

Prevalence of Psychiatric Disturbances (Anxiety and Depression) Among School-Going Adolescents: A Cross-Sectional Study from a Government School in Visakhapatnam, India

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Abstract

Background: Mental health disorders, particularly anxiety and depression, are among the leading causes of disability worldwide and disproportionately affect adolescents undergoing rapid hormonal, social, and academic transitions. Data on the burden of these disorders among Indian school-going adolescents remain limited, especially from semi-urban government school settings. **Material and Methods:** An analytical cross-sectional, questionnaire-based study was conducted over two months among 283 students of grades 8th, 9th, and 10th of a Zilla Parishad school in Madhurawada, Visakhapatnam, selected by Simple Random Sampling from a sampling universe of 1,800 students. Anxiety and depression were assessed using the Hamilton Anxiety Rating Scale (HAM-A) and the 6-item Kutcher Adolescent Depression Scale (KADS-6), respectively, administered as a self-reported, pre-validated questionnaire. Associations between psychiatric disturbance and grade, gender, and family type were tested using the chi-square test, with $p < 0.05$ considered statistically significant. **Results:** Depression was identified in 17 (6.0%) of 283 participants and anxiety in 86 (30.4%) of 283 participants; 79 (27.9%) mild and 7 (2.5%) moderate. Both depression and anxiety prevalence increased significantly with grade of study (depression: $p = 0.018$; anxiety: $p = 0.006$). Depression was reported in 6.6% of females and 5.5% of males ($p = 0.714$, not significant), and anxiety showed no significant gender association ($p = 0.15$). Family type was significantly associated with anxiety ($p < 0.001$) but not with depression ($p = 0.505$), with the highest anxiety burden among adolescents from third-generation and joint families. **Conclusion:** Nearly one in three school-going adolescents in this population screened positive for anxiety symptoms, and grade of study and family structure emerged as significant correlates of psychiatric disturbance. School-based mental health screening, together with sensitisation of teachers and parents, is recommended to enable early identification and intervention.

Keywords: Adolescent; Anxiety; Depression; Prevalence; Psychiatric disorders; School health.

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INTRODUCTION

Mental health disorders are among the leading causes of ill-health and disability worldwide.^[1] Adolescence marks the transformation of a child into an adult, a stage characterised by rapid physical and hormonal change alongside evolving social identity and role expectations.^[2] The resulting pressures — hormonal flux, shifting worldviews, societal expectation, and the need to establish an independent identity — place adolescents at heightened risk of psychiatric disturbance.

Anxiety and depression are the most common psychiatric disorders encountered in this age group.^[3] Anxiety is a pervasive but difficult-to-define uneasy feeling, while depression is a qualitative disturbance of mood characterised by persistent low mood.^[3] Although adolescence is often perceived as a healthy life stage, a substantial proportion of adolescents experience a mental health problem, most commonly anxiety or depression, which in turn affects school performance, family relationships, and community participation.^[1,3] Anxiety manifests across physical,

cognitive, and behavioural domains and is commonly assessed using the Hamilton Anxiety Rating Scale (HAM-A).^[4] Elevated rates of depression among students have been linked to academic pressure, substance use, and separation from home, among other factors.

The global and regional burden of these disorders continues to rise. Modelling of Global Burden of Disease data indicates that the incidence of anxiety disorders among 10–24-year-olds increased by over 50% between 1990 and 2021, with India contributing the largest absolute number of cases worldwide and

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a marked acceleration after 2019.^[5-9] A recent multi-country analysis spanning India, China, and six sub-Saharan African nations similarly identified older adolescents, girls, and those from low-income households as being at greatest risk of anxiety and depressive symptoms, while regular physical activity was found to be protective.^[10] Within urban Indian school settings specifically, recent surveys have reported considerable variation in prevalence depending on the screening instrument used: a large Delhi-based cohort screened with the Patient Health Questionnaire-4 found depression and anxiety in around one-quarter and one-seventh of adolescents respectively,^[11] while another Delhi-based study using the SCARED instrument reported anxiety disorders in over one-third of adolescents, with social anxiety the most common subtype and higher rates among girls and older teenagers.^[12] A systematic review of Indian school-based mental health research similarly concluded that depression is the most frequently reported concern among school children and adolescents, closely followed by anxiety, psychological distress, and stress.^[13]

Given the substantial burden and functional impact of these disorders, and the paucity of local data from government school settings, this study was undertaken to determine the prevalence of anxiety and depression among school-going adolescents and to examine their association with key demographic variables.

Objectives

- To determine the proportion of psychiatric disorders (depression and anxiety) among school-going adolescents.
- To determine the association of selected demographic variables — class, gender, and type of family — with psychiatric disturbance.

MATERIALS AND METHODS

Study design and setting: This was an analytical, cross-sectional, questionnaire-based study conducted among students of a Zilla Parishad (government) high school in Madhurawada, Visakhapatnam, over a two-month period (February–March 2023).

Study population and sampling: The sampling universe comprised 1,800 students enrolled in grades 8th, 9th, and 10th

(700, 500, and 600 students respectively). The sample size was calculated using an expected anxiety prevalence of 20.8%, as reported among high-school adolescents by Kumar et al.,^[3] at a 95% confidence level and 5% absolute precision, yielding a minimum sample size of 254; after accounting for an anticipated 10% non-response, the final target sample was 279, and 283 students were ultimately enrolled by simple random sampling. Students of either gender in grades 8th–10th with no history of psychiatric illness or psychotropic medication use, and who provided assent/consent, were included. Students who did not consent or were absent on the day of data collection were excluded.

Study instrument: A self-administered, pre-validated questionnaire was developed after literature review and content verification by faculty of the Department of Community Medicine, and refined following pilot testing. It comprised three sections: (i) demographic profile (age, class, gender, type of family, religion, birth order, type of schooling, and area of residence); (ii) the 14-item Hamilton Anxiety Rating Scale (HAM-A) 4, each item scored 0 (not present) to 4 (very severe), with total scores classified as mild (6–14), moderate (15–28), or severe (29–52); and (iii) the 6-item Kutcher Adolescent Depression Scale (KADS-6)5, each item scored 0–3, with a cut-off total score of 6 distinguishing probable depression. The questionnaire was self-administered via Google Forms, and participants were assured of confidentiality and that data would be used solely for research purposes.

Statistical analysis: Data were entered into MS Excel and analysed using descriptive statistics (proportions, mean $\pm$ standard deviation) and the chi-square test for categorical variables. A p-value < 0.05 was considered statistically significant.

Ethical considerations: Institutional approval and informed consent/assent were obtained prior to data collection, and participant confidentiality was maintained throughout.

RESULTS

A total of 283 students participated in the study: 91 from grade 8 (53 male, 38 female), 90 from grade 9 (50 male, 40 female), and 102 from grade 10 (59 male, 43 female). Of the total, 121 (42.8%) were female and 162 (57.2%) were male.

Table 1: Distribution of study participants by depression status and grade (n=283)

Grade	Normal n (%)	Depressed n (%)	Total
8th	86 (94.5)	5 (5.5)	91
9th	89 (98.9)	1 (1.1)	90
10th	91 (89.2)	11 (10.8)	102

Depression prevalence rose with increasing grade, from 5.5% in grade 8 to 10.8% in grade 10 ($p=0.018$), indicating a statistically significant association between grade of study and depression. Comparing 10th graders to 8th graders gave an odds ratio of 2.08 (95% CI: 0.69–6.23), also not

significant. However, comparing 10th graders to 9th graders yielded an odds ratio of 10.76 (95% CI: 1.36–85.08), which was statistically significant, indicating that 10th graders have substantially higher odds of depression than 9th graders.

Table 2: Distribution of study participants by anxiety severity and grade (n=283)

Grade	Normal n (%)	Mild n (%)	Moderate n (%)	Total
8th	57 (62.6)	34 (37.4)	0 (0)	91
9th	76 (84.4)	12 (13.3)	2 (2.2)	90

10th	64 (62.7)	33 (32.3)	5 (4.9)	102
Total	197 (69.6)	79 (27.9)	7 (2.5)	283

Anxiety was more prevalent in grades 8 and 10 than in grade 9, and the association between grade of study and anxiety was statistically significant ($p=0.006$). Ninth graders compared to eighth graders showed an odds ratio of 3.24 (95% CI: 1.59–6.59), a significant result indicating eighth graders have notably higher odds of anxiety than ninth graders. Tenth graders compared to eighth graders showed an

odds ratio of 0.99 (95% CI: 0.56–1.79), essentially no difference and not significant. Tenth graders compared to ninth graders gave an odds ratio of 3.22 (95% CI: 1.61–6.47), again significant. Altogether, this suggests eighth and tenth graders carry a similarly elevated anxiety burden compared to ninth graders, who appear to have the lowest rates of anxiety among the three grades.

Table 3: Distribution of study participants by depression, anxiety and gender

Gender	Depression Absent n (%)	Depression Present n (%)	Anxiety Absent n (%)	Anxiety Mild n (%)	Anxiety Moderate n (%)
Female (n=121)	113(93.3)	8 (6.6)	77(63.6)	40 (33.1)	4 (3.3)
Male (n=162)	153(94.4)	9 (5.5)	120(74.1)	39 (24.1)	3 (1.8)

No statistically significant association was found between gender and depression ($p=0.714$). The odds ratio comparing females to males was 1.20 (95% CI: 0.45–3.22), confirming that depression rates do not differ meaningfully between male and female students. No statistically significant association was found between gender and anxiety ($p=0.15$).

The odds ratio for females versus males was 1.63 (95% CI: 0.98–2.72). This result sits right at the edge of conventional significance, suggesting a possible trend toward higher anxiety in females that doesn't quite reach statistical significance with this sample size.

Table 4: Distribution of study participants by anxiety, depression and type of family

Family type	Anxiety Absent n (%)	Anxiety Present n (%)	Depression Absent n (%)	Depression Present n (%)
Third-generation (n=6)	1 (16.7)	5 (83.3)	5 (83.3)	1 (16.7)
Joint (n=43)	28 (65.1)	15 (34.9)	40 (93.0)	3 (7.0)
Nuclear (n=234)	168 (71.7)	66 (28.2)	221 (98.7)	13 (1.3)

Type of family was significantly associated with anxiety ($p=0.00076$), with the highest burden among adolescents from third-generation and joint families. Comparing third-generation families to nuclear families produced a striking odds ratio of 12.73 (95% CI: 1.46–111.01), which is statistically significant. Comparing joint families to nuclear families gave an odds ratio of 1.36 (95% CI: 0.69–2.72),

which was not significant. Type of family was not significantly associated with depression ($p=0.505$). The odds ratio comparing third-generation to nuclear families was 3.40 (95% CI: 0.37–31.27), not significant. Comparing joint to nuclear families gave an odds ratio of 1.28 (95% CI: 0.35–4.68), also not significant.

Table 5: Frequency and severity of anxiety among school going adolescents (n=283)

Variable	Severity				
	Absent n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Very severe n (%)
Anxious mood	197 (69.6%)	68 (24.0%)	16 (5.7%)	2 (0.7%)	0 (0.0%)
Tension	165 (58.3%)	86 (30.4%)	27 (9.5%)	4 (1.4%)	1 (0.4%)
Fears (of dark, strangers, or crowds)	178 (62.9%)	84 (29.7%)	17 (6.0%)	4 (1.4%)	0 (0.0%)
Insomnia	236 (83.4%)	35 (12.4%)	8 (2.8%)	4 (1.4%)	0 (0.0%)
Intellectual-	185 (65.4%)	67 (23.7%)	27 (9.5%)	3 (1.1%)	1 (0.4%)
Depressed mood	227 (80.2%)	40 (14.1%)	13 (4.6%)	2 (0.7%)	1 (0.4%)
Somatic (muscular)	235 (83.0%)	39 (13.8%)	7 (2.5%)	2 (0.7%)	0 (0.0%)
Somatic (sensory)	246 (86.9%)	31 (11.0%)	4 (1.4%)	2 (0.7%)	0 (0.0%)
Cardiovascular system	234 (82.7%)	40 (14.1%)	6 (2.1%)	3 (1.1%)	0 (0.0%)
Respiratory system	253 (89.4%)	21 (7.4%)	9 (3.2%)	0 (0.0%)	0 (0.0%)
Gastrointestinal	245 (86.6%)	31 (11.0%)	7 (2.5%)	0 (0.0%)	0 (0.0%)
Genitourinary system	261 (92.2%)	20 (7.1%)	1 (0.4%)	0 (0.0%)	1 (0.4%)
Autonomic system	223 (78.8%)	51 (18.0%)	9 (3.2%)	0 (0.0%)	0 (0.0%)
Social behaviour	218 (77.0%)	45 (15.9%)	17 (6.0%)	2 (0.7%)	1 (0.4%)

On item-level analysis of the HAM-A, tension, anxious mood, and fears (of dark, strangers, or crowds) were the most frequently endorsed anxiety symptoms, being present in over 40% of participants at some level of severity, whereas genitourinary and respiratory symptoms were the least

common, remaining absent in over 89% of participants. Symptoms of at least moderate severity were uncommon overall, and very severe symptoms were rare (≤ 1 case per item).

Table 6: Frequency and severity of depression among school going adolescents (n=283)

Variable	Severity			
	Hardly ever n (%)	Much of the time n (%)	Most of the time n (%)	All the time n (%)
Sadness	224 (79.2%)	46 (16.3%)	9 (3.2%)	4 (1.4%)
Worthlessness	228 (80.6%)	43 (15.2%)	7 (2.5%)	5 (1.8%)
Feeling fatigued, low in energy	222 (78.4%)	57 (20.1%)	4 (1.4%)	0 (0.0%)
Loss of interest	225 (79.5%)	47 (16.6%)	10 (3.5%)	1 (0.4%)
Feeling worried, nervous, panicky, tense.	234 (82.7%)	45 (15.9%)	3 (1.1%)	1 (0.4%)
Thoughts about suicide or self-harm	260 (91.9%)	19 (6.7%)	4 (1.4%)	0 (0.0%)

On the KADS-6, feelings of worthlessness (19.4% reporting at least some frequency) and low mood/sadness (20.8%) were the most frequently endorsed depressive symptoms, while feeling worried, nervous, panicky, or tense was reported least often at high frequency. Thoughts of self-harm or suicide were reported by a small minority of participants 23 (8.1%), most often at low frequency, underscoring the need for vigilant screening despite the overall low prevalence of severe depressive symptoms.

DISCUSSION

This cross-sectional study among 283 school-going adolescents of a government school in Visakhapatnam found an overall depression prevalence of 6.0% and an anxiety prevalence of 30.4%. Depression was marginally more common among females (6.6%) than males (5.5%), consistent with several prior reports, although the difference was not statistically significant in this study.

Grade of study showed a significant association with both depression and anxiety, with the highest burden in grade 10 — plausibly reflecting the added academic pressure of board-examination years. Family type was significantly associated with anxiety, with higher rates among adolescents from third-generation and joint families, possibly reflecting differences in autonomy, privacy, or intra-familial expectations, though this warrants further qualitative exploration.

These findings are broadly consistent with regional literature. Kumar et al,^[3] reported anxiety and stress to be more prevalent than depression among high-school adolescents in Rangareddy district, Telangana. Byahatti et al,^[2] studying adolescents in north Karnataka, similarly found anxiety more prevalent than depression, although in contrast to the present study they reported higher depression among females and higher anxiety among males. Singh et al,^[6] found a higher proportion of depression among adolescents in government compared to private schools in Chandigarh, attributing this to socio-economic differences between school types. Sandal et al,^[7] reported a higher burden of depression and anxiety among female adolescents in Chandigarh, with peak prevalence around 18 years of age. Vadageri et al,^[8] observed differing patterns of mental health literacy between government- and private-school adolescents in Kalaburagi. Together, these studies reinforce that psychiatric disturbance among adolescents is shaped by a combination of academic, familial, and socio-economic factors, and that government-school populations may be particularly vulnerable.

More recent Indian data reinforce this picture of wide variation by setting and screening instrument. A study

among secondary and higher-secondary students in urban Bhopal, using the DASS-42 anxiety subscale, likewise described a substantial and rising anxiety burden driven by combined academic and social pressures.^[14] Comparable urban–rural comparisons from Mysuru and Shivamogga found depression, anxiety, and stress to be somewhat more common among urban than rural adolescents, with anxiety again more frequent among girls, broadly paralleling the higher (though statistically non-significant) female anxiety burden observed in the present study.^[15,16] A central-Indian study using the DASS-42 reported a considerably higher depression prevalence of around 39%, identifying maternal education as a significant determinant, pointing to socio-economic and parental factors that were not captured in the present questionnaire.^[17] In contrast, a Kolar-based study found a comparatively lower depression prevalence and no significant association between depression and scholastic performance, suggesting that the relationship between psychiatric disturbance and academic outcomes may not be straightforward and warrants further exploration in this population.^[18] The higher anxiety burden observed among adolescents from joint and third-generation families in the present study is consistent with a systematic review and meta-analysis of rural Indian adolescents, which similarly found a higher prevalence of depression and social anxiety among those from joint families, possibly reflecting reduced privacy, differing intra-familial expectations, or greater exposure to multigenerational stressors.^[19]

CONCLUSION

This study found that psychiatric disturbance, particularly anxiety, is a substantial and under-recognised burden among school-going adolescents in a semi-urban government school setting, with nearly one in three participants screening positive for anxiety symptoms and about one in seventeen for depression. Grade of study and family type emerged as significant correlates, with adolescents in grade 10th and those from joint or third-generation families disproportionately affected, pointing to academic pressure and family structure as important, potentially modifiable, contributors to adolescent mental health. These findings support the integration of routine school-based screening and mental health promotion programmes to enable early identification, timely intervention, and improved wellbeing among adolescents, particularly in resource-limited government school settings.

Recommendations: Larger, multi-centric, and longitudinal studies spanning government and private schools are recommended to better characterise the determinants of adolescent psychiatric disturbance and to allow stronger causal

inference, ideally using validated screening tools with clinical confirmation of screen-positive cases. Routine school-based mental health screening should be integrated into existing adolescent health platforms, such as the Rashtriya Bal Swasthya Karyakram and the Ayushman Bharat School Health and Wellness Programme, with clear referral pathways to counselling and psychiatric services. Sensitisation of teachers and parents to the early signs of anxiety and depression, together with age-appropriate life-skills education and peer-support initiatives, may help build resilience, particularly among adolescents in higher grades and those from joint or third-generation family settings.

Limitations: This study has a few notable limitations. Anxiety and depression were assessed using self-administered screening instruments (HAM-A and KADS-6) rather than a structured clinical interview, so the estimates reflect screen-positive symptoms rather than confirmed diagnoses and may be subject to reporting or recall bias. The cross-sectional design precludes causal inference regarding the observed associations, and potentially important determinants such as academic performance, screen time, and socio-economic status were not assessed. The study was restricted to a single government school in grades 8th to 10th, limiting generalisability, and could not capture out-of-school adolescents, who may be at even greater psychosocial risk. Finally, the small number of adolescents from third-generation families (n=6) limits the precision of that subgroup's estimates.

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Conflicts of interest

There are no conflicts of interest.

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