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Assessing Psychological Health in School-Going Adolescents: Insights from a Cross-Sectional Study in North India

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Abstract

Introduction: Adolescence is a critical phase marked by significant physical and psychological transformations. Research has shown a strong link between lifestyle-related diseases and unhealthy habits developed during this period, which often persist into adulthood. Early assessment of adolescents' psychological health and lifestyles can play a crucial role in preventing the progression of these behaviors into more serious health conditions.

Methods: This cross-sectional study involved 600 adolescents from 9th to 12th grades in selected schools in Rohtak, Haryana, India. The psychological health of adolescents was evaluated using the Patient Health Questionnaire-4 (PHQ-4). Ethical approval was secured from the relevant authorities prior to the study.

Results: The average age of the participants was 15.9 years (SD = 1.4), with the majority being male (61%). Over half of the participants (52.7%) had a BMI between 18 and 25 kg/m², and 39.8% were from a lower-middle socio-economic background. In most of the items on the PHQ-4, the majority of participants reported experiencing psychological distress. Approximately one-fifth of the participants reported negative emotions, such as sadness (25.5%) and anxiety (18.8%), occurring at least once a week. Around 62% of the participants reported experiencing anxiety, while 67% reported symptoms of depression. Overall, 86.3% of the participants exhibited psychological distress in the form of either anxiety or depression. None of the sociodemographic variables showed a statistically significant association with the psychological impacts observed in the study.

Conclusion: The study highlights the presence of anxiety and depression among school children in this setting. It offers preliminary data for policymakers to consider when revising existing policies and interventions to better address the needs of adolescents.

Keywords: Adolescents, psychological health, school

Background

Adolescence is a period of rapid physical, psychological, and emotional development, during which individuals are highly susceptible to mental health issues. Globally, approximately 10-20% of adolescents experience mental health disorders, with anxiety and depression being among the most prevalent condition (1). Despite the significant impact of these disorders on adolescents' overall well-being, mental health services and interventions in many regions remain inadequate. Early detection and intervention are critical

in mitigating the long-term effects of psychological distress, such as poor academic performance, social isolation, and diminished quality of life (2).

In India, mental health among adolescents is an area of growing concern, with numerous studies suggesting a high prevalence of psychological distress. Adolescents in India face multiple pressures, including academic expectations, family dynamics, and socio-economic challenges, all of which contribute to elevated levels of anxiety and depression (3,4). However, regional disparities in mental health research persist, particularly in rural and semi-urban areas, where access to healthcare and mental health resources is often limited. This cross-sectional study conducted in Rohtak, Haryana, aims to assess the psychological health of school-going adolescents and provide a clearer understanding of the mental health challenges faced by this population. By examining the prevalence of anxiety and depression among school-going adolescents, the study seeks to highlight the need for region-specific interventions that address the unique socio-cultural and economic factors influencing mental health in this area (5). Such data will be valuable in guiding the development of early intervention programs aimed at preventing the progression of mental health issues into adulthood (6).

Materials and Methods

This was a cross-sectional survey conducted in six higher secondary schools funded and supported by private management located in the urban area of Rohtak district- a district of Haryana, India. The study participants were determined by preparing a sampling frame (list of the study population) after requesting from the concerned authorities. The potential subjects were recruited based on the convenience and availability of subjects during the data collection period. Adolescents aged between 14- 19 years of age were invited to participate in the study. Informed consent was obtained and a participant information sheet in the vernacular language was provided. The concerned teachers were informed to get the filled consent forms from the parents of the respondents. The primary investigator guided the subjects in filling out the forms in case of any clarifications. Lifestyle is operationally defined as the pattern of behaviors and choices that affect current and future health during the transition from childhood to adulthood. The Patient Health Questionnaire-4 (PHQ-4) is a brief, validated screening tool designed to assess core symptoms of anxiety and depression. It consists of four items—two related to anxiety (from the Generalized Anxiety Disorder-2 scale) and two related to depression (from the PHQ-2 scale). Respondents are asked to rate how frequently they have experienced these symptoms over the past two weeks, with responses ranging from "not at all" to "nearly every day." The PHQ-4 offers a rapid and efficient method to screen for psychological distress in various populations, including adolescents (7).

Results

The average age of the participants was 15.9 years (SD = 1.4), with the majority being male (61%). Over half of the participants (52.7%) had a BMI between 18 and 25 kg/m², and 39.8% were from a lower-middle socio-economic background. In most of the items of PHQ-4, the majority of the participants reported psychological distress and approximately one-fifth of the study participants reported negative emotions such as sadness (25.5%) and anxiety (18.8%) once in a week. About 26% of the subjects reported the experience of not able to control worrying and 28.5% lost interest in daily routines nearly once a week respectively (Table 1).

Around 62% of the participants reported experiencing anxiety, while 67% reported symptoms of depression. Overall, 86.3% of the participants exhibited psychological distress in the form of either anxiety

or depression (Table 2). The association of life style characteristics of the study subjects were analyzed to determine its significance on the psychological wellbeing of study subjects. The comparisons of continuous variables were done by using independent sample test or analysis of variance (ANOVA). Concerning age, anxiety and depression scores was higher in those of 16 years of age (Mean ±SD - 6.25 ± 2.87; p = 0.812). There was no significant difference between psychological health scores of males and females (6.09 Vs 6.10; p = 0.812). The anxiety and depression were slightly different but not statistically significant according to the family status (p = 0.803). There was a slight increase in the scores among the parents of participants who were unskilled workers as compared to other occupations (p > 0.05). Regarding the socioeconomic status, the anxiety and depression score was highest among subjects belonging to the lower-middle age category as compared to the subjects belonging to other socioeconomic status (P = 0.076). None of the variables yield any statistically significant difference between psychological impacts and selected socio-demographic factors of the study subjects (Table 3).

Discussion

This study highlighted a significant prevalence of psychological distress among school-going adolescents in Rohtak, Haryana, with 86.3% of participants exhibiting symptoms of anxiety or depression. This aligns with existing research showing that adolescence is a vulnerable period for the onset of mental health issues due to various biological, social, and environmental stressors (8). The average age of the participants was 15.9 years, and 61% were male, similar to other studies where mid-adolescence has been identified as a critical phase for the development of anxiety and depression (9). Despite more than half of the participants having a healthy BMI, this did not shield them from experiencing psychological distress, suggesting that psychological well-being is influenced by factors beyond physical health (10).

The PHQ-4 results further reinforced the presence of emotional difficulties, with 25.5% of adolescents reporting sadness, and 18.8% reporting anxiety at least once a week. Additionally, 26% had trouble controlling their worries, and 28.5% had lost interest in their daily routines. These findings are consistent with global studies that indicate high levels of emotional distress among adolescents (11). Interestingly, no significant gender differences in anxiety and depression scores were observed in this study, contrary to the global trend where female adolescents are generally found to report higher rates of depression and anxiety (12). This suggests that psychological distress in males, particularly in this cultural context, may be underreported or more prevalent than previously understood. Sociodemographic factors, such as family status, parental occupation, and socio-economic background, were examined for their association with psychological health. Although no statistically significant associations were found, adolescents from lower-middle socio-economic backgrounds reported slightly higher anxiety and depression scores. This echoes findings from previous research indicating that lower socio-economic status is a risk factor for mental health issues among adolescents (13). Additionally, participants whose parents were unskilled workers had slightly higher psychological health scores, although the differences were not significant. These trends highlight the importance of considering the broader socio-economic environment when addressing adolescent mental health and call for further investigation to explore the nuanced effects of these factors (14).

Conclusion

This study highlights a high prevalence of psychological distress, particularly anxiety and depression, among school-going adolescents in North India. Despite no significant associations between

sociodemographic factors and mental health, subtle trends were observed, especially related to socio-economic background. These findings underscore the need for early mental health interventions and tailored policies to address adolescent psychological well-being. Further research is essential to explore the socio-cultural factors influencing adolescent mental health in this region.

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Table 1. Assessment of the psychological characteristics of study subjects

S.NO	Psychological characteristics (PHQ-4 Items)	Frequency	Percentage
1.	**Nervous or anxious** Not at all	040	6.7%

	Once in a month	163	27.2%
	Once in a two week	284	47.3%
	Once in a week	113	18.8%
2.	**Not being able to stop or control worrying**		
	Not at all		
	Once in a month	098	16.3%
	Once in a two week	187	31.2%
	Once in a week	159	26.5%
		156	26%
3.	**Felt down, depressed or hopeless**		
	Not at all	118	19.7%
	Once in a month	132	22%
	Once in a two week	197	32.8%
	Once in a week	153	25.5%
4.	**Felt little interest or pleasure in doing things**		
	Not at all	064	10.7%
	Once in a month	185	30.8%
	Once in a two week	180	30%
	Once in a week	171	28.5%

Table 2 Distribution of subjects according to their psychological distress

Psychological distress			
Characteristics		**Frequency**	**Percentage**
1.	Anxiety		
	PHQ-4 <3	228	38%
	PHQ-4 >3	372	62%
2.	Depression		
	PHQ-4 <3	198	33%
	PHQ-4 >3	402	67%
3.	Psychological distress		
	PHQ-4 <3	82	13.7%
	PHQ-4 >3	518	86.3%

Table 3: Association of the psychological health with selected socio-demographic factors

Variable	N	Total PHQ scores (Mean ±SD)	t / F Value	p-value
Age				
14 Years	108	6.14 ± 3.15		
15 Years	137	5.84 ± 2.94		
16 Years	140	6.25 ± 2.87	0.396	0.812
17 Years	113	6.20 ± 2.93		
18 Years	102	6.07 ± 2.83		

Gender Male Female	 334 266	 6.09 ± 2.92 6.10 ± 2.97	0.046	0.964
Religion Hindu Muslim Others	 574 20 06	 6.12 ± 2.94 5.62 ± 3.13 5.83 ± 2.22	0.329	0.720
Family status Nuclear family Joint family Extended family	 310 247 043	 6.17 ± 2.85 6.05 ± 3.05 5.91 ± 2.95	0.220	0.803
Occupation of the father Professional Skilled Work Unskilled Worker Not working/ House Wife	 180 315 093 012	 5.70 ± 3.03 6.17 ± 2.95 6.63 ± 2.67 6.08 ± 2.61	2.21	0.86
Occupation of the mother Professional Skilled Work Unskilled Worker Not working/ House Wife	 038 073 042 447	 5.63 ± 2.88 6.63 ± 2.94 6.64 ± 2.26 6.00 ± 2.99	1.75	0.15
Socio-economic status Upper class (26-29) Upper middle (16-25) Lower middle (11-15) Upper lower (5-10) Lower (below 5)	 008 169 253 165 005	 4.50 ± 2.93 5.85 ± 3.02 6.15 ± 2.98 6.27 ± 2.75 8.80 ± 2.76	2.12	0.076