



MENTAL HEALTH STATUS AND ITS DETERMINANTS AMONG ADOLESCENTS IN RAJOURI AND POONCH DISTRICTS OF JAMMU AND KASHMIR: A COMMUNITY BASED CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Adolescence is a period of profound biological and psychosocial upheaval, rendering young people particularly susceptible to the rise of mental health conditions. Yet despite increasing global mental health burden among this age category, research from conflict-affected and geographically marginalized areas of India remains conspicuously thin. This study aimed to assess the prevalence of depression, anxiety, and stress, and to identify their sociodemographic determinants, among this age group, residing in Rajouri and Poonch districts of Jammu and Kashmir

Methods: A community-based cross-sectional study was carried out by recruiting 300 adolescents between the ages of 10 and 19 years. Sample size calculations followed Cochran's formula ($n = Z^2PQ/d^2$), drawing an estimated prevalence of 38% of mental health problem, a 5% margin of error, a 95% confidence level, a design effect of 1.5, and a 10% allowance for non-response — collectively producing a minimum required sample of 300 participants. Participants were selected using multistage random sampling procedure. Mental health was evaluated using the Depression, Anxiety, and Stress Scale-21 (DASS-21). To explore associations between sociodemographic characteristics and mental health outcomes, chi-square tests were applied.

Results: The mean age of participants was 16.3 years (SD = 2.0); the majority were male (62.3%), and rural residents accounted for 44.3% of the sample. Depression was prevalent in 15.7% of adolescents, comprising mild (13.7%) and moderate (2.0%). Anxiety affected 38.7% of participants — 33.0% at a mild level and 5.7% at a moderate level — while stress was reported in 39.3% of adolescents (mild: 29.0%; moderate: 10.3%). Statistically significant associations were found between depression and both place of residence ($p = 0.041$) and socioeconomic status ($p = 0.004$). Higher prevalence of anxiety (53.3%) and stress (52.4%) was observed among adolescents with literate fathers compared to those with illiterate fathers

Conclusion: Study presents a substantial proportion of adolescents in Rajouri and Poonch, with mental health morbidity. More than a third of the sample experiencing anxiety or stress. Key risk factors included Rural residence, low socioeconomic status, illiteracy of father, and joint family structure. Taken together, these findings underscore the need for systematic, population-level responses rather than reliance on individual help-seeking. Embedding mental health screening within existing primary care networks and school health programme.

Keywords: Adolescent Mental Health, Depression; Anxiety, Stress, DASS-21, Rajouri, Poonch, Jammu And Kashmir, Cross-Sectional Study, Sociodemographic Determinants.

INTRODUCTION

Adolescence—broadly defined as the years spanning from age 10 to 19, represents perhaps the most consequential phase of human development.



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Convergence of rapid neurobiological change, emerging identity, shifting peer dynamics, and mounting educational pressures creates conditions of heightened psychological susceptibility (1). The World Health Organization has estimated that roughly one in five young people worldwide meets the criteria for a diagnosable mental health condition, and that nearly half of all mental disorders that manifest across a lifetime have their origins before a person turns 14 (2). Yet the treatment gap

remains staggering—particularly in low- and middle-income countries, where more than 75% of affected adolescents receive no professional support, owing to threadbare mental health infrastructure, stigma, and lack of public awareness (3).

Among the range of psychological problems that affect this age group, depression, anxiety, and stress stand out as the most frequently documented. When left untreated, these conditions erode academic performance, diminish the capacity for meaningful social engagement, and increase the likelihood of substance use. They are also associated with self-harm and suicide, which remains the second leading cause of death among individuals aged 15 to 29 worldwide (4,5). Moreover, evidences indicate that psychiatric conditions with adolescent onset tend to persist well into adulthood, compounding the socioeconomic costs borne by families and healthcare systems in the long run (6).

The factors shaping mental health in adolescence are multidimensional. Individual characteristics such as age, gender, and academic performance interact with household-level variables—parental education, income, family structure—to produce psychological outcomes (7,8). Individuals from disadvantaged economical families face disproportionate exposure to chronic stress, food insecurity, and substandard living conditions, each of which carries independent effects on psychological wellbeing (9). Geography matters as well; adolescents in rural settings frequently encounter barriers to care that their urban counterparts do not, including physical distance from services, lower health literacy, and deeply rooted social stigma that discourage help-seeking (10).

Within the Indian subcontinent, research on adolescent mental health has expanded considerably over the past decade, though this growth has been uneven across regions. Substantial number of studies from from urban and peri-urban region of states like Maharashtra, Tamil Nadu, and the Chandigarh been done (11-13) while remote, conflict-affected areas continue to be neglected in the published literature. Rajouri and Poonch, two districts nestled in the Pir Panjal sub-range of the outer Himalayas in Jammu and Kashmir, represent one such neglected context. Both districts are overwhelmingly rural, rank among the lowest in Jammu and Kashmir by literacy indicators, and have endured decades of low-intensity armed conflict that has fractured community networks and undermined economic stability. Displacement, loss through bereavement, and sustained exposure to violence are each independently associated with heightened psychological distress—including post-traumatic stress responses, depressive episodes, and anxiety—in young populations (14,15). Compounding these structural vulnerabilities, prevailing sociocultural

norms in the region actively discourage open acknowledgment of emotional distress, particularly among adolescent males, making undetected morbidity a plausible and serious concern.

To date, no published community-based study has systematically assessed the prevalence of depression, anxiety, and stress among adolescents in Rajouri and Poonch or mapped the sociodemographic conditions associated with these outcomes in this setting. Addressing this gap is a prerequisite for developing any practical mental health programme. The present study was thus undertaken with two objectives: (i) to estimate the prevalence of depression, anxiety, and stress among adolescents aged 10 to 19 years residing in Rajouri and Poonch districts; and (ii) to examine the association between selected sociodemographic characteristics and mental health outcomes.

MATERIALS AND METHODS

Study Design and Setting

A community based cross sectional study was carried out across two districts of Rajouri and Poonch. The purpose of deliberate selection of these two districts was that these represent the Pir Panjal region, sharing the common geographical, cultural and socioeconomic characteristics. The study was conducted over a period of one year.

Study Population

The target population consisted of permanent adolescent residents between the ages of 10 and 19 years who had been residing for no fewer than six months prior to commencement of data collection. Individuals carrying any prior diagnosis of any psychiatric condition, those on psychotropic medications, and those unable to communicate in either Urdu or Hindi were excluded.

Sample Size Determination

Sample size was computed using Cochran's (1977) formula for estimating a population proportion:

$$n = Z^2 \alpha / 2 \times P \times Q / d^2$$

where $Z_{\alpha/2} = 1.96$ (two-tailed, 95% confidence), $P = 0.38$ (estimated prevalence of any mental health problem drawn from a systematic review of comparable Indian community studies; Singh et al., 2019 reported 36–40% combined anxiety/stress prevalence among adolescents in north Indian districts), $Q = 1 - P = 0.62$, and $d = 0.05$ (allowable margin of error). This yielded:

$$n = (1.96)^2 \times 0.38 \times 0.62 / (0.05)^2 = 3.8416 \times 0.2356 / 0.0025 \approx 362$$

A design effect (DEFF) of 1.5 was applied to account for clustering under the multistage sampling design, giving an adjusted sample of $362 \times 1.5 = 543$. Given practical and resource constraints, and consistent with the guidance of Kish (1965) that precision targets may be balanced against operational feasibility, a final minimum sample of 300 was determined after incorporating a 10% non-

response allowance within a compressed multistage frame. This figure is statistically defensible for the secondary objectives (chi-square analyses) and meets the rule-of-thumb of ≥ 5 expected observations per cell in all contingency tables. Both districts contributed 150 participants each.

Importantly, post-hoc power analysis was also conducted. For the chi-square tests reported in the results, with $n = 300$, $\alpha = 0.05$, and observed effect sizes in the small-to-medium range (Cramér's $V = 0.15$ – 0.25), achieved power ranged from 0.78 to 0.91, confirming adequate statistical power for the primary inferential analyses.

Sampling Procedure

Multistage random sampling was employed. In Stage I, 50% of the administrative blocks within each district were selected by simple random sampling. In Stage II, 20% of Primary Health Centres (PHCs) within each selected block were randomly chosen. In Stage III, the required number of adolescent households was identified from the household registers of each PHC using Probability Proportional to Size (PPS) sampling. Within each selected household, one eligible adolescent was enrolled; if multiple eligible adolescents were present, one was selected by lottery.

Data Collection Instrument

Data were gathered through a pre-tested structured interview schedule having two sections. The first section consisted of sociodemographic characteristics as age, sex, place of residence (rural or urban), family structure (nuclear or joint), parental education, and socioeconomic status. The second section administered the Depression, Anxiety, and Stress Scale-21 (DASS-21), a well-validated self-report instrument comprising 21 items distributed evenly across three subscales — depression, anxiety, and stress, with seven items assigned to each. Respondents rated each item on a four-point Likert scale ranging from 0 (did not apply at all) to 3 (applied very much or most of the time). Internal consistency of the scale has been confirmed (Cronbach's $\alpha > 0.80$ for all subscales) in comparable Indian adolescent samples (16).

Scoring and Classification

DASS-21 Scoring: Raw subscale scores were multiplied by a factor of two to yield final scores comparable to the normative benchmarks established for the full 42-item version. Severity was categorised as: Depression — Normal (0–9), Mild (10–13), Moderate (14–20), Severe (21–27), Extremely Severe (≥ 28); Anxiety — Normal (0–7), Mild (8–9), Moderate (10–14), Severe (15–19), Extremely Severe (≥ 20); Stress — Normal (0–14), Mild (15–18), Moderate (19–25), Severe (26–33), Extremely Severe (≥ 34).

Socioeconomic Classification: Classification was done using the Modified Kuppuswamy Scale

(updated 2022) integrating education, occupation of the head of household, and monthly family income into upper, upper-middle, middle, lower-middle, and lower socioeconomic strata.

Statistical Analysis

Statistical analysis was done using IBM SPSS Statistics Version 26.0. Descriptive statistics were expressed as frequencies and percentages for categorical variables, and as mean $\pm$ standard deviation for continuous variables. The chi-square (χ^2) test of independence was applied to evaluate associations between sociodemographic variables and the three mental health outcomes (depression, anxiety, stress). Fisher's exact test was applied where expected cell frequencies fell below five. Effect sizes were quantified using Cramér's V . A two-tailed p -value of ≤ 0.05 was set as the threshold for statistical significance. All tests were two-tailed.

Ethical Considerations

Prior to data collection, ethical approval was secured from the Institutional Ethics Committee (IEC) of Government Medical College, Rajouri (Ref: GMC/RJR/IEC/2023). Participants aged 18 years and older provided written informed consent independently. For those between 10 and 17 years of age, both written consent from a parent or legal guardian and written assent from the adolescent themselves were obtained before enrolment. Participation remained entirely voluntary throughout the study; all responses were anonymized, and individuals retained the right to withdraw at any point without facing any repercussions..

RESULTS

Sociodemographic Profile

A total of 300 adolescents were enrolled in the study, with a response rate of 95.5%. Their mean age was 16.3 years ($SD = 2.0$), with the largest proportion — 57.3% — falling within the 17–19-year age group. Adolescents aged 14–16 years accounted for 32.3% of participants, while those between 10 and 13 years represented 10.4%. Males made up 62.3% of the sample. Just over half of participants (55.7%) resided in urban areas, with the remaining 44.3% from rural settings. Nuclear family arrangements were reported by 70.7% of households. Fathers were literate in 76.3% of cases, compared to 52.7% for mothers. School enrolment was nearly universal, with 97.7% of adolescents currently attending an educational institution.

Prevalence of Mental Health Problems

Table 1 presents the distribution of mental health status. Depression was identified in 15.7% of adolescents; of these, the majority fell within the mild range (13.7%), with the remaining 2.0% meeting criteria for moderate depression. No cases of severe or extremely severe depression were recorded. Anxiety was considerably more common,

affecting 38.7% of participants — 33.0% at a mild level and 5.7% at a moderate level. Stress emerged as the most prevalent concern overall, present in 39.3% of the sample, with mild stress accounting for

29.0% and moderate stress for 10.3%. As with depression, no cases of severe or extremely severe anxiety or stress were detected.

Table 1: Distribution of Mental Health Status among Study Participants (N = 300)

Mental Health Parameter	Frequency (N)	Percentage (%)
Depression		
Normal	253	84.3
Mild	41	13.7
Moderate	6	2.0
Anxiety		
Normal	184	61.3
Mild	99	33.0
Moderate	17	5.7
Stress		
Normal	182	60.7
Mild	87	29.0
Moderate	31	10.3

DASS-21 = Depression Anxiety Stress Scale-21

Association of Depression with Sociodemographic Variables

As shown in Table 2, depression was significantly associated with place of residence ($\chi^2 = 6.35$, $p = 0.041$) and socioeconomic status ($\chi^2 = 9.88$, $p = 0.004$). Rural adolescents demonstrated markedly higher rates of depression (mild: 19.5%; moderate: 1.6%) compared to urban adolescents (mild: 9.6%;

moderate: 2.4%). Adolescents from middle-class families showed the highest rate of mild depression (18.9%), while lower-class participants had the highest rate of moderate depression (4.3%). No significant associations were found with age ($p = 0.318$), gender ($p = 0.079$), family type ($p = 0.197$), or parental education.

Table 2: Association of Depression with Sociodemographic Characteristics (N = 300)

Variable	Normal (%)	Mild (%)	Moderate (%)	X ²	P-Value
Age (Years)				4.72	0.318
10–13	77.4	19.4	3.2		
14–16	88.7	11.3	0.0		
17–19	83.7	14.0	2.3		
Gender				5.03	0.079
Male	81.2	16.7	2.1		
Female	90.3	8.8	0.9		
Residence				6.35	0.041*
Rural	78.9	19.5	1.6		
Urban	88.0	9.6	2.4		
Family Type				3.27	0.197
Nuclear	85.3	12.3	2.4		
Joint	82.9	17.1	0.0		
Socioeconomic Status				9.88	0.004*
Upper	89.2	10.1	0.7		
Middle	80.1	18.9	1.0		
Lower	87.0	8.7	4.3		

* Statistically significant ($p \leq 0.05$); SES = socioeconomic status

Association of Anxiety with Sociodemographic Variables

Table 3 details associations between anxiety and sociodemographic characteristics. Father's education ($\chi^2 = 7.54$, $p = 0.022$) and SES ($\chi^2 = 17.09$,

$p = 0.002$) were significantly associated with anxiety. Among adolescents with illiterate fathers, 47.6% had mild anxiety and 5.7% moderate anxiety, compared to 29.6% and 4.9% respectively in those with literate fathers — giving a total anxiety

prevalence of 53.3% versus 34.5%. The SES gradient was also marked: middle-class adolescents showed the highest combined anxiety (mild 39.7%, moderate 9.3%), followed by upper class (mild 29.1%, moderate 2.2%) and lower class (mild

24.6%, moderate 1.8%). No significant associations were found with age ($p = 0.172$), gender ($p = 0.553$), residence ($p = 0.381$), or mother's education ($p = 0.183$).

Table 3: Association of Anxiety with Sociodemographic Characteristics (N = 300)

Variable	Normal (%)	Mild (%)	Moderate (%)	X ²	P-Value
Age (Years)				6.63	0.172
10–13	54.8	32.3	12.9		
14–16	62.9	33.0	4.1		
17–19	62.8	33.1	4.1		
Gender				1.18	0.553
Male	62.4	31.2	6.4		
Female	60.0	35.6	4.4		
Father's Education				7.54	0.022*
Illiterate	46.7	47.6	5.7		
Literate	65.5	29.6	4.9		
Socioeconomic Status				17.09	0.002*
Upper	68.7	29.1	2.2		
Middle	51.0	39.7	9.3		
Lower	73.6	24.6	1.8		

* Statistically significant ($p \leq 0.05$); SES = socioeconomic status

Association of Stress with Sociodemographic Variables

Table 4 presents the association of stress with sociodemographic variables. Family type ($\chi^2 = 14.22$, $p = 0.003$) and father's education ($\chi^2 = 12.47$, $p = 0.006$) were the significant determinants. Adolescents in joint families had higher moderate stress (15.7%) relative to those in nuclear families (8.5%), while nuclear-family adolescents showed a

higher prevalence of mild stress (35.1% vs. 15.7%). Among adolescents with illiterate fathers, 47.6% had mild stress and 1.0% severe stress, compared to 24.6% and 0.4% respectively among those with literate fathers — representing a total stress prevalence of 52.4% among those with illiterate fathers. Age, gender, residence, mother's education, and SES were not significantly associated with stress (all $p > 0.05$).

Table 4: Association of Stress with Sociodemographic Characteristics (N = 300)

Variable	Normal (%)	Mild (%)	Moderate (%)	Severe (%)	X ²	P-Value
Family Type					14.22	0.003*
Nuclear	56.1	35.1	8.5	0.3		
Joint	67.1	15.7	15.7	1.4		
Father's Education					12.47	0.006*
Illiterate	47.6	47.6	3.8	1.0		
Literate	63.9	24.6	11.1	0.4		
Age (Years)					8.11	0.231
10–13	64.5	16.1	19.4	0.0		
14–16	58.8	31.9	9.3	0.0		
17–19	60.5	30.2	8.1	1.2		
Gender					7.62	0.055
Male	63.4	23.7	12.4	0.5		
Female	54.4	38.6	6.1	0.9		

* Statistically significant ($p \leq 0.05$)

DISCUSSION

This community-based cross-sectional study examined 300 adolescents across the Pir Panjal districts of Rajouri and Poonch, offering a rare epidemiological window into adolescent mental

health within a geographically remote and prolonged conflict-affected area of Jammu and Kashmir. The central findings — depression affecting 15.7% of participants, anxiety reported in 38.7%, and stress in 39.3% — align broadly with

existing literature from comparable populations across northern India and neighboring South Asian countries, and in certain respects surpass those benchmarks.

The prevalence of depression 15.7% aligns with the figures documented by Shrestha et al. (2021) among adolescents in a neighboring Himalayan community in Nepal, where the combined prevalence of mild-to-moderate depression reached 11.6% using the same DASS-21 instrument (8). A similar correspondence emerges when comparing these results against a large school-based survey by Bansal et al. (2020) in Himachal Pradesh, which placed adolescent depression prevalence at roughly 14.2% (17). The modestly elevated rate observed in our study may be attributable to the compounding burden of sustained socio-political instability characteristic of the region. Prolonged conflict exposure — even absent direct violence — has been independently associated with heightened depressive symptoms among adolescents, operating through pathways such as the erosion of community structures, economic vulnerability, and persistent disruption to formal education (14, 18).

Within the present sample, stress (39.3%) and anxiety (38.7%) emerged more prevalent than depression — a pattern that aligns well with findings from several studies conducted among South Asian adolescent populations. Researchers have attributed this pattern to the result of intense academic competition, a narrow range of vocational pathways, and the social-role renegotiations that define this developmental stage (19). Sandal et al. (2017), in Chandigarh, documented mild anxiety in 27.2% and moderate anxiety in 23.3% of their sample of school going adolescents; although the proportion of moderate anxiety exceeds the current figures, their overall picture is comparable in magnitude (9). A meta-analysis of 32 Indian studies — conducted by Grover et al. (2022) — placed the pooled prevalence of anxiety disorders among adolescents at roughly 32%, placing our finding at the upper boundary of this range, depicting the elevated risk in the study population (20).

Geographic location within the district proved to be a statistically significant predictor of depressive symptomatology ($p = 0.041$), with rural adolescents exhibiting depression rates more than double to their urban peers (21.1% versus 11.4%). This disparity is observed in several Indian studies. Working in Uttar Pradesh, Gupta and Srivastava (2018) found markedly elevated depressive symptoms among rural youth, attributing it to limited health literacy, entrenched social stigma, and the structural unavailability of mental health resources (10). These observations are corroborated at a broader level by the systematic review of Patel et al. (2018), identifying access to care, social integration, and neighbourhood-level economic conditions as key

mediating pathways through which rural-urban disparities in adolescent mental health are sustained (21). Rajouri and Poonch carries additional complexity: geographical isolation, roads rendered impassable during certain seasons, and a near-total absence of psychiatric care at the primary health centre level collectively deepen the barriers that young people face — not only in accessing treatment, but in having their distress recognised in the first place.

Socioeconomic standing demonstrated significant associations with both depression ($p = 0.004$) and anxiety ($p = 0.002$). Notably, adolescents from middle-class recorded the highest prevalence of mild depression and mild anxiety, while those from lower-class carried the greatest burden of moderate depression — a counterintuitive distribution that warrants closer examination. This pattern to what is sometimes termed the aspiration-achievement gap, wherein adolescents raised in upwardly mobile, lower-middle-class families are conditioned to pursue social and academic advancement yet frequently encounter structural barriers that render those ambitions unrealisable, producing chronic frustration and sustained psychological strain (22). The concentration of more severe symptom profiles among lower-SES adolescents, meanwhile, follows a well-established theoretical trajectory. Social causation theory holds that material deprivation systematically erodes the protective scaffolding around adolescent mental health — encompassing adequate nutrition, residential stability, participation in extracurricular life, and access to professional psychological care — leaving young people more exposed to internalising pathology (9, 23). These observations find support in the broader literature: Reiss (2013), synthesising evidence across 52 independent studies, determined that low socioeconomic positioning during childhood and adolescence consistently conferred elevated risk for internalising disorders, a conclusion that sits in close alignment with the present findings (6).

Among the sociodemographic determinants examined, paternal education showed a statistically significant association with both anxiety ($p = 0.022$) and stress ($p = 0.006$). Adolescents with illiterate fathers showed markedly elevated rates of total anxiety (53.3%) and stress (52.4%) relative to their peers with literate fathers. The mechanisms through which parental education shapes adolescent mental health are multifaceted: parents with better education tend to be more attuned to signs of psychological distress in their children, communicate with greater openness, navigate institutional structures such as schools more confidently, and are better positioned to seek appropriate mental health care when needed (24). These findings concord well with those of Roy et al. (2019), in Kolkata that paternal literacy in particular can determine the quality of father-child

interaction and designing of pathways to problem solving (13). The significance of paternal education takes on an additional dimension in regions such as Rajouri and Poonch, where patriarchal social structures remain deeply embedded. In such contexts, a father's educational background functions as a proxy for household authority and economic agency, meaning its downstream effects on adolescent wellbeing extend well beyond the domain of knowledge or communication alone.

Family structure emerged as a statistically significant determinant of stress ($p = 0.003$). Adolescents from joint families reported higher rates of moderate stress, whereas those from nuclear families experienced higher mild stress rates. Although, this pattern appears paradoxical — where joint families have long been positioned as a source of emotional buffering and social cohesion. Yet the data suggest otherwise, and the contradiction resolves when one considers the qualitatively distinct pressures each arrangement generates. In joint family settings, adolescents often contend with overcrowded living spaces, competing intergenerational demands, curtailed personal autonomy, and the persistent expectation of social conformity — all of which are recognised stress generators (25). Nuclear families, by contrast, tend to produce a different but no less meaningful form of stress: one marked by thinner social support structures and intensified parental expectations, conditions conducive to low-grade but chronic psychological burden. These observations resonate with findings reported by Singh et al. (2020) in the Bihar, where family type was found to shape not merely whether adolescents experienced stress, but the form and degree it assumed (26).

The absence of significant gender differences in depression, anxiety, and stress in this study is worth examining critically. Substantial studies from west and urban India show elevated depression and anxiety rates among females than their male counterparts (14, 15). Cultural factors particular to the study region — including conservative local norms that discourage overt emotional expression in girls, the comparatively greater freedom afforded to adolescent boys in terms of mobility and social interaction, and the heightened exposure of male adolescents to economic pressures within their households may collectively dilute or redirect what is otherwise an expected gender gradient. It is also plausible that female adolescents in this setting underreported symptoms given social desirability pressures during face-to-face interviews, even though measures were taken to ensure privacy and confidentiality.

Several methodological considerations deserve acknowledgement. The cross-sectional design precludes causal inference; longitudinal studies are needed to establish the directionality of identified

associations. Despite using a validated instrument, the self-report nature of DASS-21 introduces the possibility of response bias, including both underreporting (due to stigma) and overreporting (due to response set). The study did not capture potentially important determinants such as peer victimisation, academic pressure, digital media use, or exposure to conflict-related violence, all of which are plausibly relevant in this setting. Future studies should consider integrating these dimensions and employing mixed methods to capture the experiential dimension of adolescent distress in conflict-affected highland communities.

CONCLUSION

The substantial and largely unaddressed mental health burden among adolescents of Rajouri and Poonch district is documented in this study. Screening data revealed that more than one-third screened positive for anxiety or stress and one out of six positive for depression. Among the sociodemographic characteristics examined, rural residence, economic backwardness, paternal illiteracy, and joint family households emerged as the principal risk factors associated with psychological distress.

The findings of the study carry direct implications for health programming at multiple levels. Incorporating the DASS-21 or similarly validated brief instruments into existing school health systems and the Rashtriya Kishor Swasthya Karyakram (RKSK) framework — particularly at block and primary health centre levels — would substantially improve the early detection of adolescents at risk. Alongside this, community-based awareness efforts led by Accredited Social Health Activists (ASHAs), Anganwadi workers, and school teachers could meaningfully reduce the stigma attached to mental health difficulties and help parents, including those with limited formal education, recognize signs of psychological distress in their children. The pronounced concentration of mental health morbidity in rural populations further underscores the need for decentralised, outreach-oriented telemental health services — an approach that has already demonstrated practical viability across remote regions of India. Family-level interventions designed to strengthen parenting capacities, especially in households characterized by low educational attainment, may also serve to buffer adolescents against adverse mental health outcomes. Investing in adolescent mental health in conflict-affected highland districts of Jammu and Kashmir is not only a public health imperative but also a social justice priority.

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