Shades of Blue: Investigating Racial, Socioeconomic, and Family Dynamics in Depression Among Teen Girls

Onur Baser, MA, MS, PhD[1]; Katarzyna Rodchenko, MA, MPH[2]; Munira Mohamed, MPH[2]; Alexandra Passarelli, MPH[2]; Shuangrui Chen, MS[2]; Nehir Yapar[2]

[1]Graduate School of Public Health, City University of New York (CUNY), New York, NY; [2]Columbia Data Analytics, New York, NY, USA

BACKGROUND

Depression among adolescent girls has become increasingly prevalent, with significant variations across racial and ethnic groups. Adolescent girls have twice the rate of depression of adolescent boys,[1] and, in a stage of rapid development, have been greatly impacted by the COVID-19 pandemic, one of the most traumatic collective events of their lifetimes. A recent study showed that 75% of French adolescents suffered from school burnout post-COVID-19.[2,3]

Despite these adverse consequences, depression is often undiagnosed among adolescent girls because of stigma and shame, social expectations, misinterpretation of symptoms, and lack of awareness.[4] Depression is also largely untreated among adolescent girls, even with effective treatments being available.[5] 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.[6]

Because of limited data, especially post-pandemic, depression among adolescent girls, including trends, risk factors, and treatment, is generally under-investigated in the United States.

By examining race, income, and family dynamics simultaneously, researchers can develop a more holistic understanding of the root causes and contributing factors of teen depression. Understanding the effect of each factor, and controlling for other factors, can reveal true effects that may not be apparent when examining each factor alone.

OBJECTIVES

This study examined the racial disparities in depression prevalence and treatment among adolescent girls in the United States during the COVID-19 pandemic. This study aimed to:

- Investigate the prevalence of depression across varying levels of severity and examine associated treatment patterns
- Evaluate the distribution of depression severity across different age cohorts and racial demographics
- Explore the impact of family- and school-related risk factors on prevalence and severity of depression among adolescent girls during year 1 of the COVID-19 pandemic

METHODS

Data from the 2021 National Survey on Drug Use and Health (NSDUH)[7] were analyzed, focusing on a sample of 4,346 adolescent girls aged 12-17 years.

Logistic regression models were used to assess the likelihood of experiencing major depressive episodes (MDEs) and receiving treatment across different racial groups, controlling for sociodemographic factors.

Measures

Adolescent girls' depression was characterized as follows:

1) A lifetime major depressive episode (LMDE) was identified if they experienced depressed mood or loss of interest or pleasure in daily activities for 2+ weeks at any point in their lifetime, and ≥4 other symptoms reflecting a change in function (difficulties with sleep, eating, energy, concentrating, or feeling good about themselves).

2) Anyone who experienced depressive symptoms for ≥2 weeks within the previous 12 months was considered to have had a 12-month major depressive episode (TMDE).

3) A severe 12-month major depressive episode (STMDE) was identified for those in group (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).

Analysis

A descriptive analysis was conducted to summarize the factors that might be associated with teen depression. Percentages were provided for dichotomous and polychotomous variables. Odds ratios and 95% confidence intervals were calculated for each variable followed by analysis of risk variables related to and therapy for MDEs. Logistic regression was applied to calculate risk-adjusted odds ratios and associated 95% confidence intervals.

RESULTS

Table 1. Descriptive Statistics of US Female Adolescents Aged 12–17 Years who Completed the 2021 National Survey on Drug Use and Health (N=4,346)

Sociodemographic Characteristics	Weighted %
Age (y)	
12 to 13	31.3
14 to 15	33.9
16 to 17	34.8
Race	
White	52.9
Hispanic	22.4
Black	13
Asian/NHPI	4.7
Other	7
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

NHPI: Native Hawaiian or other Pacific Islander

Black and Asian/Native Hawaiian or other Pacific Islander (NHPI) girls were less likely to report 12-month MDEs (adjusted odds ratio [AOR]=0.71, p<.01; AOR=0.70, p<.05) and severe MDEs (AOR=0.73, p<.05; AOR=0.57, p<.01) compared to White girls. However, significant disparities were observed regarding treatment access.

Table 2. Bivariate and Multivariable Likelihood of a Major Depressive Episode in US Female Adolescents who Completed the 2021 National Survey on Drug Use and Health (N=4,346)

		12-Month MDE		
		%	OR (95% CI)	AOR (95% CI)
Age (y)	12-13	6.5	Reference	
	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	16	Reference	
	Hispanic	7.2	1.08 (0.92, 1.27)	1.09 (0.91, 1.30)
	Black	3	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	28.6	Reference	
	No	1.1	1.07 (0.75, 1.51)	0.92 (0.63, 1.32)
Household income, $	<20,000	3.7	Reference	
	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	21.9	Reference	
	No	7.8	1.05 (0.91, 1.22)	1.06 (0.89, 1.26)
Mother in household	Yes	27.2	Reference	
	No	2.5	1.12 (0.88, 1.41)	1.11 (0.86, 1.44)
Authoritative parenting	High	2.3	Reference	
	Low	27.4	4.01 (3.23, 5.02)***	2.84 (2.26, 3.57)***
School experiences	Positive	1.8	Reference	
	Negative	27.9	4.79 (3.78, 6.15)***	3.58 (2.78, 4.59)***

*p<.05.
**p<.01.
***p<.001.
All listed variables were included in the multivariable model to predict overall 12-month treatment.
AOR: adjusted odds ratio; CI: confidence interval; MDE: major depressive episode; NHPI: Native Hawaiian or other Pacific Islander; OR: odds ratio

RESULTS (cont'd)

Non-White girls were significantly less likely to receive treatment for depression (p<.05) vs White girls; AORs ranged from 0.28 to 0.63 across racial/ethnic groups.

Table 3. Bivariate and Multivariable Likelihood of Treatment among US Female Adolescents with a 12-month Major Depressive Episode who completed the 2021 National Survey on Drug Use and Health (N=1,285)

		12-Month Treatments Overall		
		%	OR (95% CI)	AOR (95% CI)
Age	12-13	8.5	Reference	
	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)
Race	White	27.6	Reference	
	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	43.7	Reference	
	No	1.3	0.62 (0.33, 1.13)	0.65 (0.35, 1.22)
Household income, $	<20,000	5.3	Reference	
	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	33.5	Reference	
	No	11.4	0.95 (0.74, 1.21)	1.03 (0.78, 1.36)
Mother in household	Yes	40.9	Reference	
	No	4.1	1.18 (0.79, 1.75)	1.16 (0.77, 1.74)
Authoritative parenting	High	3.4	Reference	
	Low	41.2	1.07 (0.71, 1.62)	1.11 (0.73, 1.70)
School experiences	Positive	3.2	Reference	
	Negative	41.7	0.72 (0.45, 1.14)	0.68 (0.42, 1.09)

*p<.05.
**p<.01.
***p<.001.
All listed variables were included in the multivariable model to predict overall 12-month treatment.
AOR: adjusted odds ratio; NHPI: Native Hawaiian or other Pacific Islander; OR: odds ratio

CONCLUSION

Black and Asian/NHPI adolescent girls reported lower rates of depression vs White girls and faced substantial barriers to accessing mental health treatment.

Traditional research on depression often overlooks the differences in risk factors that may affect males and females differently. There is an 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 in tailoring prevention programs and support systems that account for these special challenges.

REFERENCES

1 Hyde JS, Mezulis AH, Abramson LY. The ABCs of depression: Integrating affective, biological, and cognitive models to explain the emergence of the gender difference in depression. *Psychol Rev*. 2008;115:291.
2 Magson NR, Freeman JYA; Rapee RM, et al. Risk and protective factors for prospective changes in adolescent mental health during the COVID-19 pandemic. *J Youth Adolesc*. 2021;50:44–57.
3 Simoes-Perlant A, Barreau M, Vezilier C. Stress, anxiety, and school burnout post COVID-19: A study of French adolescents. *Mind Brain Educ*. 2023;17:98–106.
4 Stein K, Fazel M. Depression in young people often goes undetected. *Practitioner*. 2015;259:17–22, 2–3.
5 Thapar A, Collishaw S, Pine DS, Thapar AK. Depression in adolescence. *Lancet*. 2012;379:1056–1067.
6 Kujawa A, Green H, Compas BE, et al. Exposure to COVID-19 pandemic stress: Associations with depression and anxiety in emerging adults in the United States. *Depress Anxiety*. 2020;37:1280–88.
7 Substance Abuse Mental Health Services Administration (SAMHSA) Research Data Center. https://www.samhsa.gov/data/report/2021-nsduh-detailed-tables. Accessed 19 August 2024.

145 Hudson St., Suite 205
New York, NY 10013 USA
cdanyc.com

COLUMBIA DATA ANALYTICS

Presented at ISPOR 2025
May 12-16, 2025, Montreal, Quebec, Canada