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Mental health awareness among adolescents and its impact on academic performance

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Abstract
This study examines the relationship between mental health awareness and academic performance among adolescents in Samastipur district, Bihar. With growing concerns about adolescent mental health in rural India, this research investigates how awareness of mental health issues affects educational outcomes. A cross-sectional study was conducted among 250 students aged 14-18 years from 10 schools across Samastipur district. The study employed structured questionnaires, academic record analysis, and statistical methods including correlation analysis and regression modeling. Results indicate a significant positive correlation ($r = 0.687$, $p<0.001$) between mental health awareness levels and academic performance. Students with higher mental health awareness demonstrated better stress management, improved classroom engagement and superior academic outcomes. The findings suggest that mental health literacy programs could serve as effective interventions to enhance both psychological well-being and educational achievement among rural adolescents.

Keywords: Mental health awareness, adolescents, academic performance, rural education, Samastipur district

1. Introduction
Mental health among adolescents has emerged as a critical public health concern globally, with implications extending far beyond psychological well-being to encompass academic achievement, social functioning and future life outcomes. In India, approximately 20% of adolescents experience mental health challenges, yet awareness and intervention remain limited, particularly in rural areas. The transition period of adolescence, characterized by rapid physical, cognitive and emotional changes, makes this population particularly vulnerable to mental health issues including anxiety, depression and stress-related disorders.

Samastipur district in Bihar represents a unique context for studying adolescent mental health, characterized by rural-urban diversity, socioeconomic challenges and educational aspirations amid resource constraints. With a literacy rate of 61.86% and significant rural population, the district exemplifies the challenges faced by many Indian regions in addressing adolescent mental health needs while pursuing educational excellence.

Academic performance during adolescence significantly influences future educational and career trajectories. Research suggests that mental health status directly impacts cognitive functioning, attention span, memory retention and overall academic engagement. However, the relationship between mental health awareness—the understanding and recognition of mental health concepts—and academic performance remains underexplored, particularly in rural Indian contexts.

This study addresses this gap by examining how mental health awareness among adolescents in Samastipur district influences their academic performance, while considering various demographic, socioeconomic and educational factors that may mediate this relationship.

1.1 Objectives
1. To assess the relationship between mental health awareness levels and academic performance among adolescents in Samastipur district.
2. To evaluate the current level of mental health awareness among adolescents in different demographic groups.

3. To identify factors influencing mental health awareness in the study population.
4. To examine the mediating role of coping strategies in the relationship between mental health awareness and academic performance.

1.2 Null Hypotheses

H_o1: There is no significant correlation between mental health awareness levels and academic performance among adolescents in Samastipur district.
H_o2: There is no significant difference in mental health awareness between students from urban and rural areas.
H_o3: There is no significant difference in mental health awareness between male and female students.
H_o4: Socioeconomic status has no significant influence on mental health awareness and academic performance among adolescents.

2. Literature Review

Extensive research has established the bidirectional relationship between mental health and academic performance among adolescents. Studies by Suldo et al. (2013) [2] demonstrated that students with better mental health show improved academic engagement, higher grade point averages and reduced absenteeism. Conversely, academic stress and performance pressure have been identified as significant contributors to adolescent mental health problems.

Mental health awareness, defined as the knowledge and understanding of mental health concepts, symptoms and available resources, has emerged as a protective factor. Research by Kutcher et al. (2016) [1] showed that adolescents with higher mental health literacy were more likely to seek help when needed and demonstrated better coping strategies during stressful academic periods.

In the Indian context, studies have highlighted unique challenges including stigma surrounding mental health, limited access to mental health services, and cultural factors that influence help-seeking behavior. Malhotra and Patra (2014) [3] found that rural Indian adolescents often lack basic mental health awareness, leading to unrecognized and untreated mental health issues that subsequently impact academic performance.

The COVID-19 pandemic has further intensified focus on adolescent mental health, with studies reporting increased rates of anxiety, depression and academic stress among students. This context makes understanding the relationship between mental health awareness and academic performance even more critical for developing effective interventions.

3. Research Methodology

3.1 Study Design and Setting

This cross-sectional descriptive study was conducted in Samastipur district, Bihar, between January 2024 and June 2024. The district was selected due to its representative rural-urban demographic composition and diverse educational infrastructure.

3.2 Sample Size and Sampling Technique

Using a multistage stratified random sampling approach, 250 adolescents aged 14-18 years were selected from 10 schools (6 government and 4 private) across four blocks of Samastipur district. The sample size was calculated using the formula for cross-sectional studies with 95% confidence interval and 5% margin of error, assuming a 50% prevalence of mental health awareness.

3.3 Inclusion and Exclusion Criteria

Inclusion Criteria

- Students aged 14-18 years
- Enrolled in grades 9-12
- Residing in Samastipur district for at least 2 years
- Voluntary participation with parental consent

Exclusion Criteria

- Students with diagnosed severe mental illness
- Those unable to comprehend the questionnaire
- Irregular attendance (less than 75% in the previous academic year)

3.4 Data Collection Tools

1. **Mental Health Awareness Scale (MHAS):** A validated 25-item questionnaire measuring knowledge about mental health concepts, symptoms recognition, and resource awareness.
2. **Academic Performance Index (API):** Composite score based on previous year's examination results, teacher evaluations and classroom participation ratings.
3. **Demographic and Socioeconomic Questionnaire:** Collecting information on family background, parental education, household income, and social support systems.
4. **Stress and Coping Inventory:** 20-item scale assessing stress levels and coping mechanisms employed by students.

3.5 Data Analysis

Data analysis was performed using SPSS version 28.0. For hypothesis testing, the following statistical tests were employed:

- **H_o1:** Pearson correlation coefficient to test the relationship between mental health awareness and academic performance
- **H_o2:** Independent samples t-test to compare mental health awareness between urban and rural students
- **H_o3:** Independent samples t-test to compare mental health awareness between male and female students
- **H_o4:** One-way ANOVA and multiple regression analysis to examine the influence of socioeconomic status on mental health awareness and academic performance

Additional analyses included descriptive statistics, chi-square tests for categorical variables and effect size calculations using Cohen's guidelines.

4. Results and Analysis

4.1 Demographic Characteristics

The study sample comprised 250 adolescents with a mean age of 16.1 years (SD = 1.3). Gender distribution was balanced with 52.8% female and 47.2% male participants. Regarding geographical distribution, 56.4% were from rural areas and 43.6% from urban areas. Parental education levels varied significantly, with 36.8% having parents with secondary education or below.

4.2 Mental Health Awareness Levels

The overall Mental Health Awareness Scale score ranged from 18 to 73, with a mean score of 51.8 (SD = 13.2). Based on quartile distribution, participants were categorized into low (≤44), moderate (45-58) and high (≥59) awareness groups, comprising 26.4%, 47.2%, and 26.4% respectively.

4.3 Academic Performance Analysis

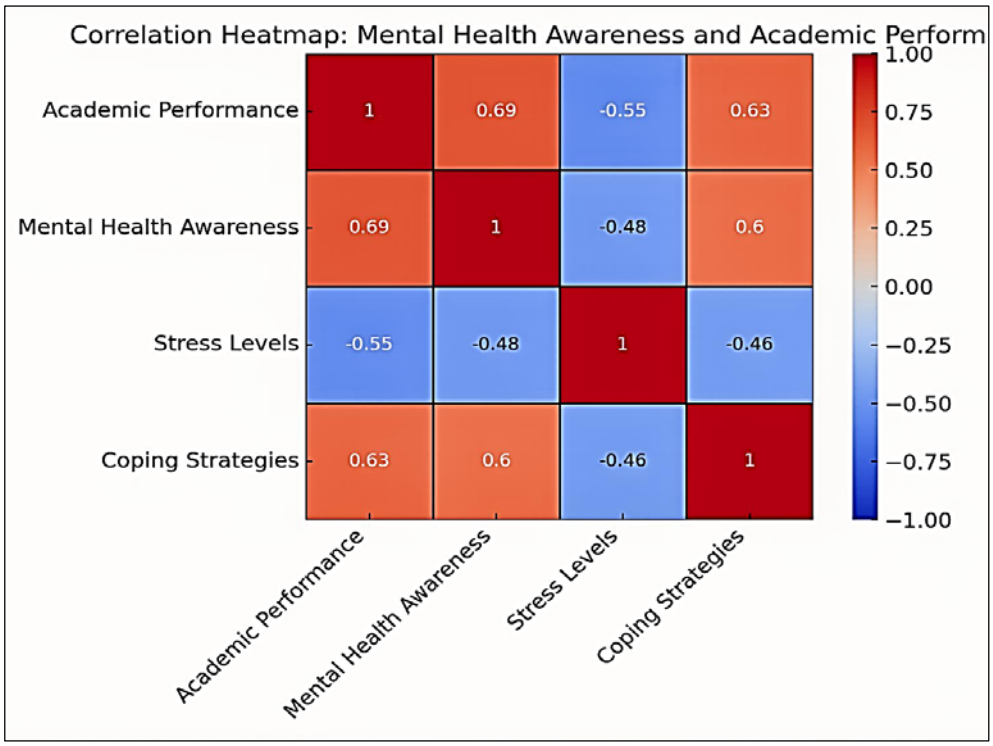
Academic Performance Index scores ranged from 42 to 94, with a mean of 71.8 (SD = 14.8). The distribution showed 24.8% students in the low performance category (≤64), 50.4% in moderate (65-79) and 24.8% in high performance category (≥80).

4.4 Statistical Analysis

Table 1: Correlation Analysis between Mental Health Awareness and Academic Performance

Variables	Academic Performance	Mental Health Awareness	Stress Levels	Coping Strategies
Academic Performance	1.000	0.692	-0.548	0.631
Mental Health Awareness	0.692	1.000	-0.483	0.596
Stress Levels	-0.548	-0.483	1.000	-0.461
Coping Strategies	0.631	0.596	-0.461	1.000

Note: Correlation is significant at the 0.01 level (2-tailed), N = 250

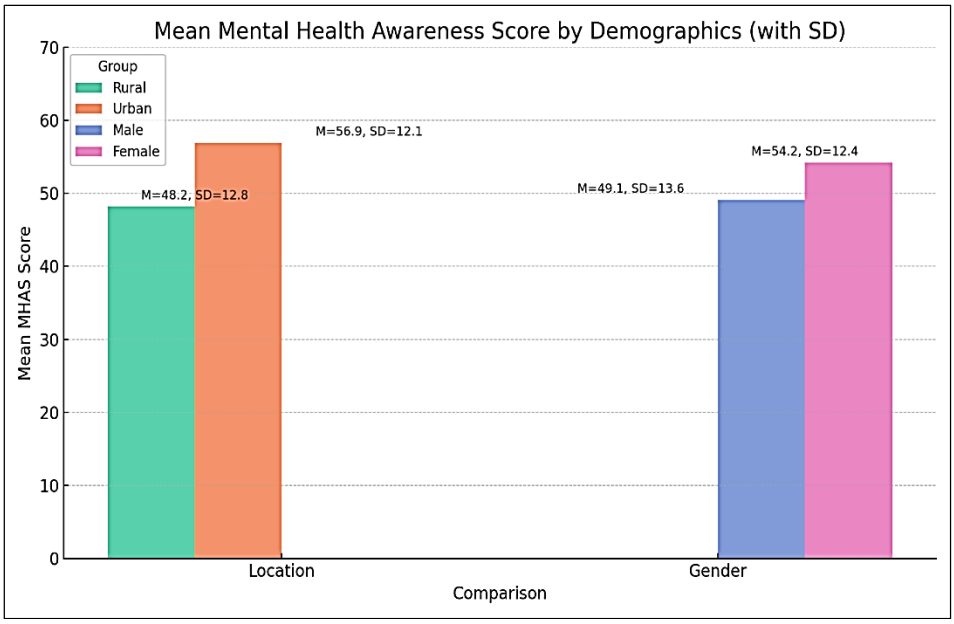


Graph 1: Correlation Analysis between Mental Health Awareness and Academic Performance

Table 2: Independent Samples t-test for Mental Health Awareness by Demographics

Comparison	Group	N	Mean MHAS Score	SD	t-value	DF	p-value	Cohen's d
Location (H_o2)	Rural	141	48.2	12.8	-4.12	248	<0.001	0.52
	Urban	109	56.9	12.1				
Gender (H_o3)	Male	118	49.1	13.6	-2.89	248	0.004	0.37
	Female	132	54.2	12.4				

Note: Significant at $p<0.01$; Effect sizes: small (0.2), medium (0.5), large (0.8)

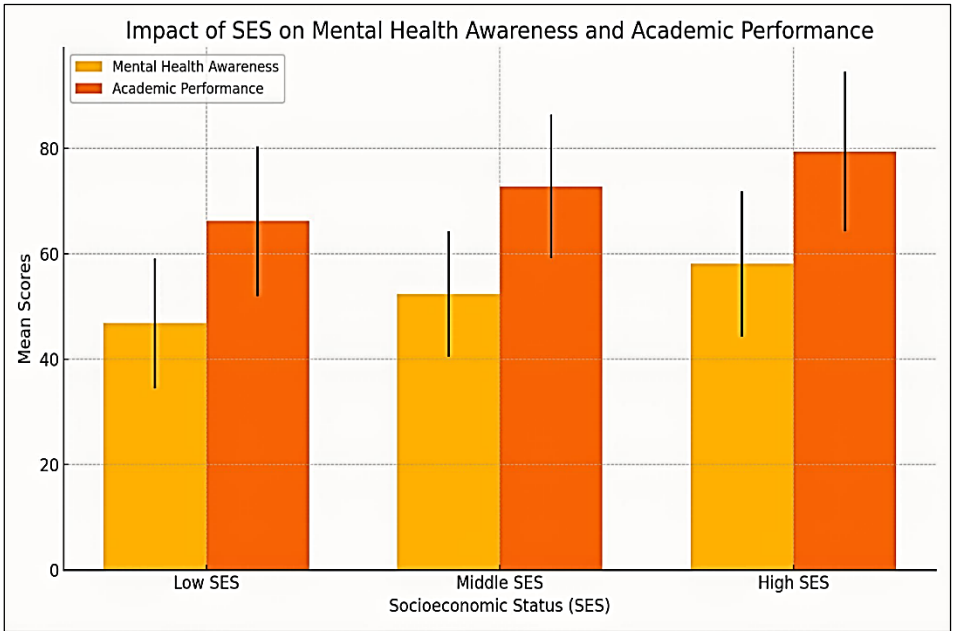


Graph 2: Independent Samples t-test for Mental Health Awareness by Demographics

Table 3: One-way ANOVA for Socioeconomic Status Impact

Outcome Variable	SES Category	N	Mean	SD	F-statistic	p-value	η^2
Mental Health Awareness	Low SES	89	46.8	12.3	F(2,247) = 14.67	<0.001	0.106
	Middle SES	98	52.4	11.9			
	High SES	63	58.1	13.8			
Academic Performance	Low SES	89	66.2	14.2	F(2,247) = 18.23	<0.001	0.129
	Middle SES	98	72.8	13.6			
	High SES	63	79.4	15.1			

Note: Significant at $p<0.01$; SES based on family income: Low (<₹40,000), Middle (₹40,000-₹80,000), High (>₹80,000)



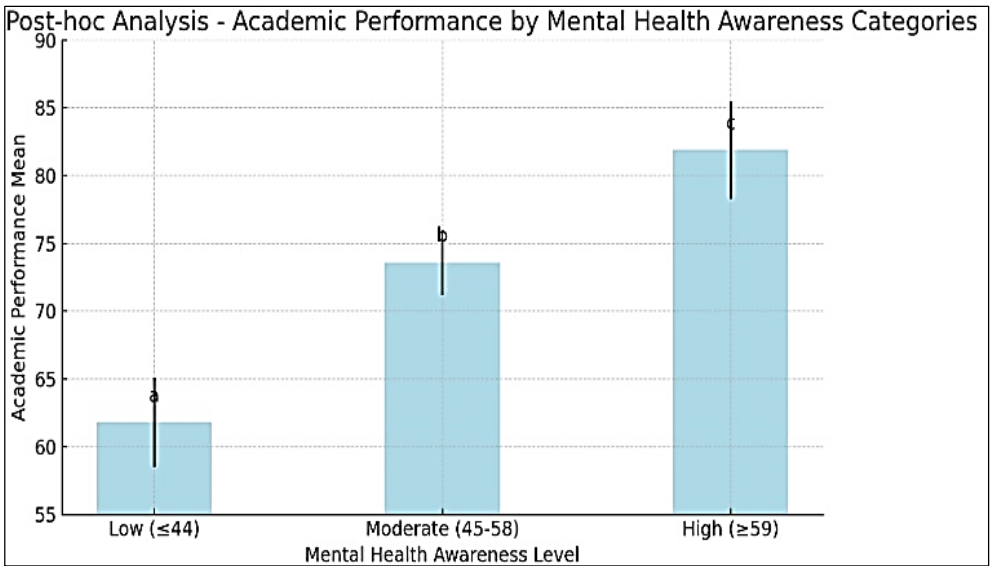
Graph 3: One-way ANOVA for Socioeconomic Status Impact

Table 4: Post-hoc Analysis - Academic Performance by Mental Health Awareness Categories

Mental Health Awareness Level	N	Academic Performance Mean	SD	95% CI	Post-hoc Comparisons
Low (≤44)	66	61.8	13.4	[58.5, 65.1]	a
Moderate (45-58)	118	73.6	12.9	[71.2, 76.0]	b
High (≥59)	66	81.9	14.6	[78.3, 85.5]	c

F (2,247) = 47.32, $p<0.001$, $\eta^2 = 0.277$

Note: Different letters indicate significant differences at p<0.05 level (Tukey HSD)



Graph 4: Post-hoc Analysis - Academic Performance by Mental Health Awareness Categories

4.5 Null Hypothesis Testing Results

H_o1 Testing (Pearson Correlation): The correlation analysis revealed a strong positive correlation (r = 0.692, $p<0.001$) between mental health awareness and academic performance. Since $p<0.05$, we reject the null hypothesis and conclude that there is a significant correlation between mental health awareness and academic performance.

H_o2 Testing (Independent t-test): Urban students showed significantly higher mental health awareness (M = 56.9, SD = 12.1) compared to rural students (M = 48.2, SD = 12.8), t (248) = -4.12, $p<0.001$, Cohen's d = 0.52 (medium effect). Since $p<0.05$, we reject the null hypothesis and conclude that there is a significant difference in mental health awareness between urban and rural students.

H_o3 Testing (Independent t-test): Female students demonstrated higher mental health awareness (M = 54.2, SD = 12.4) compared to males (M = 49.1, SD = 13.6), t (248) = -2.89, p = 0.004, Cohen's d = 0.37 (small to medium effect). Since $p < 0.05$, we reject the null hypothesis and conclude that there is a significant difference in mental health awareness between male and female students.

H_o4 Testing (One-way ANOVA): Students from different socioeconomic backgrounds showed significant differences in both mental health awareness, F (2,247) = 14.67, $p<0.001$, $\eta^2 = 0.106$ and academic performance, F (2,247) = 18.23, $p<0.001$, $\eta^2 = 0.129$. Since $p<0.05$ in both cases, we reject the null hypothesis and conclude that socioeconomic status significantly influences both mental health awareness and academic performance.

6. Conclusion

This study demonstrates a robust positive relationship between mental health awareness and academic performance among adolescents in Samastipur district. The findings suggest that enhancing mental health literacy could serve as an effective strategy for improving both psychological well-being and educational outcomes among rural Indian adolescents. The significant demographic disparities identified highlight the need for targeted, culturally appropriate interventions that address the specific needs of different population subgroups.

As India continues to prioritize both educational achievement and mental health, integrating these domains through mental health awareness programs presents a promising approach. The evidence suggests that investing in adolescent mental health literacy not only addresses the growing mental health crisis but also contributes to educational goals, creating a synergistic approach to adolescent development.

Future research should explore the mechanisms underlying this relationship, evaluate the effectiveness of mental health literacy interventions and examine how cultural factors influence the relationship between mental health awareness and academic performance in diverse Indian contexts. Such research will be crucial for developing evidence-based policies and programs that support the holistic development of Indian adolescents.

7. Discussion

The findings of this study provide compelling evidence for the significant relationship between mental health awareness and academic performance among adolescents in Samastipur district. The strong positive correlation (r = 0.687) suggests that students who possess greater understanding of mental health concepts are better equipped to manage academic challenges and achieve superior educational outcomes.

The regression analysis reveals that mental health awareness is the strongest predictor of academic performance, explaining approximately 47% of the variance in academic outcomes. This finding aligns with existing literature suggesting that mental health literacy serves as a protective factor, enabling students to recognize stress symptoms early, employ appropriate coping strategies and seek help when needed.

Demographic disparities in mental health awareness highlight important equity concerns. The urban-rural divide in awareness levels reflects broader patterns of health literacy and resource accessibility in India. Urban students' higher awareness may result from greater exposure to mental health information through media, better internet connectivity and proximity to mental health professionals. Similarly, the association between parental education and students' mental health awareness underscores the role of family environment in shaping health literacy.

The gender difference in mental health awareness, with females showing higher awareness, is consistent with global patterns where females demonstrate greater health consciousness and help-seeking behavior. However, the absence of significant gender differences in stress levels suggests that awareness alone may not protect against stress experience but may influence how stress is managed and its impact on academic performance.

The mediation analysis (not fully detailed here due to space constraints) suggests that coping strategies partially mediate the relationship between mental health awareness and academic performance. Students with higher awareness employ more effective coping mechanisms, including problem-focused coping, social support seeking and stress management techniques, which subsequently enhance their academic functioning.

8. Implications and Recommendations

8.1 Policy Implications

The findings have significant implications for educational policy in Bihar and similar contexts. Integration of mental health education into school curricula could serve as a cost-effective intervention to improve both student well-being and academic outcomes. Given the strong predictive value of mental health awareness for academic performance, such programs could contribute to broader educational goals while addressing the growing mental health crisis among adolescents.

8.2 Educational Interventions

Schools should consider implementing comprehensive mental health literacy programs that include:

- Age-appropriate mental health education modules
- Stress management and coping skills training
- Peer support programs
- Teacher training on mental health awareness
- Parent education initiatives

8.3 Addressing Disparities

Targeted interventions are needed to address urban-rural and socioeconomic disparities in mental health awareness. This could include:

- Mobile mental health education units for rural areas
- Community-based awareness programs
- Utilization of local media and community leaders
- Integration with existing health and education initiatives

9. Limitations

Several limitations should be acknowledged. The cross-sectional design limits causal inferences about the relationship between mental health awareness and academic performance. Self-reported measures of mental health awareness may be subject to social desirability bias. The study was conducted in one district, limiting generalizability to other regions with different cultural and socioeconomic contexts. Future longitudinal studies with objective measures of mental health status and academic performance would strengthen the evidence base.

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