adolescents

Article

Factors Associated with the Prevalence and Treatment of Depression in Adolescent Males in the US during the Period of the COVID-19 Pandemic

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Abstract: Background: Much of the research on the effect of the COVID-19 pandemic on mental health has overlooked the experiences of adolescent boys. Objective: To examine the prevalence of depression, treatment trends, and associated risk factors among adolescent boys, controlling for the pandemic year. Methods: Data for boys aged 12 to 17 years (n = 4518) in the 2021 National Survey on Drug Use and Health were analyzed. Time trends and factors associated with depression were examined using a multiple regression analysis. Results: The prevalence of 12-month major depressive episodes (TMDEs) was 11.6% during the first year of the COVID-19 pandemic. Among the boys with TMDEs, 37.8% received treatment overall, and 19.0% received prescription medication. Higher rates of TMDEs were estimated in boys who were older (adjusted odds ratio (AOR): 1.66, $p < 0.001$), lived in single-mother households (AOR: 1.47, $p < 0.001$), did not have authoritative parents (AOR: 1.78, $p < 0.001$), and had negative school experiences (AOR: 2.45, $p < 0.001$). Although Black boys were less likely to report depression than white boys (AOR: 0.70, $p < 0.05$), nonwhite boys who had depression were significantly less likely to receive treatment. Boys living in a household without a mother were also less likely to receive treatment (AOR: 0.49, $p < 0.05$). Conclusions: This study reveals the unique developmental, social, and psychological factors that influence depression among adolescent boys. During the pandemic, more than one out of ten adolescent boys had a major depressive episode, and four of ten of them received treatment; half of these treatments were prescription medication. Recognizing these factors may allow for more targeted and effective interventions to improve mental health outcomes for this demographic.

Keywords: COVID-19; adolescent males; depression; treatment; risk factors; sex-specific differences

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1. Introduction

The COVID-19 pandemic has been a defining event for our generation, bringing about significant challenges. The spring 2020 shelter-in-place orders resulted in school closures, academic disruptions, social restrictions, and limited access to school-based mental health services [1]. The pandemic has been shown to have negatively affected the mental health and brain aging of adolescents [2]. Anxiety (28%) was the most reported psychological reaction, followed by depression (23%) [3–5]. Additionally, the COVID-19 pandemic's effect on socioeconomic, health, and psychological factors may increase the likelihood of suicidal behaviors [6].

Even before the pandemic era, mental health and mental illness among adolescent males were not topics of major academic research or clinical interest. This is due in part to

the dominant focus within mental health research on adolescent girls' higher reported rates of diagnosed mental disorders [7]. A meta-analysis found that the global prevalence of increased depressive symptoms among adolescent males was 24% [7]. Adolescent males may experience societal pressure to conceal symptoms commonly associated with femininity, resulting in a hesitancy to reveal emotional symptoms during diagnostic evaluations [8]. Additionally, males tend to suppress their emotions and may mask depressive symptoms through externalized actions, such as aggression, substance abuse, and risky behavior [9,10]. Unfortunately, this stoic approach and social dilemma threaten the well-being of depressed adolescent males and discourage them from accessing appropriate support resources [8,11]. This, in turn, can lead to delays in treatment and negatively impact their well-being [12].

Although adolescent boys are less likely to report depression than adolescent girls, the consequences of depression among the former can be more significant. Previous research has shown that although females are twice as likely as males to attempt suicide, males are four times more likely than females to die from suicide attempts [13,14]. This is particularly concerning considering that suicide ranks as the third leading cause of death among adolescents, with depression being one of the leading risk factors [15,16]. Therefore, depression among adolescent males requires similar attention to depression among adolescent females. However, there is a lack of evidence regarding its prevalence, especially after the COVID era. Previous studies mainly focused on adolescents in general, in women, or on specific racial/ethnic minority groups, neglecting adolescent boys' experiences. This study aims to fill the research gap with respect to the prevalence of depression among adolescent males and identify factors associated with depression and related treatments.

2. Materials and Methods

This study used publicly available 2021 National Survey on Drug Use and Health (NSDUH) files [17]. The data are nationally representative of boys aged 12 to 17 in the civilian, noninstitutionalized US population and include demographic characteristics, income, insurance coverage, household status (e.g., whether one has a father or mother in the household, has siblings under 18, or lives with authoritative parents), school experience, and information related to major depression and treatment for major depression. The survey covers residents of households, people in noninstitutional group quarters, and civilians living on military bases. The survey was administered in English and Spanish, and interviews were conducted using computer-assisted interviewing. Due to the pandemic, the 2021 survey was administered both in-person and via web interviews. Individuals experiencing homelessness, active military personnel, and residents of institutional group quarters such as jails, nursing homes, mental institutions, and long-term care hospitals were excluded from the survey.

Adolescent boys' depression was measured as having a twelve-month major depressive episode (TMDE), which was identified if they had depression lasting two weeks or longer in the past 12 months [18,19]. The structured interview was based on the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV). Specific questions were adapted from the depression section of the National Comorbidity Survey—Adolescent (NCS-A), which was based on a modified version of the World Health Organization Composite International Diagnostic Interview (CIDI)—Short Form. In particular, they were asked if they had experienced a depressed mood or a loss of interest or pleasure in daily activities for 2 weeks or longer at any point in their lifetime while also experiencing four or more other symptoms that reflect a change in functioning, such as problems with sleep, eating, energy, concentration, and self-worth. Teen boys who had a TMDE were asked if they had seen a doctor or other professional and received prescription medication for their depression symptoms. We used the answers to this question to assess the likelihood of receiving treatment.

Three distinct age groups were considered: 12–13, 14–15, and 16–17 years. The boys were further categorized based on their race or ethnicity: non-Hispanic white, Hispanic, Black, Asian, and Native Hawaiian or another Pacific Islander (NHPI). Boys who identified

as non-Hispanic and as having more than one racial background and those from groups with insufficient data for statistical analysis (such as American Indians and Alaska Natives) were categorized as "other race/ethnicity". We categorized boys as being with or without insurance. Household annual income was classified into five categories: less than USD 20,000, USD 20,000–USD 49,999, USD 50,000–USD 74,999, and USD 75,000 or more. The boys were asked three questions about their family structure, including whether they had a father or any siblings under 18 years of age in the household.

The authoritative parenting style was first defined by development psychologist Diane Baumrind as an approach to child-rearing that combines warmth, sensitivity, and the setting of limits [16,20]. It has been shown that children raised under an authoritative parenting style tend to be mentally healthy [16]. In the NSDUH, parenting style is identified using a series of questions related to warmth (e.g., letting the child know they did a good job and showing pride in them), limit-setting (e.g., regarding time spent watching TV or going out with friends), and sensitivity (e.g., helping with homework, doing chores around the house). Responses relating to school experience were dichotomized using the median split into positive or negative experiences.

Our first goal was to determine the proportion of adolescent boys with major depressive disorder (MDE) at the initial phase of the pandemic, when shelter-in-place orders were applied. We then analyzed the risk factors associated with MDE and MDE treatment. Interaction terms were tested to identify whether the combination of these risk factors has any effect on the outcome.

Descriptive analyses were performed to characterize the sample of adolescent boys, including their sociodemographic characteristics, school experience, and their parents' parenting style. Bivariate and multivariate analyses were conducted. Pearson's $\chi 2$ tests were used to assess bivariate association, and multivariable logistic regression analyses were conducted to explore the risk factors associated with MDE and treatment for MDE. Both odds ratios and adjusted odds ratios were presented. All statistical analyses were conducted using RStudio software version 2023.06.0 + 421 and accounted for the NSDUH's complex design and sampling weights.

3. Results

In 2021, a total of 4518 boys (aged 12–17 years old) were surveyed. Within the sample, 51.5% were white, 95.8% had health insurance, 48.8% had a household income greater than USD 75,000, 74.2% resided with a father, and 91.1% resided with a mother. Moreover, 23.5% of adolescent males said their parents were authoritative in raising them, and only 18.5% were happy with their educational experiences (Table 1).

The prevalence of TMDEs was 11.6%. Among the boys with a TMDE, 37.8% received overall treatment and 19.0% received prescribed medication.

The factors associated with the likelihood of having depression (TMDE) lasting two weeks or longer in the past 12 months are presented in Table 2. Compared with boys aged 12 to 13 years, those in the 14–15- and 16–17-year age groups were more likely to have a TMDE (AOR = 1.66, $p < 0.001$; AOR = 2.47, $p < 0.001$). Black boys were less significantly likely than their white counterparts to have a TMDE (AOR = 0.70, $p < 0.05$). Insurance coverage and household income were not related to the likelihood of having depression. Adolescent boys with less authoritative parents were significantly more likely to have a TMDE (AOR = 1.78, $p < 0.001$). As expected, negative school experiences further increased the boys' likelihood of having a TMDE (AOR = 2.45, $p < 0.001$). With respect to family influences, the absence of a father significantly increased TMDEs (AOR = 1.47, $p < 0.01$), but the absence of a mother did not contribute to the likelihood of having a TMDE.

The factors associated with the likelihood of seeing a doctor to treat TMDE symptoms are presented in Table 3, and the likelihood of being prescribed medication is presented in Table 4. Compared with boys 12 to 13 years old, those in the 16–17 age group were 2.2 times more likely to receive medication (AOR = 2.22, $p < 0.01$). White boys were more likely to receive treatment relative to other race/ethnicity groups. Those without health

insurance were less likely to seek treatment and receive medication treatment for TMDE symptoms (AOR = 0.87, $p > 0.05$, AOR = 0.86, $p > 0.05$), but these values were not statistically significant. Having an authoritative parent did not influence the likelihood of receiving treatment for a TMDE or the use of medication for a TMDE. Boys with negative school experiences were less likely to seek treatment for a TMDE (AOR = 0.42, $p < 0.05$). Moreover, boys living without mothers were less likely to seek and receive medication treatment (AOR = 0.25, $p < 0.05$). The results did not change when several interaction terms among explanatory variables were added.

Table 1. Descriptive statistics for the sample of US male adolescents 12 to 17 years old in the NSDUH, 2021 (n = 4518).

Sociodemographic Characteristic	Weighted %
Age (y)	
12–13	31.2
14–15	34.8
16–17	34.0
Race	
White	51.5
Hispanic	22.4
Black	13.4
Asian/NHPI	5.4
Other	7.3
Having insurance coverage	95.8
Household income, USD	
<20,000	13.2
20,000–49,999	24.1
50,000–74,999	13.9
>75,000	48.8
Father in household	74.2
Mother in household	91.1
Having authoritative parent(s)	23.5
Having positive school experiences	18.5

Table 2. Bivariate and multivariable analyses of MDE predictors in the sample of US male adolescents in the NSDUH, 2021 (n = 4518).

		12-Month MDE		
		%	OR (95% CI)	AOR (95% CI)
Age (y)	12–13 (Ref.)	2.1		
	14–15	3.9	1.78 (1.38, 2.32) ***	1.66 (1.28, 2.17) ***
	16–17	5.6	2.74 (2.14, 3.53) ***	2.47 (1.92, 3.18) ***
Race	White (Ref.)	6.0		
	Hispanic	3.1	1.20 (0.97, 1.50)	1.20 (0.95, 1.52)
	Black	1.2	0.71 (0.52, 0.96) *	0.70 (0.50, 0.98) *
	Asian/NHPI	0.4	0.60 (0.35, 0.95) *	0.62 (0.37, 1.03)
	Other	1.0	1.14 (0.80, 1.59)	1.11 (0.78, 1.57)

Table 2. *Cont.*

		12-Month MDE		
		%	OR (95% CI)	AOR (95% CI)
Insurance coverage	Yes (Ref.)	11.0		
	No	0.6	1.16 (0.74, 1.76)	1.03 (0.66, 1.62)
Household income, USD	<20,000 (Ref.)	1.4		
	20,000–49,999	3.1	1.22 (0.90, 1.68)	1.20 (0.87, 1.66)
	50,000–74,999	1.5	1.02 (0.71, 1.47)	1.05 (0.72, 1.54)
	>75,000	5.6	1.08 (0.81, 1.45)	1.17 (0.84, 1.63)
Father in household	Yes (Ref.)	7.9		
	No	3.7	1.41 (1.15, 1.71) ***	1.47 (1.18, 1.83) ***
Mother in household	Yes (Ref.)	10.4		
	No	1.2	1.20 (0.88, 1.62)	1.07 (0.78, 1.47)
Authoritative parenting	High (Ref.)	1.4		
	Low	10.2	2.34 (1.80, 3.09) ***	1.78 (1.35, 2.35) ***
School experiences	Positive (Ref.)	0.9		
	Negative	10.7	3.01 (2.19, 4.25) ***	2.45 (1.75, 3.43) ***

All variables listed were included in the multivariable model to predict 12-month MDE. * $p < 0.05$. *** $p < 0.001$. Abbreviations: AOR, multivariable adjusted odds ratio; CI, confidence interval; OR, crude odds ratio; Ref., reference group.

Table 3. Bivariate and multivariable analyses of predictors of MDE treatments in the sample of US male adolescents with a TMDE in the NSDUH, 2021 (n = 521).

		12-Month Treatment Overall		
		%	OR (95% CI)	AOR (95% CI)
Age (y)	12–13 (Ref.)	6.1		
	14–15	11.5	0.98 (0.58, 1.67)	1.06 (0.61, 1.83)
	16–17	20.2	1.37 (0.84, 2.27)	1.65 (0.98, 2.78)
Race	White (Ref.)	23.2		
	Hispanic	8.3	0.56 (0.36, 0.86) **	0.54 (0.34, 0.85) **
	Black	3.5	0.66 (0.35, 1.21)	0.49 (0.25, 0.96) *
	Asian/NHPI	1.0	0.48 (0.15, 1.30)	0.48 (0.17, 1.41)
	Other	1.9	0.39 (0.17, 0.79) *	0.37 (0.17, 0.79) *
Insurance coverage	Yes (Ref.)	36.3		
	No	1.5	0.76 (0.31, 1.75)	0.87 (0.36, 2.12)
Household income, USD	<20,000 (Ref.)	5.2		
	20,000–49,999	9.8	0.80 (0.44, 1.48)	0.85 (0.45, 1.61)
	50,000–74,999	4.6	0.76 (0.38, 1.55)	0.74 (0.35, 1.59)
	>75,000	18.2	0.83 (0.48, 1.46)	0.80 (0.42, 1.50)
Father in household	Yes (Ref.)	24.8		
	No	13.1	1.22 (0.83, 1.77)	1.36 (0.88, 2.09)

Table 3. *Cont.*

		12-Month Treatment Overall		
		%	OR (95% CI)	AOR (95% CI)
Mother in household	Yes (Ref.)	35.1		
	No	2.7	0.54 (0.28, 1.00)	0.49 (0.25, 0.96) *
Authoritative parenting	High (Ref.)	5.0		
	Low	32.8	0.87 (0.51, 1.50)	0.93 (0.53, 1.64)
School experiences	Positive (Ref.)	4.2		
	Negative	33.6	0.44 (0.22, 0.85) *	0.42 (0.21, 0.83) *

All variables listed were included in the multivariable model to predict 12-month treatment overall. * $p < 0.05$. ** $p < 0.01$. Abbreviations: AOR, multivariable adjusted odds ratio; CI, confidence interval; OR, crude odds ratio; Ref., reference group.

Table 4. Bivariate and multivariable analyses of MDE predictors of MDE medication use in the sample of US male adolescents with a TMDE in the NSDUH 2021 (n = 521).

		12-Month Prescription Medication		
		%	OR (95% CI)	AOR (95% CI)
Age (y)	12–13 (Ref.)	2.1		
	14–15	6.9	1.90 (0.95, 4.11)	2.05 (0.97, 4.35)
	16–17	10.0	1.95 (1.00, 4.10)	2.22 (1.08, 4.58) *
Race	White (Ref.)	12.9		
	Hispanic	3.5	0.46 (0.25, 0.79) **	0.42 (0.23, 0.75) **
	Black	1.0	0.32 (0.11, 0.78) *	0.28 (0.10, 0.75) *
	Asian/NHPI	0.4	0.38 (0.06, 1.38)	0.37 (0.08, 1.70)
	Other	1.3	0.61 (0.24, 1.36)	0.60 (0.25, 1.43)
Insurance coverage	Yes (Ref.)	18.2		
	No	0.8	0.80 (0.23, 2.17)	0.86 (0.28, 2.68)
Household income, USD	<20,000 (Ref.)	2.3		
	20,000–49,999	5.4	1.10 (0.53, 2.41)	1.11 (0.50, 2.48)
	50,000–74,999	2.7	1.14 (0.48, 2.74)	0.92 (0.36, 2.34)
	>75,000	8.6	0.94 (0.48, 1.98)	0.65 (0.29, 1.44)
Father in household	Yes (Ref.)	13.6		
	No	5.4	0.81 (0.49, 1.30)	0.89 (0.52, 1.54)
Mother in household	Yes (Ref.)	18.2		
	No	0.8	0.31 (0.09, 0.79) *	0.25 (0.09, 0.74) *
Authoritative parenting	High (Ref.)	1.9		
	Low	17.1	1.31 (0.67, 2.81)	1.30 (0.62, 2.74)
School experiences	Positive (Ref.)	1.7		
	Negative	17.3	0.77 (0.36, 1.76)	0.69 (0.30, 1.57)

All variables listed were included in the multivariable model to predict 12-month prescription medication use. * $p < 0.05$. ** $p < 0.01$.Abbreviations: AOR, multivariable adjusted odds ratio; CI, confidence interval; OR, crude odds ratio; Ref., reference group.

4. Discussion

Our study provides a comprehensive examination of the sociodemographic characteristics, prevalence, predictors, and treatment patterns of major depressive episodes (MDEs) among US male adolescents aged 12 to 17 years.

Our findings indicated that during the initial year of COVID-19, 16- to 17-year-old boys were more likely to have an MDE and to have used medications related to mental health relative to their younger counterparts. The post-pubertal rise in prevalence can be attributed to various factors as adolescence is a developmental stage marked by significant biological and social changes [21,22]. Key contributors include puberty, brain and cognitive maturation, enhanced social understanding and self-awareness [23], alterations in brain circuits related to reward and danger responses, and elevated stress levels [24,25]. These complex interactions between developmental, biological, and social factors provide a comprehensive understanding of the age-related trends in TMDE observed in the study.

The findings reveal a clear age-related trend in the likelihood of experiencing major depressive episodes (MDEs). Compared with boys in the 12–13 age bracket, those in the 14–15 and 16–17 age groups exhibited higher likelihoods of having an MDE (AOR = 1.66, $p < 0.001$; AOR = 2.47, $p < 0.001$). This pattern aligns with the major milestones of adolescence for boys, particularly the 16–17 age range, which marks the transition into adulthood, as they were more likely to see their doctors and use medications (AOR = 1.06, $p > 0.05$, AOR = 1.65, $p > 0.05$). When referring to race, Black teens were less likely to have depression when compared to their white counterparts, (AOR = 0.70, $p < 0.05$) and white boys were more likely to seek treatment and use medications. These racial differences may be influenced by cultural, familial, and community factors and warrant further investigation to understand the underlying mechanisms. According to some studies, African Americans may experience lower rates of depression than non-Hispanic whites due to their community's resilient traits and increased religious support. However, these studies also agree that African Americans are frequently underdiagnosed or misdiagnosed with depression [26,27]. Furthermore, the research recognizes that when African Americans are diagnosed with depression, the condition often manifests as more serious, severe, and chronic than other groups [27,28].

Our results showed that there were disparities in depression treatment in terms of race. Consistent with previous research, white boys were more likely to receive overall treatment and medication-based treatments relative to other races. Black teens were less likely to have depression compared with their white counterparts. These racial differences may be influenced by reduced accessibility to healthcare resources for Black individuals in comparison to white individuals. The barriers Black individuals face to receive quality healthcare may cause depression diagnosis and treatment rates to be lower [29].

The presence of a father figure is an important factor for adolescent boys. Our results indicated those who experience the absence of a father are at a higher risk of developing major depressive disorder. Studies have revealed the significant role of a father figure in a household in reducing the familial depression risk for children. Having a close relationship with a father figure is associated with improved mental health for the child [30]. Having a father figure in the household offers emotional and social support for the child's development [31]. Paternal support can reduce the risk of depression in mothers and children, even when accounting for financial factors [32–34]. Previous research suggests that positive father involvement has been associated with improved adolescent outcomes such as increased sociality, confidence, and academic performance, factors associated with life satisfaction [35]. However, a factor worth considering with respect to absent father figures is parental divorce, which is also associated with higher rates of depression [36]. Further study may be needed to extricate the association of divorce with depression rates from that of an absent father figure.

Having a present mother had more of an impact on the tendency of adolescent boys to seek treatment and receive medication. The association between the absence of a mother and lower treatment rates underscores the potential role of maternal involvement in mental

health care access and decision-making. This finding aligns with U.S. national surveys that have indicated that children in single-parent households are more likely to experience unmet healthcare needs [37].

Depression symptoms are closely related to poor academic performance [38,39]. In a study conducted on 13,599 British adolescents from the ages of 11 to 18, this association was demonstrated with a stronger effect in boys [40]. In our research, negative school experiences were associated with an increased likelihood of a TMDE (AOR = 2.45, $p < 0.001$) and a decreased likelihood of seeking treatment (AOR = 0.42, $p < 0.05$). This highlights the critical role of the educational environment in shaping mental well-being and access to care.

We also showed that negative school experiences were associated with an increased likelihood of a TMDE and a decreased likelihood of seeking treatment. This highlights the critical role of the educational environment in shaping mental well-being and access to care.

Our research highlights that certain relationships play an important role in the mental health of adolescents. However, further research should consider the association of depression among adolescents and adolescent males with higher risk behaviors (including substance use and sexual risk behaviors) and behavioral addictions, as found in Flesia et al.'s 2020 study [41]. Furthermore, research on the efficacy of preventive interventions and environments (such as schools) to promote healthy behaviors (as demonstrated in this study) is also warranted.

Limitations

The data used in this study are derived from a survey that might suffer from recall biases. Recall bias occurs when participants in a study do not accurately remember a past event or experience when reporting the event. It is more likely to occur when the event happened a long time ago or when participants have poor memory. Factors such as the participants' age, disease status, education, socioeconomic status, pre-existing beliefs, and importance of the event being recalled can affect recall bias. To the extent that the participants' response with respect to medication use is subject to recall bias, our results would underestimate the use of medication for adolescent boys with a TMDE. The NSDUH, however, was tested for validity and reliability and has a percentage agreement of greater than 80% for most variables [42]. Second, certain races/ethnic groups might be undersampled because the NSDHU was administered in English and Spanish only. Further, the cross-sectional design of the study prevents the derivation of causal relationships between the variables [42]. Third, the cross-sectional design of the study prevents the derivation of causal relationships between the variables.

5. Conclusions

Although the effects of depression on the general adolescent population are well known, the extent to which it affects adolescent boys remains less understood. Much of the attention regarding depression has been directed toward girls. While it is true that reported depression numbers are greater for adolescent girls, boys are more inclined to choose impulsive solutions to the disorder, including suicide. Among adolescents who do complete suicide, the majority are boys. Our results showed that having a present father figure, authoritative parenting, and positive school experiences are significant factors for adolescent boys' mental health and that racial discrepancies exist in receiving available, effective treatment. Policymakers, healthcare providers, and educators can use our findings to create targeted prevention programs and support systems that better address adolescent boys' unique challenges.

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Informed Consent Statement: As patient surveys were deidentified, informed consent was not applicable to this study.

Data Availability Statement: The raw data on which this study is based are from the National Survey on Drug Use and Health. These data are publicly available.

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References

1. Golberstein, E.; Wen, H.; Miller, B.F. Coronavirus Disease 2019 (COVID-19) and Mental Health for Children and Adolescents. *JAMA Pediatr.* **2020**, *174*, 819–820. [CrossRef] [PubMed]
2. Gotlib, I.H.; Miller, J.G.; Borchers, L.R.; Coury, S.M.; Costello, L.A.; Garcia, J.M.; Ho, T.C. Effects of the COVID-19 Pandemic on Mental Health and Brain Maturation in Adolescents: Implications for Analyzing Longitudinal Data. *Biol. Psychiatry Glob. Open Sci.* **2022**, *3*, 912–918. [CrossRef] [PubMed]
3. Xie, X.; Xue, Q.; Zhou, Y.; Zhu, K.; Liu, Q.; Zhang, J.; Song, R. Mental Health Status Among Children in Home Confinement During the Coronavirus Disease 2019 Outbreak in Hubei Province, China. *JAMA Pediatr.* **2020**, *174*, 898–900. [CrossRef]
4. Zhou, S.-J.; Zhang, L.-G.; Wang, L.-L.; Guo, Z.-C.; Wang, J.-Q.; Chen, J.-C.; Liu, M.; Chen, X.; Chen, J.-X. Prevalence and socio-demographic correlates of psychological health problems in Chinese adolescents during the outbreak of COVID-19. *Eur. Child Adolesc. Psychiatry* **2020**, *29*, 749–758. [CrossRef] [PubMed]
5. Theberath, M.; Bauer, D.; Chen, W.; Salinas, M.; Mohabbat, A.B.; Yang, J.; Chon, T.Y.; Bauer, B.A.; Wahner-Roedler, D.L. Effects of COVID-19 pandemic on mental health of children and adolescents: A systematic review of survey studies. *SAGE Open Med.* **2022**, *10*, 20503121221086712. [CrossRef]
6. Frąckowiak-Sochańska, M. Men and social trauma of COVID-19 pandemic. The maladaptiveness of toxic masculinity. *Soc. Regist.* **2021**, *5*, 73–94. [CrossRef]
7. Shorey, S.; Ng, E.D.; Wong, C.H.J. Global prevalence of depression and elevated depressive symptoms among adolescents: A systematic review and meta-analysis. *Br. J. Clin. Psychol.* **2021**, *61*, 287–305. [CrossRef]
8. Fernet, M.; Hébert, M.; Brodeur, G.; Maltais, F.L.; Couture, S. A Typological Analysis of Help-Seeking Profiles in Youth and Associations with Victimization. *J. Child Adolesc. Trauma* **2022**, *15*, 1127–1136. [CrossRef]
9. Streb, J.; Ruppel, E.; Möller-Leimkühler, A.-M.; Büsselmann, M.; Franke, I.; Dudeck, M. Gender-Specific Differences in Depressive Behavior Among Forensic Psychiatric Patients. *Front. Psychol.* **2021**, *12*, 639191. [CrossRef]
10. Smith, D.T.; Mouzon, D.M.; Elliott, M. Reviewing the Assumptions About Men's Mental Health: An Exploration of the Gender Binary. *Am. J. Men's Health* **2016**, *12*, 78–89. [CrossRef]
11. Magaard, J.L.; Seeralan, T.; Schulz, H.; Brütt, A.L. Factors associated with help-seeking behaviour among individuals with major depression: A systematic review. *PLoS ONE* **2017**, *12*, e0176730. [CrossRef]
12. Gillison, D. World Mental Health Day: Increasing Access, Research & Hope. National Alliance on Mental Illness. Updated 8 October 2021. Available online: https://www.nami.org/Blogs/From-the-CEO/October-2021/World-Mental-Health-Day-Increasing-Access-Research-Hope (accessed on 2 October 2023).
13. Garnett, M.F.; Curtin, S.C. Suicide Mortality in the United States, 2001–2021. NCHS Data Brief 2023. Available online: https://www.cdc.gov/nchs/products/databriefs/db464.htm (accessed on 2 October 2023).
14. Bommersbach, T.J.; Rosenheck, R.A.; Petrakis, I.L.; Rhee, T.G. Why are women more likely to attempt suicide than men? Analysis of lifetime suicide attempts among US adults in a nationally representative sample. *J. Affect. Disord.* **2022**, *311*, 157–164. [CrossRef]

15. CDC/National Center for Health Statistics. Adolescent Health. Updated 25 July 2023. Available online: https://www.cdc.gov/nchs/fastats/adolescent-health.htm (accessed on 2 October 2023).
16. Miranda-Mendizabal, A.; Castellví, P.; Parés-Badell, O.; Alayo, I.; Almenara, J.; Alonso, I.; Blasco, M.J.; Cebrià, A.; Gabilondo, A.; Gili, M.; et al. Gender differences in suicidal behavior in adolescents and young adults: Systematic review and meta-analysis of longitudinal studies. *Int. J. Public Health* **2019**, *64*, 265–283. [CrossRef] [PubMed]
17. Substance Abuse and Mental Health Services Administration. National Survey on Drug Use and Health (Nsduh). 2021. Available online: https://www.samhsa.gov/data/data-we-collect/nsduh-national-survey-drug-use-and-health (accessed on 2 October 2023).
18. Park, R.J.; Goodyer, I.M. Clinical guidelines for depressive disorders in childhood and adolescence. *Eur. Child Adolesc. Psychiatry* **2000**, *9*, 147–161. [CrossRef] [PubMed]
19. Birmaher, B.; Brent, D. Practice Parameter for the Assessment and Treatment of Children and Adolescents With Depressive Disorders. *J. Am. Acad. Child Adolesc. Psychiatry* **2007**, *46*, 1503–1526. [CrossRef] [PubMed]
20. Sanvictores, T.; Mendez, M.D. Types of parenting styles and effects on children. In *Statpearls*; StatPearls Publishing LLC: St. Petersburg, FL, USA, 2023.
21. National Academies of Sciences E, and Medicine; Health and Medicine Division; Division of Behavioral and Social Sciences and Education; Board on Children, Youth, and Families; Committee on the Neurobiological and Socio-Behavioral Science of Ado-lescent Development and Its Applications. *The Promise of Adolescence: Realizing Opportunity for All Youth*; Backes, E.P.B.R., Ed.; National Academies Press (US): Washington, DC, USA, 2019. Available online: https://www.ncbi.nlm.nih.gov/books/NBK545476/ (accessed on 2 October 2023).
22. Cleveland Clinic. Adolescent Development. Updated 5 January 2023. Available online: https://my.clevelandclinic.org/health/articles/7060-adolescent-development (accessed on 2 October 2023).
23. Patton, G.C.; Viner, R. Pubertal transitions in health. *Lancet* **2007**, *369*, 1130–1139. [CrossRef]
24. Nelson, E.E.; Leibenluft, E.; McClure, E.B.; Pine, D.S. The social re-orientation of adolescence: A neuroscience perspective on the process and its relation to psychopathology. *Psychol. Med.* **2005**, *35*, 163–174. [CrossRef]
25. Zimmerman, M.A.; Ramirez-Valles, J.; Zapert, K.M.; Maton, K.I. A longitudinal study of stress-buffering effects for urban African-American male adolescent problem behaviors and mental health. *J. Community Psychol.* **2000**, *28*, 17–33. [CrossRef]
26. Woodward, A.T.; Taylor, R.J.; Abelson, J.M.; Matusko, N. Major depressive disorder among older african americans, caribbean blacks, and non-hispanic whites: Secondary analysis of the national survey of american life. *Depress. Anxiety* **2013**, *30*, 589–597. [CrossRef]
27. Bailey, R.K.; Mokonogho, J.; Kumar, A. Racial and ethnic differences in depression: Current perspectives. *Neuropsychiatr. Dis. Treat.* **2019**, *15*, 603–609. [CrossRef]
28. Pederson, A.B. Management of Depression in Black People: Effects of Cultural Issues. *Psychiatr. Ann.* **2023**, *53*, 122–125. [CrossRef] [PubMed]
29. Mrejen, M.; Hone, T.; Rocha, R. Socioeconomic and racial/ethnic inequalities in depression prevalence and the treatment gap in Brazil: A decomposition analysis. *SSM Popul. Health* **2022**, *20*, 101266. [CrossRef]
30. O'Gara, J.L.; Zhang, A.; Padilla, Y.; Liu, C.; Wang, K. Father-youth closeness and adolescent self-rated health: The mediating role of mental health. *Child. Youth Serv. Rev.* **2019**, *104*, 104386. [CrossRef]
31. Yoon, S.; Kim, M.; Yang, J.; Lee, J.Y.; Latelle, A.; Wang, J.; Zhang, Y.; Schoppe-Sullivan, S. Patterns of Father Involvement and Child Development among Families with Low Income. *Children* **2021**, *8*, 1164. [CrossRef] [PubMed]
32. Goodman, S.H.; Gotlib, I.H. Risk for psychopathology in the children of depressed mothers: A developmental model for understanding mechanisms of transmission. *Psychol. Rev.* **1999**, *106*, 458–490. [CrossRef]
33. Talati, A.; Wickramaratne, P.J.; Pilowsky, D.J.; Alpert, J.E.; Cerda, G.; Garber, J.; Hughes, C.W.; King, C.A.; Malloy, E.; Sood, A.B.; et al. Remission of maternal depression and child symptoms among single mothers: A star*d-child report. *Soc. Psychiatry Psychiatr. Epidemiol.* **2007**, *42*, 962–971. [CrossRef]
34. Martiny, S.E.; Thorsteinsen, K.; Parks-Stamm, E.J.; Olsen, M.; Kvalø, M. Children's Well-being during the COVID-19 pandemic: Relationships with attitudes, family structure, and mothers' Well-being. *Eur. J. Dev. Psychol.* **2021**, *19*, 711–731. [CrossRef]
35. Pérez-Fuentes, M.d.C.; Jurado, M.d.M.M.; Linares, J.J.G.; Ruiz, N.F.O.; Márquez, M.d.M.S.; Saracostti, M. Parenting Practices, Life Satisfaction, and the Role of Self-Esteem in Adolescents. *Int. J. Environ. Res. Public Health* **2019**, *16*, 4045. [CrossRef]
36. Auersperg, F.; Vlasak, T.; Ponocny, I.; Barth, A. Long-term effects of parental divorce on mental health—A meta-analysis. *J. Psychiatr. Res.* **2019**, *119*, 107–115. [CrossRef]
37. Irvin, K.; Fahim, F.; Alshehri, S.; Kitsantas, P. Family structure and children's unmet health-care needs. *J. Child Health Care* **2017**, *22*, 57–67. [CrossRef]
38. Gao, Y.; Hu, D.; Peng, E.; Abbey, C.; Ma, Y.; Wu, C.-I.; Chang, C.-Y.; Hung, W.-T.; Rozelle, S. Depressive Symptoms and the Link with Academic Performance among Rural Taiwanese Children. *Int. J. Environ. Res. Public Health* **2020**, *17*, 2778. [CrossRef] [PubMed]
39. Shokrgozar, S.; Khesht-Masjedi, M.F.; Abdollahi, E.; Habibi, B.; Asghari, T.; Ofoghi, R.S.; Pazhooman, S. The relationship between gender, age, anxiety, depression, and academic achievement among teenagers. *J. Fam. Med. Prim. Care* **2019**, *8*, 799–804. [CrossRef] [PubMed]

40. López-López, J.A.; Kwong, A.S.; Washbrook, L.; Tilling, K.; Fazel, M.S.; Pearson, R.M. Depressive symptoms and academic achievement in UK adolescents: A cross-lagged analysis with genetic covariates. *J. Affect. Disord.* **2021**, *284*, 104–113. [CrossRef] [PubMed]
41. Flesia, L.; Cavalieri, F.; Angelini, S.; Bottesi, G.; Ghisi, M.; Tonon, E.; Roldan, A.P.; Di Nisio, A.; Garolla, A.; Ferlin, A.; et al. Health-Related Lifestyles, Substance-Related Behaviors, and Sexual Habits Among Italian Young Adult Males: An Epidemiologic Study. *Sex. Med.* **2020**, *8*, 361–369. [CrossRef]
42. Substance Abuse and Mental Health Services Administration. M-8: Reliability of Key Measures in the National Survey on Drug Use and Health. 2014. Available online: https://www.samhsa.gov/data/sites/default/files/2k6ReliabilityP/2k6ReliabilityP.pdf (accessed on 2 October 2023).