Section: Community Medicine

Original Research Article

A CROSS-SECTIONAL STUDY ON THE PREVALENCE AND CAUSES OF MENTAL DEPRESSION AMONG TEENAGERS (13-19 YEARS) IN INDORE

Pragya Paul[1], Bhagwan Waskel[2], Parakh Jatav[3], Sanjay Silawat[4], Akshita Jain[5], Prachi Jasuja[6]

[1]*Junior Resident, Department of Community Medicine, MGM Medical College & MY Hospital, Indore. Madhya Pradesh, India.*
[2]*Associate Professor, Department of Community Medicine, MGM Medical College & MY Hospital, Indore. Madhya Pradesh, India.*
[3]*Junior Resident, Department of Community Medicine, MGM Medical College & MY Hospital, Indore. Madhya Pradesh, India.*
[4]*Demonstrator, Department of Community Medicine, MGM Medical College & MY Hospital, Indore. Madhya Pradesh, India.*
[5]*Junior Resident, Department of Community Medicine, MGM Medical College & MY Hospital, Indore. Madhya Pradesh, India.*
[6]*Junior Resident, Department of Community Medicine, MGM Medical College & MY Hospital, Indore. Madhya Pradesh, India.*

Received *: 29/12/2024*
Received in revised form *: 16/02/2025*
Accepted *: 01/03/2025*

Corresponding Author:
Dr. Prachi Jasuja,
Junior Resident, Department of Community Medicine, MGM Medical College & MY Hospital, Indore. Madhya Pradesh, India.
Email: pjasuja1996@gmail.com

DOI: 10.70034/ijmedph.2025.1.202

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2025; 15 (1); 1081-1086

ABSTRACT

Background: Adolescent depression is a growing public health concern with significant academic, social, and long-term health implications. This study aims to determine the prevalence and causes of mental depression among teenagers aged 13-19 years in Indore, India.

Material and Methods: A cross-sectional study was conducted in Indore from October 2023 to March 2024. A total of 210 teenagers were selected using simple random sampling from various educational institutions. The Beck Depression Inventory (BDI) was used to assess depression levels. Data were collected through a pre-designed, semi-structured questionnaire and analyzed using SPSS 25.0. Descriptive statistics were used for frequency distribution, and inferential tests determined associations between depression and socio-demographic factors. A p-value of <0.05 was considered statistically significant.

Results: The prevalence of depression among teenagers was significant, with 41.9% exhibiting normal mental status, 25.2% experiencing mild mood disturbances, and 32.9% suffering from borderline to extreme depression. Academic pressure (66.7%) was the leading cause, followed by parental expectations (20.4%), societal norms (24.0%), and emotional distress. Hostel dwellers and medical students showed higher depression levels compared to school students. Females were more likely to experience moderate to severe depression (p=0.041). Suicidal thoughts were reported by 11.9% of participants.

Conclusion: This study underscores the urgent need for adolescent mental health interventions, focusing on academic stress management, parental counselling, and emotional well-being programs. Early detection and preventive strategies can mitigate the rising burden of depression among teenagers.

Keywords: Adolescent depression, Mental health, Beck Depression Inventory, Academic stress, Suicide risk.

INTRODUCTION

Mental health disorders, particularly depression, have emerged as a significant public health concern worldwide.[1] Adolescence is a crucial developmental stage characterized by rapid physical, emotional, and cognitive changes. During this phase, individuals are particularly vulnerable to mental health challenges, with depression being one of the most prevalent disorders.[2] Depression among teenagers not only affects their academic performance and social interactions but also contributes to long-term negative outcomes, including increased risk of substance abuse, suicidal

tendencies, and impaired quality of life.[2] Recent studies have highlighted a rising trend in adolescent depression across the globe.[3] In 2019, almost a billion people, including 14% of adolescents worldwide, were affected by mental disorders, which are the leading cause of disability, accounting for one in every six years lived with disability.[4] A review reported that the prevalence of depression in school-based studies in India ranged from 3% to 68%,[5] a statistic that underscores the urgency of addressing this issue. The aetiology of adolescent depression is multifactorial, involving a complex interplay of biological, psychological, and environmental factors. Genetic predisposition, hormonal changes, and neurobiological factors contribute to the vulnerability to depression during adolescence. Additionally, psychosocial stressors such as academic pressure, peer influence, social media exposure, family dynamics, and bullying have been identified as significant contributors to adolescent mental health issues.[6] Indore, being one of the most populous cities in Madhya Pradesh, represents a diverse adolescent population with varying socio-economic backgrounds, educational pressures, and lifestyle influences. These factors make it a relevant area for investigating the prevalence and causes of depression among teenagers. Therefore, this cross-sectional study aims to investigate the prevalence and underlying causes of mental depression among teenagers aged 13 to 19 years in Indore. By identifying key risk factors and their association with depressive symptoms, this study seeks to provide actionable insights for mental health practitioners, educators, and policymakers to develop comprehensive prevention and intervention strategies.

MATERIALS AND METHODS

This cross-sectional study was conducted in the Department of Community Medicine, MGM Medical College, Indore over a period of 6 months (Oct 2023 to March 2024) after approval from the Institutional Ethics Committee. A total of 210 teenagers were selected using simple random sampling to ensure equal representation across different age groups. The sample size was calculated by using a single population proportion formula by taking the prevalence of depression which was 39.0%(7) and margin of error = 7%, confidence level = 95%, and standard normal distribution value = 1.96

A total sample size was determined as follows: (Cochran's formula).

$$n = \frac{\left(Z_{\frac{\alpha}{2}}\right)^2 pq}{d^2}$$

where n is the desired sample size, d is the desired precision 7%, z is the standard normal distribution value at confidence level 95% = 1.96, p is the prevalence rate of low birth weight = 13.4%, $\left(Z_{\frac{\alpha}{2}}\right)^2 = (1.96)^2 = 3.8416$, P = 39.0%, and $d = (7)^2 = 49$.

So, $n = \frac{3.8416*39*61}{49} = 186.44$

By taking nonresponse rate, 10% of 186.44 = 18.64. The total sample size was 186.44 + 18.64 = 205.08 ~ 210.

By taking nonresponse rate, 10% of 186.44 = 18.64. The total sample size was 186.44 + 18.64 = 205.08 ~ 210.

The participants were drawn from various educational institutions, including a government school, a medical College, science college and commerce college. The sample comprised 30 students from each age group, with specific distributions as follows: 13 years – 30 students from Class VIII, 14 years – 30 students from Class IX, 15 years – 30 students from Class X, 16 years – 30 students from Class XI, and 17 years – 30 students from Class XII of the government school. For 18 and 19 years, 30 students were selected, with 10 each from Medical College, Science College, and Commerce College. Only those who provided informed consent were included. A pre-designed semi-structured open questionnaire incorporating the Beck Depression Inventory (BDI) was used as the study tool. The scoring criteria ranged from 1 to 10 for normal mental status, 11 to 16 for mild mood disturbance, 17 to 20 for borderline depression, 21 to 30 for moderate depression, 31 to 40 for severe depression, and scores above 40 for extreme depression.

Data collection was carried out by administering the BDI questionnaire to the participants individually to ensure confidentiality and accuracy in responses. The collected data was then compiled and analyzed using SPSS 25.0 (trial version The descriptive representation of data was done in the form of frequencies and percentages. Analytical part was done using appropriate tests of association. The level of significance was fixed at 95%. P-value < 0.05 was considered statistically significant.

RESULTS

Table 1 presents the demographic characteristics of the study participants, highlighting that the majority (64.3%) belonged to the 17-19 years age group. The gender distribution was nearly equal, with males constituting 51% and females 49%. In terms of residence, 76.2% of the participants lived at home, while 23.8% resided in hostels. The academic institution distribution showed that 45.2% of the participants were from schools, 28.5% from medical colleges, 11.9% from science colleges, and 14.2% from commerce colleges. Table 2 outlines the depression levels among study participants based on the Beck Depression Inventory (BDI) score. It reveals that 41.9% of participants had normal mental status, while 25.2% exhibited mild mood disturbances. Borderline depression was observed in

8.6%, moderate depression in 19.5%, severe depression in 2.9%, and extreme depression in 1.9%. Table 3 shows that the most frequently reported cause of depression was the pressure of studies and career concerns, affecting 66.7% of participants. Other contributing factors included parental pressure (20.4%), heartbreak from relationships (20.0%), fear of societal norms (24.0%), physical abuse (8.0%), and rejection by peers or family (6.0%). These findings underscore the multifaceted nature of adolescent depression, driven by academic, familial, and social stressors. Table 4 depicts that a majority (72.4%) reported having no thoughts of self-harm, while 15.7% admitted to having thoughts of self-harm without any intent to act on them. Alarmingly, 7.1% expressed a desire to kill themselves, and 4.8% indicated a willingness to act on suicidal intent. Table 5 reveals that 78.1% of teenagers were satisfied with themselves, whereas 21.9% reported dissatisfaction. In terms of decision-making, 46.7% admitted to facing difficulties in making decisions. Table 6 demonstrates a statistically significant relationship between age and depression levels ($p<0.0001$), with higher levels of depression observed among the 17-19 years age group compared to younger adolescents. Gender also showed a significant association ($p=0.041$), with females exhibiting a higher prevalence of moderate to severe depression compared to males. The influence of residence was notable ($p<0.0001$), as hostel dwellers had a higher prevalence of moderate to extreme depression compared to those living at home. Academic institutions also played a significant role ($p<0.0001$), with students from medical colleges exhibiting the highest levels of moderate to extreme depression, followed by science and commerce college students, while school students had the lowest depression scores.

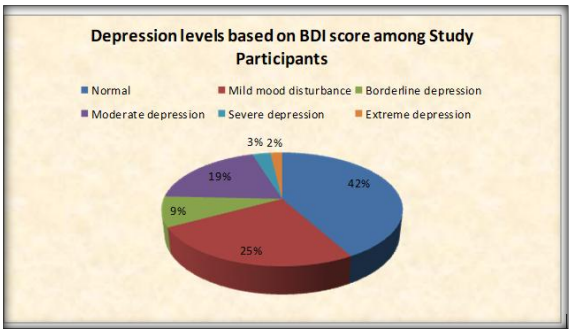

Figure 1: Depression levels based on BDI score among Study Participants

Table 1: Demographic Characteristics of Study Participants

Characteristics	Number	Percentage
Age Group (in years)		
13-16	75	35.7
17-19	135	64.3
Gender		
Male	107	51.0
Female	103	49.0
Residence		
Home	160	76.2
Hostel	50	23.8
Academic Institution		
School	95	45.2
Medical College	60	28.5
Science College	25	11.9
Commerce College	30	14.2

Table 2: Depression levels based on BDI score among Study Participants

Depression level	Number	Percentage
Normal	88	41.9
Mild mood disturbance	53	25.2
Borderline depression	18	8.6
Moderate depression	41	19.5
Severe depression	06	2.9
Extreme depression	04	1.9

Table 3: Major Causes of Depression among Study Participants (Multiple Choice Answers)

Cause	Number	Percentage
Pressure of studies and career	140	66.7
Parental pressure	43	20.4
Heartbreak from relationships	42	20.0
Fear of societal norms	52	24.0
Physical abuse	17	8.0
Rejection by peers/ family	13	6.0

Table 4: Suicidal Thoughts and Emotional Distress among Study Participants

Suicidal thoughts	Number	Percentage
No thoughts of self-harm	152	72.4
Thoughts of self-harm but no intent	33	15.7
Would like to kill themselves	15	7.1
Would act on suicidal intent	10	4.8

Table 5: Self-esteem and Decision-making among Study Participants

Aspect	Yes (%)	No (%)
Satisfied with self	78.1%	21.9%
Difficulty making decisions	46.7%	53.3%

Table 6: Association between various parameters and depression levels based on BDI score among study participants

Parameters	Normal	Mild mood disturbance	Borderline depression	Moderate depression	Severe depression	Extreme depression	p-value
Age group							
13-16 years	47 (62.7%)	6 (8.0%)	7 (9.3%)	12 (16.0%)	2 (2.7%)	1 (1.3%)	<0.0001
17-19 years	41 (30.4%)	47 (34.8%)	11 (8.1%)	29 (21.5%)	4 (2.9%)	3 (2.2%)	
Gender							
Male	53 (49.5%)	30 (28.0%)	7 (6.5%)	13 (12.1%)	2 (1.9%)	2 (1.9%)	0.041
Female	35 (33.9%)	23 (22.3%)	11 (10.6%)	28 (27.1%)	4 (3.8%)	2 (1.9%)	
Residence							
Home	79 (49.3%)	46 (28.7%)	13 (8.1%)	20 (12.5%)	2 (1.2%)	0	<0.0001
Hostel	9 (18.0%)	7 (14.0%)	5 (10.0%)	21 (42.0%)	4 (8.0%)	4 (8.0%)	
Academic Institution							
School	65 (68.4%)	22 (23.1%)	5 (5.2%)	3 (3.1%)	0	0	<0.0001
Medical College	3 (5.0%)	16 (26.6%)	8 (13.3%)	26 (43.3%)	4 (6.6%)	3 (5.0%)	
Science College	7 (28.0%)	6 (24.0%)	3 (12.0%)	7 (28.0%)	1 (4.0%)	1 (4.0%)	
Commerce College	13 (43.3%)	9 (30.0%)	2 (6.6%)	5 (16.6%)	1 (3.3%)	0	

Chi-square test applied. P-value<0.05 considered statistically significant.

DISCUSSION

The present study, conducted among teenagers aged 13-19 years in Indore, aimed to determine the prevalence and causes of mental depression within this age group. Our study found that the majority of participants (64.3%) were in the 17-19 years age group, with a significant association between age and depression levels (p<0.0001), indicating that older adolescents experienced higher levels of depression. This finding aligns with the studies by Kavya Sri T et al,[8] who reported that 61.9% of participants were aged 17-18 years, and Kiron et al,[9] who found the highest prevalence of depression in the 18-19 years age group (48.89%). Similarly, Parida D et al,[7] observed that depression was more prevalent among 16-17-year-olds. The increasing prevalence of depression with age can be attributed to greater academic pressure, career concerns, and transition-related stress as adolescents move towards adulthood.

Our study observed a statistically significant relationship between gender and depression (p=0.041), with females exhibiting a higher prevalence of moderate to severe depression compared to males. This finding aligns with Johnson AR et al,[10] who reported that depression was twice as likely among females (OR=1.9, p=0.001), and Kumar et al,[11] who found a higher prevalence of depression among female students, with 40% having mild depression and 26% having moderate depression. Similarly, Sinha S et al,[12] reported that 65.45% of boys had depression compared to 60.42% of girls, though the difference was not statistically significant. However, Kiron et al. (9) did not find a significant gender difference (p=0.29), which contrasts with our findings. The higher prevalence of depression among females in most studies can be attributed to societal expectations, hormonal fluctuations, and greater emotional sensitivity, whereas variations in study results may stem from differences in cultural influences or self-reporting biases.

Our study found that hostel dwellers exhibited significantly higher levels of moderate to extreme depression compared to those living at home (p<0.0001). This aligns with Patel et al,[13] who reported that students facing study difficulties and issues with food and residence were more likely to be depressed. Bhatta & Bhatt,[14] similarly found that 77.1% of hostel residents experienced homesickness, which increased the likelihood of emotional distress more than twice (AOR=2.577). Additionally, 59.3% were dissatisfied with hostel meals, and lack of social support, alcohol use, and abuse were significantly associated with depression (p<0.05). In contrast, a safe and supportive hostel environment acted as a protective factor (AOR=0.267). Johnson AR et al,[10] found that residing in the city was significantly associated with depression (p=0.019), suggesting that environmental stressors such as social isolation, lack of family support, and academic pressures contribute to mental health issues. However, Kiron et al,[9] found that students from nuclear families had a

significantly higher prevalence of depression than those from joint families (p=0.0043), indicating that family structure might play an equally important role. Additionally, Udayakumar D et al,[15] observed a higher prevalence of depression in students from nuclear families, possibly due to reduced parental interaction.

Academic stress was identified as the leading cause of depression in our study, affecting 66.7% of participants. This aligns with Kumar et al,[11] who found that 85% of participants were stressed due to career pressure, and Johnson AR et al,[10] who reported that feeling pressurized to perform well in exams was significantly associated with depression. Additionally, our study showed that medical students had the highest levels of moderate to extreme depression, followed by science and commerce students. This finding is supported by Parida D et al,[7] who found that academic performance concerns were a major contributor to depression but did not find a significant difference across class levels. The higher depression rates among medical students in our study may be explained by the demanding nature of medical education, which requires rigorous study schedules and high academic expectations.

Our study highlighted parental pressure (20.4%), societal expectations (24.0%), and rejection by peers or family (6.0%) as significant contributors to depression. Kiron et al,[9] similarly found that family problems were highly associated with depression (p<0.001), and those with strict parents had twice the risk of developing depression (OR=2.1, p=0.001). Additionally, Johnson AR et al,[10] found that serious arguments or disagreements with family (p=0.039) and a family history of mental illness (p=0.002) significantly contributed to depression. Udayakumar D et al,[15] reported that adolescents who lacked adequate communication with their fathers had a higher prevalence of depression (67.3%). These findings collectively support our results, emphasizing that familial relationships play a critical role in adolescent mental health.

Our study found that 7.1% of teenagers expressed a desire to end their lives, and 4.8% indicated a willingness to act on suicidal intent. This aligns with Kumar et al,[11] who reported that 58% of female participants had suicidal ideation, and Johnson AR et al,[10] who found a high prevalence of depression-related self-harm tendencies but noted that only 10% sought professional help. Sinha S et al,[12] reported that suicidal thoughts were more common in mild and moderate depression cases, which is consistent with our findings. The alarming prevalence of suicidal thoughts across multiple studies underscores the urgent need for targeted mental health interventions.

Our study revealed that 21.9% of teenagers were dissatisfied with themselves, and 46.7% faced difficulties in decision-making. Sinha S et al,[12] also observed a high prevalence of symptoms like sadness, loss of pleasure, and social withdrawal, which are indicative of low self-esteem. Kiron et al. (9) found that feelings of loneliness and a lack of friends to share problems with significantly increased the risk of depression (OR=3.9, p<0.0001). These findings reinforce the importance of fostering confidence and social support systems among adolescents.

CONCLUSION

This study reveals a high prevalence of depression among teenagers in Indore, with older adolescents, females, hostel dwellers, and medical students being most affected. Academic pressure, parental expectations, societal norms, and emotional distress were key contributors, with a concerning proportion reporting suicidal ideation. These findings underscore the necessity of implementing comprehensive mental health programs, including counselling services, stress management workshops, and parental awareness initiatives, to mitigate the burden of depression among adolescents. Future research should focus on longitudinal assessments and intervention-based studies to develop targeted strategies for adolescent mental well-being.

Conflict of Interest: None
Sponsorship: None

REFERENCES

1. Limenih G, MacDougall A, Wedlake M, Nouvet E. Depression and Global Mental Health in the Global South: A Critical Analysis of Policy and Discourse. Int J Soc Determinants Health Health Serv. 2024 Apr;54(2):95–107.
2. Mental health of adolescents [Internet]. 2024 [cited 2025 Feb 19]. Available from: https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health
3. Zhu F, Yang Y, Yin T, Pan M, Xu J, Chen R, et al. The Burden of adolescent depression and the impact of COVID-19 across 204 countries and regions from 1990 to 2021: results from the 2021 global burden of disease study. Sci Rep. 2025 Feb 15;15(1):5658.
4. WHO highlights urgent need to transform mental health and mental health care [Internet]. [cited 2025 Feb 19]. Available from: https://www.who.int/news/item/17-06-2022-who-highlights-urgent-need-to-transform-mental-health-and-mental-health-care
5. Grover S, Raju VV, Sharma A, Shah R. Depression in Children and Adolescents: A Review of Indian studies. Indian J Psychol Med. 2019;41(3):216–27.
6. Thapar A, Collishaw S, Pine DS, Thapar AK. Depression in adolescence. Lancet. 2012 Mar 17;379(9820):1056–67.
7. Parida D, Prasad P, Sahu P, Krishna SK, Joshi A, Dabar D, et al. Prevalence and Correlates of Depression Among School-Going Adolescents in the Urban Schools of Central India: A Cross-Sectional Study. Cureus. 15(8):e44088.
8. T KS, Donipudi PC, T S, Rao RN. A Study on Prevalence and Risk Factors of Depression Among Adolescents (16-19 years) in the Urban Area of Andhra Pradesh. NBEJMS. 2024 Jul 8;2(7):704–15.
9. Kiron N, Gupta P, Gupta T, Gupta N. (PDF) Understanding the Prevalence and Factors Contributing to Depression Among School- Going Adolescents in Gwalior City, Madhya Pradesh, India. International Journal of Life Sciences, Biotechnology and Pharma Research. 2024 Apr;13(4):391–6.
10. Johnson AR, Hanspal I, Fathima F, Johnson AD. (PDF) Prevalence of depression among young adults: Evidence from a cross-sectional study in a college in peri-urban South

India. Fundamentals of Mental health [Internet]. 2022 [cited 2025 Feb 25] ;(Mar-Apr). Available from: https://www.researchgate.net/publication/377272650_Prevalence_of_depression_among_young_adults_Evidence_from_a_cross-sectional_study_in_a_college_in_peri-urban_South_India

11. Kumar S, Natarajan K, B Y, Chandra R. Assessment of depression and its correlates among college students in Rishikesh Uttarakhand. Indian Journal of Community Health. 2019 Jun 30;31(2):220–5.
12. Sinha S, Patil MS, Viveki RG, Halki S. Prevalence of depression among school going adolescents in an urban area of Karnataka, India: a cross sectional study. International Journal of Community Medicine and Public Health. 2020 Apr 24;7(5):1790–3.
13. Patel U, Chauhan D, Patel M, Rahul K, Yadav V. Determinants of Depression Among Higher Secondary Students of Private Schools of Science Stream in an Urban Area of Western India. Indian J Community Med. 2023;48(2):334–9.
14. Bhatta H, Bhatt A. Factors associated with mental health status among the students living in girls' hostel of Baneshwor, Kathmandu. International Journal of Community Medicine and Public Health. 2023 Jun 29;10(7):2364–71.
15. Udayakumar D, Nk B, Livingston, L, Shetty, S, Chivukula SK. Prevalence and Factors Associated with Depression among School Going Adolescents in Bengaluru: A Cross-Sectional Study. Healthline. 2023 Mar 31;14(1):41–7.