ORIGINAL RESEARCH

Understanding the Prevalence and Factors Contributing to Depression Among School-Going Adolescents in Gwalior City, Madhya Pradesh, India

[1]Dr. Nirmala Kiron, [2]Dr. Preeti Gupta, [3]Dr. Teena Gupta, [4]Dr. Nishant Gupta

[1,3]Assiatant Professor, Department of Community Medicine, Sri Aurobindo Institute of Medical Sciences, Indore, India
[2]Assiatant Professor, Department of Community Medicine, NSCB Medical College, Jabalpur, India
[4]Junior Resident, Department of Emergency Medicine, GRMC, JAH Group of Hospitals, Gwalior, India

Corresponding Author
Dr. Nirmala Kiron
Assiatant Professor, Department of Community Medicine, Sri Aurobindo Institute of Medical Sciences, Indore, India
Email: dr.nirmala.kiron@gmail.com

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ABSTRACT
Depression among adolescents remains a significant global mental health challenge, often under-recognized and undertreated. This paper focuses on understanding the prevalence and associated socio-demographic factors contributing to depression among school-going adolescents in Gwalior City, Madhya Pradesh, India. The transitional nature of adolescence, marked by emotional vulnerability, exposes this demographic to various risk factors such as traumatic experiences, negative life events, educational setbacks, relationship issues, and familial history of mental illness. Drawing from alarming statistics indicating that a substantial percentage of affected adolescents remain untreated, this research sheds light on the urgent need to address this critical public health issue. By examining the prevalence rates and exploring socio-demographic influences, the study aims to provide valuable insights for the development of targeted interventions and policies to address adolescent depression effectively. The findings are expected to contribute significantly to the existing literature and aid in the formulation of comprehensive strategies to support the mental well-being of school-going adolescents in Gwalior City, Madhya Pradesh, and beyond.

Keywords: Depression, Adolescents, Prevalence, Gwalior City, Socio-demographic factors, Mental health

INTRODUCTION

Depression, a prevailing mental health issue globally, has garnered increased attention due to its profound impact on adolescents. Often overlooked and undertreated, this complex disorder poses significant challenges during the crucial transitional phase from childhood to adulthood. Adolescence is characterized by a myriad of physical, emotional, and cognitive changes, creating a vulnerable period in which individuals are susceptible to various stressors that can precipitate or exacerbate depressive symptoms [1]. Research underscores the multifaceted nature of depression, highlighting its association with traumatic experiences, negative life events, academic setbacks, interpersonal difficulties, family history of mental illness, and heightened stress levels within school and family environments. These factors interplay intricately, potentially catalyzing the onset and persistence of depressive symptoms among adolescents.[2].On a global scale, the prevalence of depression is striking. According to the World Health Organization (WHO) in 2017, an estimated 322 million individuals worldwide grappled with depression, positioning it as the leading cause of disability globally. Notably, India shoulders a considerable portion of this burden, with approximately 57 million people, accounting for 18% of the global estimate, affected by this debilitating mental health condition (WHO, 2017). However, the impact of depression is not uniform across the country, with various demographic factors and geographical locations exhibiting distinct prevalence rates and associated challenges.[3, 4]. In the context of Gwalior City, nestled in the heart of Madhya

Pradesh, India, understanding the prevalence and underlying factors contributing to depression among school-going adolescents assumes paramount significance. Gwalior, renowned for its rich historical heritage, confronts contemporary challenges, including disparities in education, socioeconomic conditions, and the overall mental well-being of its youthful populace. Adolescents in Gwalior encounter a unique blend of urban and rural influences, navigating the demands of academic performance, peer relationships, and familial expectations within a swiftly evolving societal landscape. Comprehending the impact of these multifaceted stressors on adolescent mental health is indispensable for formulating tailored interventions and support mechanisms for this vulnerable segment of the population. This research endeavors to bridge the existing gaps in the literature by examining prevalence rates and delineating socio-demographic factors linked to depression among this specific demographic. By shedding light on the distinct challenges faced by adolescents in Gwalior City, this study aims to offer crucial insights for the development of targeted interventions and policies to effectively address adolescent depression. The anticipated findings of this study will enrich the current body of knowledge and aid in formulating holistic strategies to support the mental well-being of school-going adolescents in Gwalior City, Madhya Pradesh, and beyond. The study aims to assess the prevalence and determinants of depression exclusively among healthy, school-going adolescents in Gwalior City.

MATERIALS AND METHODS

Study Design: For the comprehensive evaluation of depression prevalence among school-going adolescents in Gwalior City, a cross-sectional study design was meticulously employed. This design enabled the collection of data at a single point in time, providing a snapshot of the prevalence and associated factors of depression within the specific demographic.

Study Area: The research was conducted within various educational institutions situated in Gwalior City, Madhya Pradesh. The selection of educational institutes within the city allowed for a diverse representation of the adolescent population, encompassing students from different socio-economic backgrounds and educational settings.

Study Period: The study was carried out over a specific period, spanning from November 2017 to January 2018. This time frame was chosen to encompass a comprehensive assessment of depressive symptoms among school-going adolescents during a critical phase of the academic year, considering the potential impact of academic stressors on mental health.

Sampling Method: A purposive sampling technique was employed, selecting 200 students from classes 10th, 11th, and 12th across diverse educational institutes in Gwalior City. This method ensured a diverse representation of students in terms of socio-economic backgrounds and academic levels. By including students from various educational stages, the study aimed to capture the nuanced differences in the prevalence of depressive symptoms among different age groups. Additionally, the selection from different educational settings provided insights into the impact of school environments on adolescent mental health, contributing to a comprehensive understanding of the factors influencing depression among school-going adolescents in Gwalior City, Madhya Pradesh.

Study Tool: The data collection process was facilitated through the utilization of a self-administered questionnaire based on the Beck's Depression Inventory II. This standardized questionnaire comprised 21 carefully crafted items, each offering multiple-choice answers. Responses to each item were scored on a scale, with scores ranging from 0 to 10 indicative of the normal range. Scores between 11 and 20 were interpreted as mild or borderline depression, 21-30 denoted moderate depression, while scores between 31 and 40 suggested severe depression, and scores exceeding 40 indicated extreme depression.

Ethical Considerations: To uphold ethical standards, written informed consent was obtained from both the relevant educational institute authorities and the participating students. This process ensured transparency, voluntary participation, and adherence to ethical guidelines throughout the study.

Data Collection: The distribution of the self-administered questionnaire was conducted in a structured manner, with the questionnaire administered to students as a group in their respective classrooms during prearranged times. Clear and concise instructions were provided, emphasizing the importance of honest and thoughtful responses to the questionnaire items.

Data Analysis: Following the completion of the data collection phase, the collected data were meticulously entered and organized using Microsoft Excel software. The comprehensive analysis of the data involved the application of statistical tools and techniques, including Pearson's Chi-square test, which enabled the comparison of various categorical variables, contributing to a deeper understanding of the prevalence and determinants of depression among the studied adolescent population in Gwalior City, Madhya Pradesh.

RESULTS

Sex: Out of the 200 students included in the study, 104 were identified as male, and 96 as female. The prevalence of depression was observed to be 36.54% among male students and 43.75% among female students. However, the chi-square test did not reveal a statistically significant difference based on gender (X2 = 1.08, p = 0.29), suggesting that the prevalence of depression did not significantly differ between male and female students in the study sample. [Table 1]

Age of Students (in years): The study encompassed students across various age groups, with 59 students falling within the 14-15 age group, 96 within the 16-17 age group, and 45 within the 18-19 age group. The prevalence of depression was found to be 11.32% for the 14-15 age group, 38.54% for the 16-17 age group, and 48.89% for the 18-19 age group. However, the chi-square test did not indicate a significant association between age and depression (X2 = 2.04, p = 0.35), suggesting that the age of students did not significantly influence the prevalence of depression within the study population. [Table1]

Family History of Depression: Among the participants, 23 students reported a family history of depression, while 177 students did not have a family history of depression. The prevalence of depression was notably higher among students with a family history of depression, accounting for 73.91%, compared to 35.59% among those without a family history of depression. The chi-square test revealed a statistically significant association (X2 = 12.45, p = 0.0004), highlighting the crucial role of family history with depression.

Family Type: In terms of family type, the study included 69 students from nuclear families and 131 students from joint families. The prevalence of depression was notably higher among students from nuclear families, accounting for 53.62%, compared to 32.82% among those from joint families. The chi-square test indicated a statistically significant association (X2 = 8.15, p = 0.0043).

Family Problems: The study identified 57 students who reported the presence of family problems, while 143 students did not report any family problems. The prevalence of depression was notably higher among students facing family problems, accounting for 71.93%, compared to 27.27% among those not facing any family problems. The chi-square test revealed a highly significant association (X2 = 33.86, p < 0.001).

Addiction: Among the study participants, only 4 students reported having an addiction, while 196 students did not report any addiction. The prevalence of depression was notably higher among students with addiction, accounting for 75.0%, compared to 39.29% among those without any addiction. Although the data indicates a potential association between addiction and the prevalence of depression, the chi-square test did not reveal a statistically significant association (X2 = 2.08, p = 0.148).

Table 1: **Prevalence of Depression according to associated factors**

Associated Factors		Number of students	Number of students with depression	Prevalence	χ^2,p value
Sex	Male	104	38	36.54%	1.08,0.29
	Female	96	42	43.75%	
Age	14-15	59	21	11.32%	2.04,0.35
	16-17	96	37	38.54%	
	18-19	45	22	48.89%	
Family H/O	Present	23	17	73.91%	12.45,0.0004
	Absent	177	63	35.59%	
Family Type	Nuclear	69	37	53.62%	8.15,0.004
	Joint	131	43	32.82%	
Family Problem	Present	57	41	71.93%	33.86,0.00
	Absent	143	39	21.27%	
Addiction	Present	4	3	75.0%	2.08,0.148
	Absent	196	77	39.29%	

Prevalence of Depression According to Grades/Severity and Gender: The analysis of the data revealed the prevalence of depression categorized according to different severity levels and gender. Among the male participants, the highest proportion was observed in the category of mild mood disturbance (45.19%), indicating a significant proportion of male students experiencing subtle mood variations beyond the normal range. This was closely followed by the normal category, accounting for 18.27% of the male participants, suggesting a notable proportion of male students within the expected range of emotional well-being.Similarly, among the female participants, the highest prevalence was also observed in the category of mild mood disturbance (44.79%), reflecting a considerable proportion of female

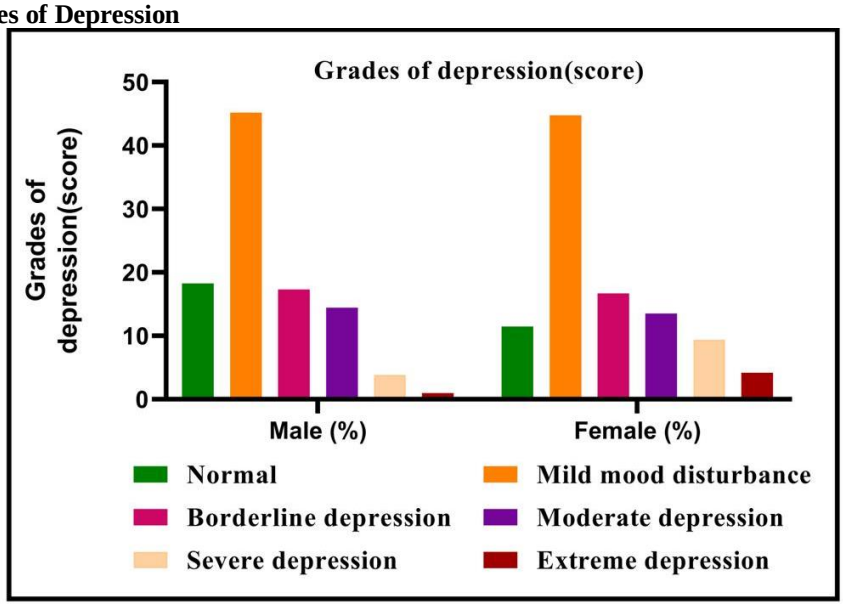
students experiencing mild disturbances in mood and emotional stability. The normal category followed closely, representing 11.46% of the female participants, indicating a significant portion of female students falling within the expected range of emotional well-being.

Furthermore, the data highlighted the distribution of students across the categories of borderline depression, moderate depression, severe depression, and extreme depression. Across these categories, both male and female students exhibited varying degrees of prevalence, suggesting a diverse spectrum of depressive symptoms within the studied population. Notably, the data revealed a slightly higher prevalence of severe and extreme depression among female participants, with 9.38% of females experiencing severe depression compared to 3.85% of males, and 4.17% of females experiencing extreme depression compared to 0.96% of males. This finding suggests a potentially heightened vulnerability to severe and extreme depressive symptoms among female students within the study sample.

Grades/Severity of depression according to sex

Grades of depression	Male (%)	Female (%)	Total (%)
Normal (1-10)	**19(18.27%)**	**11(11.46%)**	**30(15.0%)**
Mild Mood Disturbance (11-16)	**47 (45.19%)**	**43 (44.79%)**	**90 (45.0%)**
Borderline depression (17-20)	**18 (17.31%)**	**16 (16.67%)**	**34 (17.0%)**
Moderate Depression (21-30)	**15 (14.42%)**	**13 (13.54%)**	**28 (14.0%)**
Severe depression (31-40)	**4 (3.85%)**	**9(9.38%)**	**13 (6.5%)**
Extreme depression (>40)	**1 (0.96%)**	**4 (4.17%)**	**5 (2.5%)**

Figure 1: Grades of Depression



DISCUSSION

In the present studythe prevalence of depression was observed to be 36.54% among male students and 43.75% among female students. The data suggests a slightly higher prevalence of depression among female students compared to their male counterparts. This finding is consistent with previous research [5,6] that has highlighted the potential impact of gender-specific stressors and socio-cultural influences on the mental well-being of adolescents. Angold et al. also attributed the preponderance of depression in adolescent females to hormonal changes in puberty.[7] On the contrary, Naushad et al. and Malik et al. reported a higher prevalence of depression among males which might be attributed to diverse culture points, the data collection tools, and settings of survey and timings.[8,9]However, the chi-square test did not reveal a statistically significant difference based on gender ($X2 = 1.08$, $p = 0.29$), suggesting that the prevalence of depression did not significantly differ between male and female students in the study sample. The prevalence of depression was found to be 11.32% for the 14-15 age group, 38.54% for the 16-17 age group, and 48.89% for the 18-19 age group. The data indicates a notable increase in the prevalence of depression with advancing age, with the highest prevalence observed among students in the 18-19 age group. Our findings of increase in the prevalence with age is comparable with the results of previously reported studies.[8,10,11] However, there are few studies which did not find an increase in the prevalence of depression with age.[12] Higher prevalence of depression in elder students may be attributed to physical, emotional, and lifestyle changes occurred in their life. Diagnosing depression in adolescents is a formidable challenge compounded by

the behavioural fluctuations associated with hormonal changes during this developmental phase, often leading to underreporting and underdiagnoses. Left unaddressed, untreated or inadequately treated depression during adolescence can reverberate into adulthood, influencing educational attainment, occupational prospects, and overall quality of life. The prevalence of depression was notably higher among students with a family history of depression, accounting for 73.91%, compared to 35.59% among those without a family history of depression. This finding underscores the potential influence of familial predisposition and genetic factors on the prevalence of depression among adolescents. Significant finding is highlighting the crucial role of family history in shaping the mental well-being of adolescents and underscoring the importance of considering familial influences in preventive and intervention strategies targeting adolescent depression. This finding suggests a potential association between family type and the prevalence of depression, indicating that the familial structure and dynamics may significantly impact the mental well-being of adolescents. The prevalence of depression was notably higher among students facing family problems, accounting for 71.93%, compared to 27.27% among those not facing any family problems. This finding emphasizes the detrimental impact of family problems and conflicts on the mental well-being of adolescents, highlighting the need for comprehensive familial support and intervention strategies to mitigate the adverse effects of family-related stressors. The prevalence of depression was notably higher among students with addiction, accounting for 75.0%, compared to 39.29% among those without any addiction.The findings suggest a trend, the lack of statistical significance highlights the need for further research to explore the complex interplay between addiction and depressive symptoms among school-going adolescents, emphasizing the importance of holistic approaches to address co-occurring mental health concerns and addictive behaviours.

Among the female participants, the highest prevalence was also observed in the category of mild mood disturbance (44.79%), reflecting a considerable proportion of female students experiencing mild disturbances in mood and emotional stability. The normal category followed closely, representing 11.46% of the female participants, indicating a significant portion of female students falling within the expected range of emotional well-being. Furthermore, the data highlighted the distribution of students across the categories of borderline depression, moderate depression, severe depression, and extreme depression. Across these categories, both male and female students exhibited varying degrees of prevalence, suggesting a diverse spectrum of depressive symptoms within the studied population. Notably, the data revealed a slightly higher prevalence of severe and extreme depression among female participants, with 9.38% of females experiencing severe depression compared to 3.85% of males, and 4.17% of females experiencing extreme depression compared to 0.96% of males. This finding suggests a potentially heightened vulnerability to severe and extreme depressive symptoms among female students within the study sample. In addition to the aforementioned challenges, it is crucial to underscore the role of school environments in the overall mental well-being of adolescents. Schools serve as a central arena for social interaction, academic development, and the cultivation of essential life skills. However, the prevalence of high academic expectations, peer pressure, bullying, and a lack of mental health awareness programs within educational institutions can contribute to a challenging and often stressful environment for adolescents. Understanding the dynamics within the school context, including the availability of mental health resources, the effectiveness of support systems, and the level of awareness among educators and staff, is critical in comprehensively addressing the mental health needs of adolescents.Furthermore, the advent of the digital era has ushered in a new set of challenges for adolescent mental health. The widespread use of social media platforms, coupled with the proliferation of digital devices, has significantly altered the dynamics of social interactions and created new avenues for stress and anxiety among adolescents. The pervasive nature of social media, cyberbullying, and the pressure to conform to idealized standards portrayed online can exacerbate feelings of inadequacy, isolation, and low self-esteem, ultimately impacting the mental well-being of adolescents. Recognizing the influence of digital technology on the emotional health of adolescents is essential in formulating holistic interventions that address the multifaceted challenges posed by the digital landscape.

CONCLUSION

The findings from this comprehensive study examining the prevalence of depression among school-going adolescents in Gwalior City, Madhya Pradesh, provide valuable insights into the multifaceted nature of adolescent mental health within the educational context. Through a meticulous examination of various socio-demographic factors, the study revealed nuanced patterns and associations influencing the prevalence and severity of depression among the surveyed students.The results highlighted the significant impact of familial dynamics, with a higher prevalence of depression observed among students with a family history of depression, those experiencing family problems, and those belonging to nuclear family structures. These findings emphasize the crucial role of familial support and a nurturing environment in fostering emotional resilience and well-being among adolescents. Furthermore, the analysis of depressive symptoms based on gender

underscored the importance of recognizing gender-specific stressors and emotional challenges faced by male and female students. The study revealed a comparable prevalence of different grades of depression between male and female participants, indicating the presence of similar emotional stressors and vulnerabilities across both genders. However, a slightly higher prevalence of severe and extreme depression among female students highlighted the need for targeted and empathetic support systems to address the specific emotional needs of adolescent girls.

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