after) when taking an exam or test [38,39]. It consists of 31 items grouped into 3 factors: negative emotions (12 items) collects information about negative emotions experienced related to exams, such as hopelessness or anger (e.g., "Before the exam I get depressed because I feel that I do not have much hope of passing the exam", "During the exam I get angry", "After the exam I feel ashamed"), positive emotions (12 items) collects information about positive emotions experienced related to exams, such as hope and pride (e.g., "Before the exam I am so proud of how I prepared that I want to start the exam right away", "After the exam I am bursting with enthusiasm"), and anxiety (7 items) collects information about experienced test anxiety (e.g., "At the start of the exam my heart starts to race", "Before the exam I get so nervous that I wish I could miss the exam").

Students responded to the items "Before, during or after the exam . . . " using a Likert-type scale from 1 to 5, with 1 being never and 5 always.

Confirmatory factor analysis (CFA) showed a good fit of the data (χ^2 ($p < 0.001$); $\chi^2/df = 1.911$; RMSEA = 0.058; SRMR = 0.063; CFI = 0.913; TLI = 0.904). The Cron-

bach's alphas obtained were 0.915, 0.892, and 0.866, respectively, indicating good internal consistency.

The results of the exploratory and confirmatory factor analysis revealed the adequate fac-tor structure, internal consistency, and validity of the instrument. In addition, the EES is invariant with respect to gender.

The present study takes the factor of positive emotions toward exams (Cronbach's alpha 0.892) as a mediating variable in the mediation model.

The European Bullying Intervention Project Questionnaire (EBIPQ) is a scale that has been validated and translated into Spanish [30]. The instrument has demonstrated good psychometric properties in European countries and in Spain [31,32]. It is used to identify the prevalence of student involvement in bullying and categorizes it into victim, aggressor, victim and aggressor, and bystander (non-victim–non-aggressor) [33]. The questionnaire evaluates the frequency of aggressive behaviors or victimization, with the items specifically addressing various forms of bullying. Each subscale consists of 7 items, which are rated on a Likert-type scale ranging from 1 to 5. The response options include: No; Yes, once or twice; Yes, once or twice a month; Yes, about once a week; and Yes, more than once a week [40,41].

Academic Performance was assessed by calculating the average grade across all subjects in the most recent assessment. This measure serves as an objective (though not flawless) representation of the learning achievements in all subjects. In the Spanish education system, a uniform scoring system is employed across all educational levels (primary and secondary), where a final grade is assigned on a scale from 0 to 10.

The present study takes academic performance as the dependent variable in the mediation model.

2.4. Statistical Analysis

Firstly, a correlation analysis was conducted to examine the relationships between all variables included in the study: ICA, AP, and PE.

Secondly, the mediation analysis was performed using the PROCESS macro developed by Hayes [42] in SPSS. This macro allows for the estimation of indirect effects, standard errors, and confidence intervals using bootstrapping. The bootstrapping method enables statistical inference without relying on assumptions of normality or large sample sizes. In this study, a simple mediation model (PROCESS, model 4) was employed, and 10,000 boot-strapping samples were utilized. The significance of the mediated effects was assessed by examining whether the 95% confidence interval (CI) excluded the value of 0.

Finally, an analysis of variance (ANOVA) was conducted to assess significant differences in PE among different bullying categories. Additionally, a post-hoc test was per-formed to identify specific differences between individual groups.

3. Results

3.1. Correlation Analysis of Variables under Study

Table 1 shows the correlations of the variables involved in the study. Internal controllable attributions (ICA) are positively correlated with positive emotions (PE) and academic performance (AP). In addition, positive emotions (PE) are positively correlated with academic performance (AP). All these correlations are significant ($p < 0.001$).

Table 1. Results of the correlation analysis of the variables under study.

	1. ICA	**2. PE**	**3. AP**
1. ICA	-	0.514 **	0.585 **
2. PE		-	0.385 **
Mean	15.01	41.74	7.38
SD	3.32	9.61	1.35

ICA: internal controllable attributions; PE: positive emotions; AP: academic performance; SD: standard deviation. ** $p < 0.001$.

3.2. Internal Controllable Attributions–Positive Emotions about Exams–Academic Performance Mediation Model (PROCESS, Model 4)

In Figure 2, we report the data from the simple mediation model, using as a mediating variable the EPs to the exams, as a dependent variable the AP, and as an independent variable the ICAs. The model complies with the assumptions for the application of a simple mediation analysis: significant relationships between the independent variable and the dependent variable, between the independent and mediator variable, and between the mediator and the dependent variable. In addition, the value of c is greater than that of c'.

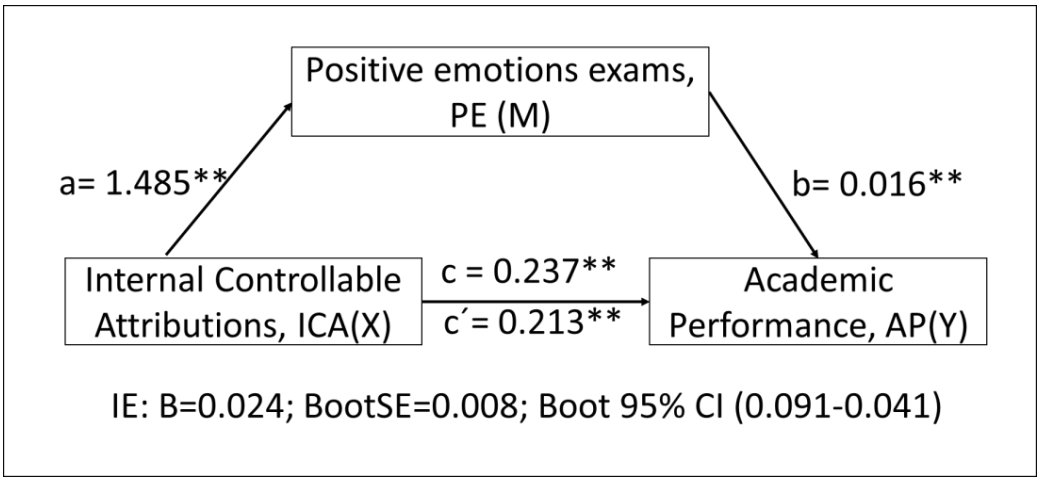

Figure 2. Diagram and results of simple mediation analysis: ICA-PE-AP (PROCESS 4). ** $p < 0.001$.

Table 2 shows the data from the mediation analysis. The results of the regression analysis between the mediating variable PE and the independent variable ICA show a significant positive relationship (a: B = 1.1485; SE = 0.105; $p < 0.001$). The results of the multiple linear regression analysis considering ICA and PE as predictor variables show a positive significant relationship between ICA and the dependent variable AP (c': B = 0.2134; SE = 0.016; $p < 0.001$) and between PE and AP (b: B = 0.0163; SE = 0.005; $p = 0.004$).

Table 2. Results of mediation analysis: ICA-PE-AP (PROCESS, Model 4).

Effects	**Path**	**β**	**SE**	***p***
Effect ICA-PE	a	1.485	0.105	<0.0001
Effect PE-AP	b	0.0163	0.005	0.004
Total effect ICA-AP	c	0.2375	0.014	<0.0001
Direct effect ICA-AP	c'	0.2134	0.016	<0.0001
PC total effect model (F = 290.663; $p < 0.001$; R2 = 0.34)				
Indirect Effects		**β**	**BootSE**	**Boot 95% CI**
				IL **LL**
Total Indirect effect		0.024	0.008	0.0091 0.0407

ICA: internal controllable attributions; PE: positive emotions; AP: academic performance.

The total effect of the independent variable ICA on the dependent variable AP was statistically significant (c: B = 0.2375; SE = 0.014; $p < 0.001$), with the model explaining 34% of the variance of the dependent variable AP. The statistical significance of the indirect effects was demonstrated by checking that the established confidence interval (95% CI) did not contain the value 0, finding a statistically significant indirect effect (B = 0.024; BootSE = 0.008; Boot 95% CI [0.0091~0.0407]).

3.3. Relationship between Positive Emotions and Bullying Categories

Tables 3 and 4 show the relationship between the PE and the different categories of bullying. Statistically significant differences are established between the bystander (42.819 ± 9.126) and victim (40.906 ± 10.171) categories (p = 0.049), with the bystander category demonstrating higher scores in PE. Significant differences are also found between the bystander and victim and aggressor categories (38.913 ± 10.154) (p = 0.001), with the bystander again demonstrating higher scores in PE, and the victim and aggressor category showing lower scores in PE.

Table 3. Descriptive statistics: positive emotions—bullying categories.

Bullying Categories	N	Mean	SD	95% Confidence Interval for Mean	
				Lower Bound	Upper Bound
Bystander	322	42.819	9.126	41.819	43.820
Victim	139	40.906	10.171	39.200	42.612
Aggressor	20	41.700	8.826	37.569	45.830
Victim and aggressor	31	38.913	10.154	36.668	41.158

Table 4. Multiple group comparison of bullying categories and positive emotions.

Bullying Categories		Mean Difference	Sig	95% Confidence Interval for Mean	
				Lower Bound	Upper Bound
Bystander	Victim	1.913	0.049	0.012	3.814
	Aggressor	1.119	0.611	−3.196	5.436
	Victim and aggressor	3.906	0.001	1.578	6.234
Victim	Bystander	−1.913	0.049	−3.814	−0.012
	Aggressor	−0.793	0.728	−5.273	3.686
	Victim and aggressor	1.992	0.135	−0.625	4.611
Aggressor	Bystander	−1.119	0.611	−5.436	3.196
	Victim	0.793	0.728	−3.686	5.273
	Victim and aggressor	2.786	0.242	−1.890	7.463
Victim and aggressor	Bystander	−3.906	0.001	−6.234	−1.578
	Victim	−1.992	0.135	−4.611	0.625
	Aggressor	−2.786	0.242	−7.463	1.890

4. Discussion

The aim of this work was to study the relationship between the ICA of academic success and AP mediated through the PE related to exams in students in the last few years of primary and the first few years of secondary education.

The results of the present study have shown significant relationships between all the variables analyzed, i.e., ICA, AP, and PE.

One of the fundamental theoretical perspectives when explaining AP is Weiner's attributional theory [43], which allows us to understand how students explain their academic successes and/or failures throughout their school career. According to this approach, students' behavior in the face of the demands of the school environment is based on interdependent episodes of both academic success and failure that are associated with positive or negative emotional responses [44,45].

Several studies show that if students experience a successful academic career, they are likely to develop a positive attributional style, attributing the causes of their success to internal and controllable causes, such as effort and ability [46]. This is why knowledge about this type of attribution facilitates an understanding of students' motivation when faced with the requirements and tasks of the school environment. Furthermore, the idea that success in the teaching–learning process is closely linked to and can be significantly

modified by variables such as emotions is pointed out [47]. Some studies agree that the rate of school success is closely related to the student's emotional satisfaction within the school environment [48]. In line with these data, the present study shows a positive correlation between positive emotions and academic achievement.

This study shows that ICAs have a direct effect on AP, and EPs allow students to enjoy academic activity and have a greater perception of success. Some studies investigating PE, such as pride and hope, obtain results that confirm the increased perception of academic success [49,50]. According to Fredrickson [51], EPs enhance the acquisition of more personal resources for complex tasks that are present in teaching–learning processes [50]. The activation of these emotions allows students to perceive successful task performance, as opposed to negative emotions that are related to perceptions of failure [21].

A different research study also finds that AP is positively associated with intrinsic motivation and student self-efficacy and negatively associated with academic anxiety. Intrinsic motivation is an independent predictor of AP [2]. The present study corroborates these data by showing a positive correlation between internal controllable attributions for success and academic performance, both in the total and direct effects. Moreover, according to a meta-analysis, AP is associated with emotional regulation and social–emotional education has a positive impact on AP. Emotional regulation can be improved and consequently also improve AP [1,52].

The present study focuses on positive emotions as a possible mediator between internal controllable attributions to success and academic performance. Specifically, it attempts to demonstrate that ICA will produce positive emotions that in turn will positively influence academic performance.

Significantly, success through hard work, effort, and/or dedication (ICA) activates positive emotions in individuals, reinforcing self-efficacy and self-esteem [46] When students experience success through effort, they are able to increase their self-efficacy and self-esteem. Several studies have shown that success through effort is positively related to positive emotions, such as joy and satisfaction [47–49]. The present study supports these data by showing a positive correlation between internal controllable attributions to success and positive emotions and the mediating role of positive emotions between internal controllable attributions and academic achievement.

Finally, the second objective posed by the research was to demonstrate the existence of a relationship between the different categories of bullying and PE. Our results have shown significant differences between the categories of non-victim aggression with victim and victim with aggression. The highest scores in PE were observed in the non-victim aggression category, while the victim with aggression category showed the lowest scores in PE. Other studies have more generally observed that experiences related to bullying in some way are associated with difficulties in regulating emotions, suggesting alterations in students' emotional intelligence, which may persist into adulthood [50,51]. However, it should be noted that those who fell under the victim with aggression category, in addition to showing the lowest scores in PE, were those who showed the lowest AP according to a previous article with the same sample of students, where statistically significant differences were also observed with respect to the categories of bullying and AP [35]. The same is true for those who fall under the non-victim aggression category, with the highest scores in both PE and AP.

Consequently, generating positive emotional environments in classrooms, away from bullying-related behaviors, favors the development of emotional competencies in students and therefore contributes to their academic development, increasing their interest in learning and improving their competencies [25].

As limitations, it should be noted that the sample was taken only from Spain and therefore it is difficult to generalize the results to the entire world population. It is important to take into account the effect of culture when attempting to extend the results to another population. Moreover, the use of self-report questionnaires may be a limitation of the research, so they should be interpreted with caution, despite being questionnaires that have

demonstrated good internal consistency, validity, and reliability. Furthermore, studies in this area are scarce and there is a need for further research.

Taking into account the PE variable as a mediating variable represents a turning point when analyzing the influence of ICA on AP, so it would be interesting to collect more information by expanding the sample and data in subsequent studies. However, the scarcity of information and studies in this regard has made it difficult to compare our results with other research carried out.

5. Conclusions

In conclusion, it should be noted that research has indicated a close relationship be-tween AP, PE, and ICA. Controllable internal attributions of success, related to effort, facilitate the presence of positive emotions toward exams, such as pride or enthusiasm. Positive emotions positively influence academic performance. Controllable internal attributions of success show a positive relationship with academic performance, with positive emotions acting as a mediator toward academic success.

This provides us with a significant and positive predictor model for the prediction of AP as a function of ICA explained by the mediating variable of PE.

Likewise, a relationship has been established between PE and certain categories of bullying, showing that those who had lower AP [35] due to falling into a bullying category also had lower scores in PE; at the same time, bullying categories related to higher AP according to previous research showed more PE.

Therefore, we can consistently state that PE is a very powerful mediating variable to define a student's AP, taking into account ICA, and that being involved or not in behaviors related to bullying in some way can determine the student's PE and their AP.

Teachers and parents should take this information into account and work together to support the emotional and academic development of students.

According to the results obtained, socioemotional intervention is an important point, as emotional regulation to improve the well-being and emotional health of students, since its influence on academic performance has been demonstrated. Improving students' emotional awareness will have a positive impact on their academic performance [1].

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children

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Article

Neuropsychiatric Manifestations, Reduced Self-Esteem and Poor Quality of Life in Children and Adolescents with Neurofibromatosis Type 1 (NF1): The Impact of Symptom Visibility and Bullying Behavior

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Abstract: Neurofibromatosis type 1 (NF1) is an autosomal dominant condition, associated with neurocutaneous manifestations and neuropsychiatric manifestations. The present study explored the prevalence of bullying/cyberbullying behaviors and victimization behaviors in a cohort of children and adolescents with NF1. Possible gender differences and predictors of psychological symptoms, quality of life (QoL), and self-esteem were also examined. Thirty-eight school-aged participants with NF1 completed a psychological evaluation designed to assess anxiety and depression symptomatology, QoL, self-esteem, and the prevalence and extent of bullying/cyberbullying and victimization behaviors. We found that our participants frequently reported victimization behaviors rather than bullying/cyberbullying ones. Moreover, participants complained of depressive and anxiety symptomatology together with reduced self-esteem, and low psychosocial quality of life, with females reporting more severe performances than males. Furthermore, we found that reduced self-esteem was associated with more visibility of the NF1 symptoms, and victimization behaviors were found to mediate the relationship between anxiety and psychosocial QoL. Our findings indicated the presence of a maladaptive loop in children and adolescents with NF1 patients characterized by psychological symptoms, unfavorable self-perception, low self-esteem, and psychosocial difficulties that might be worsened by experiencing victimization behaviors. These results suggest the need to use a multidisciplinary approach in the diagnosis and treatment of NF1.

Keywords: neurofibromatosis type 1 (NF1); children; adolescents; bullying; victimization; psychological symptoms

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1. Introduction

Neurofibromatosis type 1 (NF1) is an autosomal dominant condition, with a prevalence of 1 in 3000 live births. It is due to heterozygous pathogenetic variants in the homonym gene codifying for the ubiquitous protein neurofibromin which is a negative regulator of the RAS/MAPkinase pathway [1]. NF1 can be sporadic or familial depending on whether the NF1 variant is de novo or inherited from an affected parent. NF1 is a multisystemic disorder since it may involve nervous, skeletal, cardiovascular, and endocrine systems, and may present an unpredictable phenotype, age-dependent appearance of key features, and very few genotype–phenotype correlations found to date. Revised diagnostic criteria for NF1 have been provided by Legius and colleagues [1] to help clinicians in identifying and differentiating NF1 and Legius syndrome that show phenotypic overlap in young patients with pigmentary findings.

Children and adolescents with NF1 may develop tumors primarily involving the nervous system including plexiform, cutaneous, and nodular neurofibromas, which have an aesthetic and potentially disfiguring effect. From the aesthetic point of view, patients tend to present facial dysmorphic features similar to those of the Noonan syndrome, scoliosis, thoracic abnormalities, a lower height than expected, macrocephaly, and also segmental overgrowth (elephantiasis neuromatosa) [2,3].

Along with these clinical manifestations, impairment in language and visuospatial abilities, executive dysfunctions, attention difficulties as well as poor emotional and social skills have been reported in NF1 [4]. Moreover, other neurodevelopmental disorders such as learning disabilities, often in the realm of reading, and Attention-Deficit/Hyperactivity Disorder (ADHD) may appear in comorbidity [5,6]. All these conditions are not mutually exclusive and can co-occur leading to challenging neurocognitive profiles of children with NF1 for diagnostic and therapeutic purposes.

Indeed, adult NF1 patients with neurofibromatosis reported significantly more behavioral symptoms, higher levels of perceived stress, and lower levels of self-esteem as compared with the general population [7]; depression and anxiety symptoms are very frequent [7,8], and more severe than in patients with life-threatening diseases such as cancer [9,10]. In addition, NF1 is linked to poor quality of life (QoL) subdomains such as physical function, bodily pain, mental health, social function, and general health in adults and young patients [11–13] and women reported worse NF1-related QoL than men [14]. Psychological symptoms such as anxiety, depression, inattention, impulsivity, internalizing and externalizing disturbances, as well as difficulties in socializing, have also been reported in children and adolescents with NF1 [15–17].

Despite some strong evidence suggesting that children affected by NF1 may have low-level QoL compared to the general population [11,16,18,19], a recent review by Sanagoo and colleagues [12] failed to confirm this result. Thus, further studies should clarify the impact of NF1 on patients' QoL.

Considering that physical manifestations negatively impact on psychosocial and emotional adaptation [20], NF1-related features and complications (i.e., cutaneous neurofibromas and severe scoliosis) may negatively affect the psychological wellness of individuals with NF1 both in adulthood and childhood.

Cutaneous neurofibromas, particularly those in visible areas of the body such as the face and upper limbs, seem to be associated with reduced QoL [21]. However, a study by Cipolletta and colleagues [11] examining psychosocial functioning, QoL, and the self-image of children with NF1 indicated that poor QoL and distorted self-image could not be explained by the mere presence of aesthetic malformations without considering the possible confounding effects of anxiety and depression. Therefore, clinicians should evaluate the occurrence of psychological symptoms due to their impact on QoL [22].

Experiencing bully–victim behaviors might also increase the severity of psychological symptoms [23,24]. Bullying is a complex psychosocial phenomenon defined as repeated exposure to verbal, physical, and/or socially harmful behaviors by other individuals [25] that due to the development of new communication technologies and their use among youngsters can also occur in cyberspace. In addition to its prolonged duration over time, intentionality and the imbalance of power between the bully and the victim are two key characteristics of bullying [26]. In fact, the phenomenon of bullying can be analyzed from two different perspectives: one of the bullies and that of the victim. Bullies usually are physically stronger than their victims and are socially valued by their followers, while, in contrast, the victims are weaker, insecure, with low self-esteem, and tend to avoid conflict [27]. Then, victimization behaviors represent the other side of the coin and are associated with the development of internalizing symptoms such as anxiety and depression [28].

Furthermore, the emergence of new technological advancements and communication channels led to the advent of new forms of bullying. The term "cyberbullying" refers to aggressive actions carried out through technology-mediated communication (i.e., internet or mobile phones) that are intentional and practiced by a group or individual against one

or more victims [29]. Their characteristics are such that these behaviors can be carried out at any time and from any place (even if the victim is not online) and that the perpetrators may reach a much wider audience whilst remaining anonymous [30,31]. In addition, cyberbullies do not necessarily have certain personal or physical traits and qualities such as physical dominance or the social competence required for traditional bullying and may perpetrate their bullying behaviors simply through the outward expression of hate using social media. Nevertheless, cybervictimization's consequences on the victim's health are as severe as face-to-face bullying leading to depressive and somatic symptoms, higher levels of stress, and suicidal ideation [32–34].

However, few studies have investigated the occurrence and severity of bullying behaviors in the NF1 population. A study by Holland and colleagues [35] using an NF1 school-aged cohort found that about 62.0% of participants have been bullied at least once in the past year and 13.6% reported being victimized every week, whereas a study by Hummelvoll and Antonsen [36] in young adults with NF1 provided evidence of frequent victimization behaviors over the course of the life. Moreover, a study by Stavinoha and colleagues [37] exploring the possible risk factors for bullying in NF1 revealed that the occurrence of ADHD and/or information processing difficulties contributes to social difficulties representing a risk factor for social victimization in children with NF1. Nevertheless, to the best of our knowledge, no study has explored frequency, severity, and psychological consequences in school-aged individuals with NF1.

To date, the present study aimed at exploring the prevalence and the severity of bullying/victimization and cyberbullying/cybervictimization behaviors by analyzing possible sex differences and risk factors in a cohort of children and adolescent outpatients with NF1. Moreover, we aimed at exploring possible consequences of bullying behaviors (in all its manifestations) in terms of psychological symptoms (i.e., depression and anxiety), QoL, and self-esteem.

2. Materials and Methods

2.1. Subjects and Procedure

Thirty-eight consecutive participants were recruited at the Pediatric Neurofibromatosis Referral Center of the University of Campania "Luigi Vanvitelli". All participants met the following criteria: (i.) a diagnosis of NF1 established according to the revised criteria published by Legius and colleagues [1]; (ii.) absence of intellectual disability according to the Diagnostic and Statistical Manual of Mental Disorders 5 [38]; (iii.) absence of other neurological or disabling conditions. Clinical data about familiarity with NF1 disease, the number of hospitalizations (both in and out-patient care), the number of surgical and pharmacological therapies, and neuropsychiatric comorbidity were collected for each patient through the clinical note.

2.2. Pediatric and Psychological Assessment

At first, participants underwent a pediatric visit that lasted approximately 30 min and subsequently participated in the psychological assessment in a single session that lasted approximately 90 min.

Disease severity and the extent of symptom visibility were evaluated according to a modified version of Ablon's scoring system [39] (see Table S1 (Supplementary Materials)). Specifically, two blinded clinicians with experience in pediatric care of NF1 (CS, SP) evaluated Ablon's clinical score separately and discussed divergent results.

All participants underwent: (i) the Children's Depression Inventory−2 [40] to identify depressive symptomatology; (ii) the Revised Children's Manifest Anxiety Scale −2 [41], a self-report tool to assess anxiety symptoms; (iii) the Rosenberg Self-Esteem Scale [42] to assess the attitude and consideration that a person has of himself; (iv) the psychosocial sub-scale of the Pediatric Quality Of Life Inventory self-report [43] in order to measure the psychosocial QoL in clinical and non-clinical children and adolescents; (v) a modified version of Olweus Bully/Victim Questionnaire [44] to specifically evaluate the presence and

the severity of bullying and victimization behaviors; (vi) the Students' Needs Assessment Survey [45] to detect and characterize the type of cyberbullying and cybervictimization behaviors.

Custodial adults and children's written informed consent were obtained to allow the data collection and its use for research purposes. Participants were informed that participation in the psychological assessment was on a voluntary basis and that if they wanted, they could withdraw from the face-to-face interview at any time. None of them withdrew from the study. Participants were also reassured about the protection of their privacy. Data were collected and stored under law 196 of 30 June 2003, art. 13, and subsequent amendments; information provided by participants was used only for scientific and statistical purposes.

The study was carried out in 2019, conducted following the ethical standards of the Declaration of Helsinki and its later amendments, and approved by the Ethics Committee of the University of Campania "Luigi Vanvitelli".

2.3. Statistical Analysis

Demographic, clinical, and behavioral characteristics of the sample were compared between male and female participants using the non-parametric Mann–Whitney *U* test.

We evaluated the association of anxiety, depression, self-esteem, and psychosocial QoL with demographic, clinical, and behavioral variables in the whole sample carrying out several multiple regression analyses: demographic (i.e., sex and age), clinical (i.e., symptoms' severity and visibility), and behavioral (i.e., psychological symptoms and bully/victimization behaviors) variables were entered as independent variables and anxiety, depression, psychosocial QoL, and self-esteem scores as dependent ones.

Furthermore, in order to explore whether and how victimization behaviors mediated the relationship between psychological symptoms (i.e., depression and anxiety) and participants' psychosocial QoL, we carried out a parallel mediation analysis entering the score on psychosocial QoL as the dependent variable, depression and anxiety scores as predictors, and scores on tests evaluating the level of victimization/cybervictimization behaviors as parallel mediators. This analysis was performed using SPSS Macro PROCESS [46] and bootstrapping procedure with 5000 samples and replacement from the full sample was applied to construct bias-corrected 95% confidence intervals (hereafter 95% CI; LL = lower level of the confidence interval; UL = upper level of confidence interval).

The critical alpha level for all analyses was set at 0.05. All analyses were performed with IBM SPSS-20.

3. Results

In this study, we enrolled 38 NF1 outpatients (17 females and 21 males) aged between 7 and 16. The sociodemographic and behavioral characteristics are shown in Table 1.

We found 20 participants (52.6%) reported victimization behaviors and 11 participants (28.9%) reported bullying behaviors, once or twice in the past six months. Using the more restrictive criteria by Solberg and Olweus [47], we observed victimization behaviors in nine participants (23.7%) and bullying behaviors in three (7.9%). Regarding cyberbullying/cybervictimization we found 12 (31.6%) participants had experienced cybervictimization behavior and 6 (15.8%) cyberbullying behavior.

In addition, anxiety symptoms, assessed by the RCMAS-2 total score, ranged from moderate to severe in seven participants (18.4%); depressive symptomatology, evaluated by CDI-2 total score, was clinically significant in two participants (5.3%); self-esteem, evaluated by RSES, was significantly low in five participants (12.8%) within our sample.

Furthermore, we found the mean score of psychosocial QoL, assessed by PedsQoL, in our sample was 74.2 (SD = 14.86).

Regarding disease severity and symptom visibility, evaluated by Ablon's modified scale, we found that 14 participants (36.8%) reported mild severity, 19 participants (50%) reported moderate severity and 5 (13.2%) reported severe symptomatology of NF1 disease. Instead, symptoms' visibility was mild in 6 (15.8%) participants, moderate in 22 (57.9%),

and severe in 3 (7.9%) of them. We found that seven (18.4%) participants did not report any NF1 visible manifestation.

Table 1. Comparisons of demographic, clinical, and behavioral variables between males and females.

	Males (*n* = 21)	**Females (*n* = 17)**	**U Mann–Whitney/X²**	***p*-Value**
Age, years mean (SD)	13.80 (3.00)	13.94 (3.02)	172.00	0.84
OV, mean (SD)	9.61 (9.73)	12.29 (15.74)	173.00	0.86
DHV, mean (SD)	0.04 (0.21)	1.4 (2.98)	132.50	0.06 *
SU-T, mean (%)	7 (35)	5 (29.4)	0.13	0.71
PH-T, *n* (%)	0	3 (17.6)	4.02	0.04 *
NP, *n* (%)	8 (38.1)	4 (23.5)	0.92	0.33
Severity, mean (SD)	1.71 (0.64)	1.82 (0.72)	165.00	0.66
Visibility, mean (SD)	1.42 (0.87)	1.70 (.091)	144.00	0.25
Familiarity, *n* (%)	8 (38.1)	8 (47.1)	0.31	0.57
School support, *n* (%)	5 (23.8)	2 (11.8)	0.90	0.34
VICT, *n* (%)	2 (9.5)	7 (41.2)	5.20	0.02 *
BUL, *n* (%)	1 (4.8)	2 (11.8)	0.63	0.42
CV, *n* (%)	5 (23.8)	7 (41.2)	1.31	0.25
CB, *n* (%)	4 (19)	2 (11.8)	0.73	0.54
CDI, mean (SD)	5.38 (4.09)	10.24 (6.67)	94.50	0.01 *
CDI, *n* (%)	0	2 (11.7)	2.60	0.10
RCMAS, mean (SD)	6.14 (4.17)	18.35 (8.50)	41.00	<0.01 *
RCMAS, *n* (%)	0	7 (41.1)	10.60	<0.01 *
RSES, mean (SD)	23.52 (14.17)	16.41 (4.54)	26.00	0.00 *
RSES, *n* (%)	0	5 (29.4)	7.11	<0.01 *
PedsQoL-PS, mean (SD)	79.31 (12.64)	68.03 (15.37)	101.00	0.02 *

SD = Standard Deviation; *n* = Number of participants; OV = Outpatient Visits; DHV = Day Hospital Visits; SU-T = Surgical Therapy; PH-T = Pharmacological Therapy; NP = Neuropsychiatric comorbidity; VICT = Victimization; BUL = Bullying; CV = Cybervictimization; CB = Cyberbullying; CDI = Children's Depression Inventory-2; RCMAS = Revised Children's Manifest Anxiety Scale-2; RSES = Rosenberg Self-Esteem Scale; PedsQoL-PS = Psychosocial Pediatric Quality of Life; * = significative difference (alpha level < 0.05) between two groups.

The comparison between females and males showed that female participants reported more severe anxiety and depression symptoms, lower self-esteem, lower psychosocial QoL, more frequency of victimization behaviors, more use of pharmacological therapies, and more frequency of day hospital visits, compared to male participants (see Table 1).

3.1. Sociodemographic and Behavioral Predictors of Psychological Variables and Psychosocial QoL

As for anxiety symptoms, linear regression analysis indicated that higher anxiety was associated with the female sex (B = 4.275, t = 2.066, p = 0.048), more cybervictimization behaviors (B = 1.310, t= 2.135, p = 0.041), more severe depressive symptomatology (B = 0.429, t = 2.548, p = 0.016), and lower self-esteem (B = −0.686, t = −2.904, p = 0.007). At the same time, more severe depression was related to more severe anxiety (B = 0.427, t = 2.548, p = 0.016).

Considering self-esteem, linear regression analysis showed that reduced self-esteem was associated with more severe anxiety (B = −0.350, t = −2.785, p = 0.009) and greater visibility of the symptoms (B = −2.638, t = −3.004, p = 0.006).

Finally, poorer psychosocial QoL was associated with more severe anxiety (B= − 0.920, t = −2.286, p = 0.030) and more victimization behaviors (B = −1.194, t = −2.412, p = 0.023).

3.2. Mediation Analysis

A mediation model was designed to test the possible mediation effect of victimization behaviors on the relationships between psychological symptoms and psychosocial QoL.

More severe anxiety symptoms were related to more victimization behaviors (B = 0.191; p = 0.041) but not to cybervictimization behaviors (B = 0.056; p = 0.115), while no significant relationship emerged between depressive symptoms and victimization (B = −0.044;

$p = 0.748$) and cybervictimization behaviors ($B = 0.000$; $p = 0.996$). Subsequently, more victimization behaviors ($B = -1.390$; $p = 0.005$) and more depressive symptoms ($B = -0.873$; $p = 0.024$) were related to reduced psychosocial QoL.

The 95% bias-corrected CI based on 5000 bootstrap samples revealed that the indirect effect of anxiety symptoms on psychological QoL through victimization behaviors was significant (Estimate effect: −0.265; 95% CI: −0.834–−0.016). The absence of a significant direct effect (Estimate effect: −0.495; 95% CI: −1.035–0.044) and the significance of the total effect (Estimate effect: −0.782; 95% CI: −1.328–−0.235) of anxiety symptoms on psychosocial QoL indicate a mediation of victimization behaviors (Figure 1).

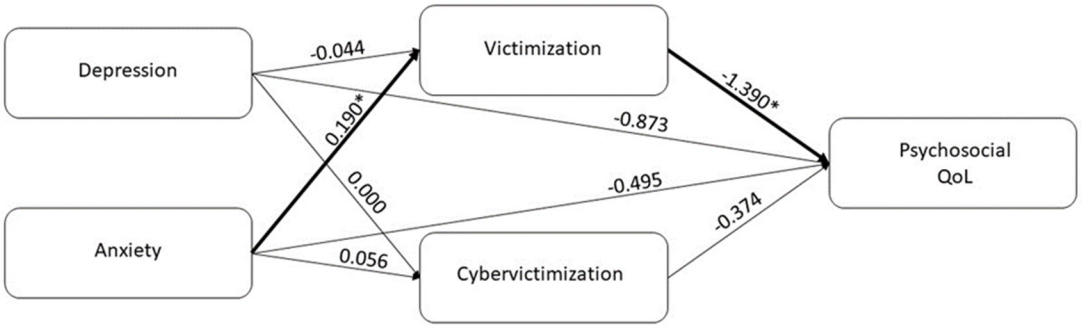

Figure 1. Scheme of the mediation effect of victimization behaviors in the relationship between anxiety and psychosocial quality of life (* $p < 0.05$).

4. Discussion

In the present study, we explored the occurrence and severity of bullying/victimization behaviors and psychological symptoms in a sample of children and adolescents with NF1. We also examined possible sex differences and the relationship between clinical aspects of NF1 disease and the psychosocial wellness of the patients with NF1.

We found that victimization behaviors were very frequent in our sample of NF1 patients; in fact, about 50% of them experienced victimization at least once in the last six months, while 23.7% experienced victimization several times in a month. These results are in line with the previous study by Holland and colleagues (2019) who reported an almost comparable prevalence rate (25.9%) of victimization behaviors higher than in the general population [33,48]. Cybervictimization behaviors were also frequent in our sample (31.6%) and this prevalence is higher compared to healthy peers [49]. Analyzing bullying instead, we found that patients with NF1 showed less traditional and cyberbullying behaviors (7.9% and 15.8%, respectively) than same school-aged peers ranging from 12.8% [48] to 23.0%, respectively [50].

As for the psychological profile of our NF1 patients, we found the presence of depressive and anxiety symptoms, reduced self-esteem, and worse QoL. Our findings of more severe anxiety and depression and poorer self-esteem and QoL are in line with previous studies revealing differences in psychological symptoms between NF1 patients and healthy subjects [11,13,16,51–53]. In particular, prevalence rates of anxiety and depression (18.4 and 5.3%, respectively) in our NF1 cohort were higher compared to same-school-aged peers (ranging from 3 to 6.21% for anxiety and from 1.66 to 2.1% for depression) [54,55].

Taken together, these findings may suggest that children and adolescents with NF1 experience more victimization behavior rather than taking on the role of bullies due to their psychological profile, characterized by higher levels of anxiety and low self-esteem [16,56], which is more compatible with the role of the victim instead of the bully. Moreover, this evidence further supports the presence of psychopathological manifestations in NF1; however, future pathophysiological studies should clarify whether these could be considered intrinsic features of NF1 rather than induced by multisystemic disease or secondary outcomes of the diagnosis.

Subsequently, we investigated the possible existence of gender differences in bullying and victimization experiences revealing differences only in victimization behaviors. In

contrast to other studies exploring gender differences in bullying [35,57,58], we found that females complained of more episodes of victimization behavior than males. These results could be affected by the use of the face-to-face interview rather than anonymous self-reported measures, thus leading male participants to be less willing to report their experiences of victimization [59]. Indeed, gender differences in bullying and victimization behaviors often reflect gender socialization, normative expectations as well as the exercise of social power with males experiencing more direct aggressive behaviors (e.g., physical aggressions) compared to females who experience indirect forms of aggression (e.g., exclusion from activities, rumor spreading) [35,57,58].

In addition, we found that females reported more severe anxiety and depression, reduced self-esteem, and poorer psychosocial QoL than males. These results are in line with previous studies in NF1 [14] and the general population [54,60,61] confirming that females are more at risk of developing psychological symptoms in everyday life and stressful situations due to biological vulnerabilities [62–64].

Furthermore, we explored the impact of demographic and clinical variables but also of bullying and victimization behaviors on the development of psychological symptoms, QoL, and self-esteem. We found that higher levels of anxiety were associated with female sex, more cybervictimization behaviors, worse depressive symptoms, and lower self-esteem; more severe depression scores were related to higher anxiety; reduced self-esteem was linked to more severe anxiety and more visibility of the NF1 symptoms; finally, poorer psychosocial QoL was linked to more severe anxiety and more victimization behaviors.

Our findings showed that experiencing victimization behaviors, in both face-to-face and cyber modalities, represents a risk factor for more severe anxiety and reduced psychosocial QoL. Considering that NF1 is often linked to anxiety [7,65,66], the occurrence of cybervictimization behaviors seems to exacerbate these symptoms [32,67,68] and escalate the risk of later symptoms as anxiety disorders [69,70]. Indeed, victimization behaviors are frequently reported by individuals who need special health care [71] leading to worse psychological manifestation and reduced QoL.

More specifically, our results indicated that the presence of victimization behaviors reduced the psychosocial QoL of NF1 patients in line with previous studies [23,72,73] and further support that being bullied during childhood and adolescence leads to long-term psychological consequences over the course of life [74,75].

We found that patients' self-esteem was impacted by the visibility of the NF1 phenotype. In our sample, seven participants reported no visible manifestation of the NF1 disease, and thus we adopted a modified version of Ablon's scale [39], whereas most of the participants reported aesthetic features that could represent a risk factor for the occurrence of psychological symptoms. Typical NF1 features such as café-au-lait spots, freckles of the skin folds, Lisch nodules in the iris, bone dysplasia, external neurofibromas, and scoliosis [76] are clearly visible causing psychological distress [77,78] and negatively affecting the patients' perceived body image and self-esteem [79]. In particular, childhood and adolescence are crucial periods for identity formation, and self-esteem is heavily influenced by the perceived body image since it plays a pivotal role in individuals' self-concept [80].

Moreover, because of these manifestations, people with NF1 might be stigmatized and experience severe psychological symptoms that could severely affect the establishment and maintenance of interpersonal relationships [19,39,81,82]. Taken together, our findings indicate the presence of a maladaptive loop in NF1 patients characterized by psychological symptoms, unfavorable self-perception, low self-esteem, and psychosocial difficulties that might be worsened by experiencing victimization behaviors as indicated by mediation analysis.

The evidence from the literature indicates that NF1 is characterized not only by neurological problems, physical–skeletal defects, visual problems, and hypertension but also by difficulties related to psychosocial well-being with important impacts on patients' mental health and QoL. Multidisciplinary approaches comprising surgical treatments to reduce the aesthetic impact of NF1-related alterations together with psychotherapy

interventions might promote psychological well-being in NF1 patients, especially in crucial stages of the development such as childhood and adolescence [83,84]. Indeed, surgery is often offered as a treatment for severe scoliosis, tibial dysplasia, reduction or removal of plexiform neurofibromas, and excision of cutaneous neurofibromas.

Nevertheless, some limitations of the present study should be addressed. First, the limited number of participants does not allow the generalization of the results. However, it should be considered that NF1 is a rare disease and that we decided to focus on children and adolescent patients further limiting the recruitment. The second limitation might be the absence of a control group since the aim of the present study was to explore the presence and severity of bullying/victimization behaviors in NF1 children and adolescents that represent an at-risk population for psychological consequences. Another limitation might be the adoption of the statements of children and adolescents to investigate bully-victim and cyberbullying/cybervictimization behaviors. The presence of other informants such as parents and teachers could have provided more reliable information. Further studies could overcome this limit by also exploring differences between NF1 patients and their caregivers' reports.

5. Conclusions

We estimated bullying and victimization experiences and evaluated behavioral and psychiatric variables in a cohort of children and adolescents with NF1. Our results confirm the impact of experiencing victimization behaviors on the psychosocial wellness of school-aged patients with NF1, an effect characterized by reduced self-esteem, internalizing disturbances, and difficulties in social interactions.

Therefore, we suggest using a multidisciplinary approach in the diagnosis and treatment of patients with NF1, through the involvement of experienced mental-health clinicians such as psychiatrists and psychologists. Moreover, we highlight the need to develop and implement timely interventions to promote equity and inclusion across social contexts for school-aged individuals with NF1 to avoid negative psychological consequences.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/children10020330/s1, Supplementary Material Table S1: Modified Ablon scale.

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

Data Availability Statement: The authors declare that all data used in the conduct of the analyses are available within the article and tables and figures. To protect the privacy and confidentiality of patients in this study, clinical data are not publicly available in a repository or in the Supplementary Materials of the article, but they can be made available upon reasonable request to the corresponding author. Those requests will be reviewed by a study steering committee to verify whether the request is subject to any intellectual property or confidentiality obligations. All data shared will be de-identified.

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