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Abstract: (1) Background: Since the pandemic, adolescent girls have increasingly faced mental health challenges. We examined prevalence trends and associated risk factors for depression among adolescent girls. (2) Methods: Data for girls aged 12 to 17 years (N=4346) from the 2021 cross-sectional National Survey on Drug Use and Health were analyzed. Factors associated with depression were examined using multiple regression analysis. (3) Results: Rates of severe depression were significantly higher (p<.001) in older girls (adjusted odds ratio [AOR]: 1.63, 1.61, those who did not have authoritative parents (AOR: 3.40), and those with negative school experiences (AOR: 4.03). Black and Asian/Native Hawaiian or other Pacific Islanders were less likely to report severe depression than white girls. As previously reported, non-White girls were significantly less likely to receive treatment for depression (p<.05). Parents' characteristics and school experiences had no effect on the likelihood of receiving mental health treatment. (4) Conclusion: Depression has become increasingly common among American adolescent girls, who are now three times as likely as adolescent boys to have had recent experiences with depression. Our results show that family structure, parenting style, and negative school experiences significantly contribute to the rate of depression and that treatment disparities exist with regard to race and ethnicity.

Keywords: depression; adolescent girls; national survey on drug use and health; pandemic

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1. Introduction

Three years after the onset of the COVID-19 pandemic, heightened concerns about mental health remain. Ninety percent of American adults believe the country is currently facing a mental health crisis [1]. Although the pandemic has impacted the mental health of the general population in various ways, adolescent girls have been disproportionally affected by negative mental health outcomes. The Youth Risk Behavior Survey in 2021 showed that 57% of adolescent girls reported feeling "persistently sad or hopeless"— the highest in the last decade. Thirty percent said that they have seriously considered suicide—an increase of 60% over the last decade.

Adolescent girls have twice the rate of depression of adolescent boys [1]. Negative self-evaluation, earlier puberty, faster and more intense hormonal changes, estrogen's role in enhancing stress response in the prefrontal cortex, and a stronger internalization of feelings are some of the reasons behind female predominance in depression prevalence [2–4].

Untreated depression can result in emotional, behavioral, and health problems that can affect every aspect of an adolescent girl's life. Depression is associated with lower academic performance, self-harm, risky behaviors, and violence and/or aggression toward others [5–7] Untreated longer-

term depression can make individuals more prone to sleep disruption, heart disease, stroke, obesity, hypertension, diabetes, Alzheimer's disease, and cancer [8–14]. Depression is a major risk factor for suicide and a loss of disability-adjusted life-years [15,16]. It can also raise the risk of substance abuse, as one-third of individuals with major depressive disorder also have a substance use disorder [17].

Despite these adverse consequences, depression is often undiagnosed and untreated among adolescent girls, even with the available effective treatments [18]. The public health emergency due to the pandemic resulted in many people struggling with deteriorating mental health and well-being and encountering barriers to care [19].

Because of the limited data, especially after the COVID era, depression among adolescent girls, including trends, risk factors, and treatment, was generally underinvestigated in the US. Pre-pandemic studies looked at adolescents overall, without specifically examining differences between the sexes or among racial/ethnic minority groups. However, adolescent girls, in a stage of rapid development, have been greatly impacted by the COVID pandemic, one of the most traumatic collective events of their lifetimes. Therefore, using a large-scale population sample, we addressed this research gap by analyzing the prevalence and treatment of adolescent girls with depression during the first year of pandemic. We analyzed the relationship between the likelihood of depression and treatment choices with sociodemographic, family, and school factors.

2. Materials and Methods

To provide the most recent estimates, this study used publicly available data from the 2021 National Survey on Drug Use and Health (NSDUH) administered by the Substance Abuse and Mental Health Service Administration (SAMHSA). The survey data are nationally representative of girls aged 12 years and older in the civilian noninstitutionalized US population and include demographic characteristics, income, insurance coverage, household status (e.g., whether the household included a father and/or mother, whether one lived with an authoritative parent), school experience, and responses to a series of questions related with major depression and treatment for major depression. The survey covers household residents, people in noninstitutional group quarters, and civilians living on military bases. 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.

This study acquired information from publicly available data from open data sets, acquired by RTI International via the NSDUH. The NSDUH was reviewed by an RTI International IRB prior to conducting any interviews, based on guidelines from the U.S. Department of Health and Human Services' Office for Human Research Protections.

Adolescent girls' depression was characterized as follows:

1. Lifetime major depressive episode (LMDE) was identified if they have experienced either depressed mood or loss of interest or pleasure in daily activities for 2 weeks or longer at any point in their lifetime, along with 4 or more other symptoms that reflect a change in functioning, such as difficulties in sleep, eating, energy, concentrating, or feeling good about themselves.
2. Twelve-month major depressive episode (TMDE) was identified if they had depression lasting 2 weeks or longer in the past 12 months.
3. Severe 12-month major depressive episode (STMDE) was identified for those in (2) if they had MDE-related functional impairment in 4 major life activities or role domains (i.e., chores at home; school or work; close relationships with family; and social life) [18,20].

Adolescent girls with 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 having treatment.

Three distinct age groups—12-13 years, 14-15 years, and 16-17 years—were considered. Adolescent girls were classified into five categories based on their race or ethnicity: non-Hispanic white, Hispanic, Black, Asian, and Native Hawaiian or other Pacific Islander (NHPI). Those who

identified as non-Hispanic and with more than one racial background, and girls from groups with insufficient data for statistical analysis (such as American Indians and Alaska Natives), were categorized as "other race/ethnicity." We categorized adolescent girls with and without insurance. Household annual income was classified into five categories: less than $20,000, $20,000-$49,999, $50,000-$74,999, and $75,000 or more. The girls were asked about their family structure, including whether they had a father or mother in the household, and parenting style.

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 [21]. It has been shown that youth raised under an authoritative parenting style tend to be mentally healthy [22]. Parenting style in the NSDUH is identified with a series of questions related to warmth (e.g., letting children 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 by the median split into positive or negative experience.

Our first goal was to assess the proportion of adolescent girls with major depressive episodes (MDE) and receiving major depressive treatment. We then analyzed the risk factors associated with MDE and receipt of MDE treatment. Interaction terms were tested to identify if the combination of these risk factors had any effect on the outcome.

All statistical analyses were conducted using RStudio software version 2023.06.0+421 and accounted for NSDUH's complex design and sampling weights.

3. Results

In 2021, a total of 4346 girls (12-17 years old) were surveyed. Within the sample, 52.9% were white, 96.5% had health insurance, 48.4% had a household income greater than $75,000, 74.4% resided with a father, and 92.2% resided with a mother. Moreover, 19.8% said their parents were authoritative in raising them, and only 18.3% were happy with their educational experiences (Table 1).

Table 1. Descriptive Statistics for the Sample of US Female Adolescents 12 to 17 Years Old in the NSDUH 2021 (N = 4346)

Sociodemographic Characteristic	Weighted %
Age (y)	
12-13	31.3
14-15	33.9
16-17	34.8
Race	
White	52.9
Hispanic	22.4
Black	13.0
Asian/NHPI	4.7
Other	7.0
Having insurance coverage	96.5
Household income, $	
<20,000	13.6
20,000-49,999	24.8
50,000-74,999	13.2
>75,000	48.4
Father in household	74.4
Mother in household	92.2
Having authoritative parent(s)	19.8
Having positive school experiences	18.3

The prevalence of MDE was 37.5% for LMDE, 29.7%, for TMDE, and 22.9% for STMDE. Among the girls with TMDE, 44.9% of them received overall treatment and 22.4% received prescribed medication. 49.1% of with STMDE received treatment and 25.7% used prescribed medication.

The factors associated with the likelihood of having depression (TMDE) and severe depression (STMDE) lasting two weeks or longer in the past 12 months are presented in Tables 2 and 3. Compared with girls aged 12 to 13 years, those in the 14-15 and 16-17 age groups were more likely to have TMDE (AOR=1.56, $p<.001$; AOR=1.77, $p<.001$) and STMDE (AOR=1.63, $p<.001$; AOR=1.61, $p<.001$). Black and Asian/NHPI girls were less likely than their white counterparts to have TMDE (AOR=0.71, $p<.01$; AOR=0.70, $p<.05$) and STMDE (AOR: 0.73, $p<.05$; AOR: 0.57, $p<.01$), respectively. Girls without insurance coverage were less likely to report TMDE (AOR=0.92, $p>.05$) and more likely to report that they have STMDE (AOR=1.02, $p>.05$). Household incomes between $20,000 and $75,000 were not significantly associated with an increased likelihood of having TMDE and STMDE relative to incomes less than $20,000 ($p>.05$). With respect to family and school influences, the absence of a father or mother in the household (i.e., single-father or single-mother households) did not significantly increase TMDE (AOR=1.06, $p>.05$, AOR=1.11, $p>.05$) and STMDE (AOR=1.06, $p>.05$, AOR=1.14, $p>.05$). Girls with less authoritative parents were more likely to have TMDE (AOR=2.84, $p<.001$) or STMDE (AOR=3.40, $p<.001$). As expected, negative school experiences further increased adolescent girls' likelihood of having TMDE (AOR=3.58, $p<.001$) and STMDE (AOR=4.03, $p<.001$).

Table 2. Bivariate and Multivariable Analyses of MDE Predictors in the Sample of US Female Adolescents in the NSDUH 2021 (N = 4346)

		12-Month MDE		
		%	OR (95% CI)	AOR (95% CI)
Age (y)	12-13 (Ref.)	6.5		
	14-15	10.8	**1.78 (1.51, 2.12)** ***	**1.56 (1.30, 1.86)** ***
	16-17	12.5	**2.14 (1.81, 2.54)** ***	**1.77 (1.49, 2.11)** ***
Race	White (Ref.)	16.0		
	Hispanic	7.2	1.08 (0.92, 1.27)	1.09 (0.91, 1.30)
	Black	3.0	**0.69 (0.56, 0.86)** ***	**0.71 (0.56, 0.89)** **
	Asian/NHPI	1.1	**0.68 (0.48, 0.95)** *	**0.70 (0.49, 0.99)** *
	Other	2.4	1.24 (0.96, 1.59)	1.20 (0.92, 1.57)
Insurance coverage	Yes (Ref.)	28.6		
	No	1.1	1.07 (0.75, 1.51)	0.92 (0.63, 1.32)
Household income, $	<20,000 (Ref.)	3.7		
	20,000-49,999	7.3	1.13 (0.90, 1.41)	1.04 (0.82, 1.32)
	50,000-74,999	4.4	**1.33 (1.04, 1.71)** *	1.23 (0.94, 1.62)
	>75,000	14.4	1.14 (0.93, 1.41)	1.10 (0.87, 1.39)
Father in household	Yes (Ref.)	21.9		
	No	7.8	1.05 (0.91, 1.22)	1.06 (0.89, 1.26)
Mother in household	Yes (Ref.)	27.2		
	No	2.5	1.12 (0.88, 1.41)	1.11 (0.86, 1.44)
Authoritative parenting	High (Ref.)	2.3		
	Low	27.4	**4.01 (3.23, 5.02)** ***	**2.84 (2.26, 3.57)** ***
School experiences	Positive (Ref.)	1.8		
	Negative	27.9	**4.79 (3.78, 6.15)** ***	**3.58 (2.78, 4.59)** ***

*$p<.05$. **$p<.01$. ***$p<.001$. All variables listed were included in the multivariable model to predict 12-month MDE. Abbreviations: AOR, multivariable adjusted odds ratio; MDE, major depressive episode; OR, crude odds ratio; Ref., reference group.

Table 3. Bivariate and Multivariable Analyses of MDE Predictors of MDE-related Severe Impairment in the Sample of US Female Adolescents in the NSDUH 2021 (N = 4346).

			12-Month MDE with Severe Impairment	
		%	OR (95% CI)	AOR (95% CI)
Age (y)	12-13 (Ref.)	4.9		
	14-15	8.7	**1.88 (1.56, 2.27)** ***	**1.63 (1.34, 1.98)** ***
	16-17	9.3	**1.99 (1.65, 2.40)** ***	**1.61 (1.33, 1.95)** ***
Race	White (Ref.)	12.4		
	Hispanic	5.6	1.09 (0.91, 1.29)	1.07 (0.88, 1.29)
	Black	2.4	**0.72 (0.57, 0.91)** **	**0.73 (0.56, 0.95)** *
	Asian/NHPI	0.7	**0.56 (0.37, 0.82)** **	**0.57 (0.38, 0.86)** **
	Other	1.9	1.26 (0.96, 1.64)	1.21 (0.91, 1.60)
Insurance coverage	Yes (Ref.)	22.0		
	No	0.9	1.18 (0.80, 1.69)	1.02 (0.69, 1.51)
Household income, $	<20,000 (Ref.)	2.8		
	20,000-49,999	5.9	1.21 (0.95, 1.55)	1.13 (0.87, 1.46)
	50,000-74,999	3.4	**1.33 (1.01, 1.76)** *	1.25 (0.93, 1.67)
	>75,000	10.9	1.13 (0.91, 1.42)	1.11 (0.86, 1.44)
Father in household	Yes (Ref.)	16.8		
	No	6.1	1.07 (0.91, 1.26)	1.06 (0.88, 1.28)
Mother in household	Yes (Ref.)	20.9		
	No	2.0	1.16 (0.89, 1.49)	1.14 (0.87, 1.50)
Authoritative parenting	High (Ref.)	1.4		
	Low	21.5	**4.81 (3.70, 6.37)** ***	**3.40 (2.57, 4.49)** ***
School experiences	Positive (Ref.)	1.1		
	Negative	21.8	**5.55 (4.16, 7.57)** ***	**4.03 (2.97, 5.47)** ***

*p<.05. **p<.01. ***p<.001. All variables listed were included in the multivariable model to predict 12-month MDE with severe impairment. Abbreviations: AOR, multivariable adjusted odds ratio OR, crude odds ratio; MDE, major depressive episode; Ref., reference group.

The factors associated with the likelihood of seeing a doctor are to treat TMDE symptoms, are presented in Table 4. Factors associated with the likelihood of having prescription medication are presented in Table 5. Compared with 12- to 13-year-old girls, those in the 16 to 17-year-old age group were more likely to see their doctors and receive medication (AOR=1.28, *p*>.05, AOR=1.33, *p*>.05). White girls were significantly more likely to get treated relative to other race/ethnicity groups (AOR=0.63, 0.59, 0.28, 0.61, *p*<.05). Those without health insurance were less likely to seek treatment and receive treatment for TMDE symptoms (AOR=0.65, *p*>.05, AOR=0.61, *p*>.05). Having an authoritative parent or negative school experiences did not influence the likelihood of TMDE treatment or TMDE medication use, but girls living without fathers were less likely to seek and receive medication treatment (AOR=0.80, *p*>.05). The results did not change when several interaction terms among explanatory variables were added.

Table 4. Bivariate and Multivariable Analyses of MDE Predictors of MDE Treatments in the Sample of US Female Adolescents with 12-Month MDE in the NSDUH 2021 (N = 1285).

			12-Month Treatments Overall	
		%	OR (95% CI)	AOR (95% CI)
Age	12-13 (Ref.)	8.5		
	14-15	16.6	1.33 (0.98, 1.80)	1.28 (0.94, 1.74)
	16-17	19.8	**1.40 (1.05, 1.89)** *	1.33 (0.98, 1.80)

		%	OR (95% CI)	AOR (95% CI)
Race	White (Ref.)	27.6		
	Hispanic	9.5	**0.62 (0.47, 0.81)** ***	**0.63 (0.48, 0.84)** **
	Black	3.8	**0.58 (0.40, 0.86)** **	**0.59 (0.39, 0.88)** *
	Asian/NHPIs	0.8	**0.27 (0.13, 0.54)** ***	**0.28 (0.13, 0.57)** ***
	Other	3.2	**0.60 (0.39, 0.91)** *	**0.61 (0.40, 0.94)** *
Insurance coverage	Yes (Ref.)	43.7		
	No	1.3	0.62 (0.33, 1.13)	0.65 (0.35, 1.22)
Household income, $	<20,000 (Ref.)	5.3		
	20,000-49,999	11.1	1.12 (0.76, 1.64)	1.06 (0.71, 1.59)
	50,000-74,999	5.9	0.92 (0.60, 1.41)	0.88 (0.56, 1.37)
	>75,000	22.7	1.19 (0.84, 1.69)	1.05 (0.71, 1.55)
Father in household	Yes (Ref.)	33.5		
	No	11.4	0.95 (0.74, 1.21)	1.03 (0.78, 1.36)
Mother in household	Yes (Ref.)	40.9		
	No	4.1	1.18 (0.79, 1.75)	1.16 (0.77, 1.74)
Authoritative parenting	High (Ref.)	3.4		
	Low	41.2	1.07 (0.71, 1.62)	1.11 (0.73, 1.70)
School experiences	Positive (Ref.)	3.2		
	Negative	41.7	0.72 (0.45, 1.14)	0.68 (0.42, 1.09)

*$p<.05$. **$p<.01$. ***$p<.001$. All variables listed were included in the multivariable model to predict 12-month treatment overall. Abbreviations: AOR, multivariable adjusted odds ratio MDE, major depressive episode; OR, crude odds ratio; Ref., reference group.

Table 5. Bivariate and Multivariable Analyses of MDE Predictors of MDE Medication Use in the Sample of US Female Adolescents with 12-Month MDE in the NSDUH 2021 (N = 1285)

		12-Month Prescription Medication		
		%	**OR (95% CI)**	**AOR (95% CI)**
Age	12-13 (Ref.)	3.1		
	14-15	7.7	**1.62 (1.09, 2.45)** *	**1.57 (1.05, 2.36)** *
	16-17	11.6	**2.29 (1.57, 3.39)** ***	**2.27 (1.54, 3.37)** ***
Race	White (Ref.)	14.7		
	Hispanic	4.4	**0.60 (0.43, 0.83)** **	**0.66 (0.47, 0.94)** *
	Black	1.3	**0.41 (0.23, 0.68)** ***	**0.45 (0.25, 0.78)** **
	Asian/NHPIs	0.2	**0.12 (0.02, 0.41)** **	**0.12 (0.03, 0.52)** **
	Other	1.8	0.74 (0.44, 1.19)	0.76 (0.46, 1.25)
Insurance coverage	Yes (Ref.)	21.9		
	No	0.5	0.60 (0.24, 1.26)	0.61 (0.27, 1.41)
Household income, $	<20,000 (Ref.)	2.8		
	20,000-49,999	4.9	0.86 (0.55, 1.38)	0.69 (0.42, 1.13)
	50,000-74,999	2.8	0.82 (0.48, 1.37)	0.68 (0.40, 1.18)
	>75,000	11.9	1.12 (0.75, 1.71)	0.81 (0.51, 1.29)
Father in household	Yes (Ref.)	17.3		
	No	5.1	0.80 (0.59, 1.09)	0.80 (0.57, 1.14)
Mother in household	Yes (Ref.)	20.0		
	No	2.4	1.46 (0.93, 2.25)	1.50 (0.95, 2.38)

Authoritative parenting	High (Ref.)	1.8		
	Low	20.6	0.95 (0.59, 1.58)	0.91 (0.55, 1.51)
School experiences	Positive (Ref.)	1.3		
	Negative	21.1	1.04 (0.61, 1.86)	1.03 (0.58, 1.83)

*p<.05. **p<.01. ***p<.001. All variables listed were included in the multivariable model to predict 12-month prescription medication use. Abbreviations: AOR, multivariable adjusted odds ratio; MDE, major depressive episode; OR, crude odds ratio; Ref., reference group.

4. Discussion

Using NSDUH data, we comprehensively analyzed the prevalence and factors associated with depression among adolescent girls in the US, particularly during the COVID-19 pandemic. Our research highlights the intricate nature of depression in adolescent girls, with an alarming increase in depression rates from 27.9% to 37.5% for LMDE, 21.2% to 29.7% for TMDE, and 15.1% to 22.9% for STMDE. The rates increased close to 50% during the pandemic. The prevalence of affective disorders in females is particularly high during mid-adolescence [23–27]. Adolescent girls are more prone to depression due to their inclination towards negative self-assessment and rumination [23–31].

We demonstrated that girls aged 16-17 were more likely to have depression than girls aged 12-13 and 14-15 years. This could be due to the academic pressure of that age period. Adolescent girls tend to focus more than boys on their academic performance, and some may cope with the stress of thinking about college, including the ability to afford the school of their choice, whether they want to study in another country, and deciding on a college major [32,33].

Our research has revealed complex racial differences in the rates of depression among adolescent girls. Black and NHPI girls were found to be less likely to have TMDE and STMDE compared with their white counterparts. In contrast to previous research that has emphasized the increased vulnerability of marginalized racial and ethnic communities, such as Black and Hispanic Americans, to mental health challenges, our results showed no discrepancies in race [34,35].This could be due to reporting differences related to cultural factors and not actual feelings of depression; that is, Black or Asian American/NHPI girls were not less depressed than white girls but were less likely to report their feelings in a survey due to their cultural norms. Further, Asian Americans were 50% less likely than other racial groups to seek mental health services [36]. Asian culture carries a stigma on depression and anxiety; since it is often viewed as a weakness, these feelings are often dismissed and not freely discussed [36]. Further, a 2013 study found that Black and African American individuals were not as open to acknowledging their psychological problems as white individuals and were less likely to seek treatment [37]. Some participants in the study attributed this to a large stigma on anxiety and depression within their community, and many feared being deemed "crazy" and/or "irrational" for talking about their depression and anxiety within their social circle [37].

In terms of treatment, our results are consistent with previous studies that have shown that even when controlling for income and insurance status, disparities still exist [38,39].

The findings emphasize the interconnected roles of insurance coverage, household income, and access to medical care in the prevalence and treatment of depression among adolescent girls. The availability of insurance coverage has been identified as a significant factor affecting the utilization of mental health services, especially among adolescents·[40]. Specifically, 96.4% of the girls surveyed had health insurance, and those without insurance were less likely to report TMDE and STMDE [40]. Specifically, 96.4% of the girls surveyed had health insurance, and those without insurance were less likely to report TMDE and STMDE. Additionally, those in the 16-17 age group were more likely to see their doctors and receive medication for TMDE symptoms if they had insurance. This agrees with existing literature highlighting variations in treatment outcomes based on insurance status [41].

The relationship between household income and depression prevalence in our study also offers valuable insights. Although past research suggests that lower SES is associated with being depressed, a generous portion of individuals with a low SES (income <$20,000 vs. $20,000-$75,000) does not, in fact, report being depressed for a persistent period. For example, in their research evaluating

depression in a low-income area in Zimbabwe, Patel and Abas found that although many members of the community have faced extreme tragedies (e.g., losing a home, losing a child to starvation or disease) many members do not report being depressed daily [42]. These authors claim that this community does not let feelings of depression persist because at that point, they do not view it as experiencing an emotion but rather as self-destructive [37,42]. Although the present study is different demographically, this could be a reason that adolescent girls of a lower socioeconomic status (SES) are less depressed than those of a higher SES. Lower-SES girls are more likely to have extra stressors in their lives and, therefore, may have learned to adopt stronger coping mechanisms against feelings of depression whereas those of a higher SES are more likely to let these feelings persist.

The vital role of family structure in shaping the mental well-being of adolescents, particularly girls, was highlighted in our research. Instances where either a father or mother is missing from the household, as in single-parent families, have been linked to an increased likelihood of TMDE and STMDE in girls. In addition, our study revealed that the absence of a mother in the household correlated with the highest depression rates, accentuating the significance of maternal involvement and presence in maintaining mental health. Mothers' emotional withdrawal, lack of empathy, and detachment during child interactions may contribute to diminished social skills and internalizing behaviors in children [43].

Regarding parenting style, the results highlighted that girls with less authoritative parents were more likely to have major depressive disorders [43]. The authoritative parenting style promotes parents to be supportive, responsive, and comforting but also to set limits and boundaries for their children [44]. The opposite of the authoritative parenting style, the permissive parenting style, is characterized by parents who are responsive and comforting but set no limits or boundaries for their children; rules and expectations are rarely enforced with this parenting style [44]. Although adolescents may feel as if more freedom equates to being a happier person, the lack of boundaries or limits allows for more self-destructive behavior [45]. During adolescence, the prefrontal cortex of the brain, which controls rationality, judgment, and self-control, is not fully developed [46]. This is inevitably why teens engage in self-destructive activities such as unsafe sex, substance abuse, drunk driving, and fighting [47,48].

Without boundaries or limits set by a parent, a teen is more likely to engage in these acts, which can lead to persistent feelings of depression [44,49]. Having emotional availability and meaningful parent-child connections is crucial. Any disruption in these areas can cause family instability and individual distress, particularly in families facing economic disadvantages or with a parent experiencing depression.

Limitations

The data used in this study are derived from a survey that may be subject to recall bias, which occurs when participants in a study do not accurately remember a past event or experience when reporting the event [50]. It is more likely to occur when the event happened long in the past or when participants have poor memory [50]. Age, disease status, education, socioeconomic status, and pre-existing beliefs, and the importance of the event being recalled, can result in participant recall bias [50]. To the extent that the participants' response on medication use is subject to recall bias, our results would underestimate the medication use for adolescent girls with TMDE. The NSDUH, however, was tested for validity and reliability and has percentage agreements of greater than 80% on most variables [51]. Second, certain race/ethnicity groups might be undersampled because the NSDHU was administrated in English and Spanish only. Third, the cross-sectional design of the study prevents deriving causal relationships between the variables.

5. Conclusions

Depression's impact during adolescence is widely recognized, but there remains a lack of understanding about its prevalence among teenage girls. Traditional research on depression often overlooks the differences in risk factors that may affect males and females differently. This is especially significant when considering the biological changes that are unique to females, such as

hormonal shifts. The urgent need for the development of practical, cost-efficient methods for detecting, assessing, and treating depression in girls, especially in low- to middle-income and ethnic minority households. Our findings may be of use to policy makers, healthcare providers, and educators to create targeted prevention programs and support systems that better address their unique challenges.

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