

Original Research Article

Depression, anxiety, and stress among graduate adults preparing for competitive exams at libraries in a city of Central India: a cross-sectional study

Robin Ramteke*, Rupali Patle, Sachin Divekar, Uday Narlawar

Department of Community Medicine, Government Medical College, Nagpur, Maharashtra, India

Received: 11 July 2025

Revised: 12 August 2025

Accepted: 14 August 2025

*Correspondence:

Dr. Robin Ramteke,

E-mail: robinramteke@gmail.com

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ABSTRACT

Background: Graduate adults preparing for competitive examinations often face significant psychological stress due to prolonged self-study, performance pressures, and uncertainty about outcomes. These factors contribute to rising levels of depression, anxiety, and stress, which can adversely affect academic focus and quality of life.

Methods: A descriptive cross-sectional study was conducted over four months (October 2024 to January 2025) in Nagpur among graduate adults preparing for competitive exams at public libraries. Using convenience sampling, five libraries were chosen from 196, recruiting 310 participants. Data were collected using the Depression, Anxiety, and Stress Scale (DASS-42), a validated self-administered questionnaire comprising 42 items. Descriptive statistics were used to calculate prevalence, and the significance level was set at $p = 0.05$.

Results: Among the 310 participants, the prevalence of depression was 36.46%, anxiety 39.04%, and stress 33.23%. Female participants reported higher mean scores in all three domains compared to males. Medical graduates including MBBS, BAMS, BDS, nursing, and paramedical graduates experienced higher levels of psychological distress across depression, anxiety, and stress, whereas non-medical graduates from arts, commerce, and other science streams reported comparatively lower distress, with engineering students showing the least overall.

Conclusions: The findings indicate a considerable prevalence of depression, anxiety, and stress among graduate students preparing for competitive exams. These results underscore the urgent need for regular mental health screening, early psychological intervention, and the establishment of counseling services in public study environments such as libraries.

Keywords: Anxiety, Competitive exams, Depression, DASS-42, Graduate adults, Mental health, Public libraries, stress

INTRODUCTION

Mental health is an essential component of overall well-being and significantly influences how individuals think, feel, and behave. In recent years, there has been growing concern regarding the mental health of young adults, particularly those preparing for competitive examinations in India.^{1,2} These students often experience high levels of psychological pressure due to academic competition,

uncertainty about the future, societal expectations, and prolonged study periods.^{4,5} The problem is further amplified when these aspirants isolate themselves in structured environments such as libraries, which, although conducive to studying, can also become sources of social withdrawal and chronic stress.^{5,11}

India has a large population of youth striving for limited opportunities in government and other prestigious sectors

through highly competitive exams such as UPSC, MPSC, banking, railways, SSC, NEET, and others.^{5,11} The preparation phase, which often lasts several years, demands intense dedication, discipline, and mental resilience.⁵ During this time, many aspirants face emotional burnout, performance anxiety, and feelings of hopelessness, which, if unaddressed, can lead to depression, anxiety, and stress-related disorders.^{5,6}

The World Health Organization reports depression as the leading cause of disability globally, with anxiety disorders ranking sixth.⁸ In India, the National Mental Health Survey (2015-16) revealed that nearly 10% of adults suffer from common mental disorders, with a notable burden on the youth population.⁷ Despite this significant prevalence, mental health receives insufficient attention in academic settings, especially in informal study environments such as public libraries.¹¹

While coaching centers have started to integrate counseling services, public libraries often the preferred place for independent learners, lack any formal mental health support structures.^{5,11} These libraries, particularly in educational hubs like Nagpur city in Central India, attract hundreds of competitive exam aspirants who spend 8-12 hours a day studying, often in silence and isolation.¹¹ The cumulative effect of academic pressure, social isolation, and uncertainty about results can severely impact their mental health.^{17,18}

Several tools exist to measure psychological distress, among which the Depression Anxiety Stress Scales (DASS-42) is a validated and widely used instrument.¹⁻⁵ This validated tool allows simultaneous assessment of depression, anxiety, and stress symptoms, making it ideal for this study population.¹⁻³

Despite the growing number of students using libraries for exam preparation, limited data is available on their mental health status. Hence, this study was undertaken to assess the prevalence and severity of depression, anxiety, and stress among graduate adults preparing for competitive exams at libraries in Nagpur city, using the DASS-42 tool. The findings aim to generate evidence to inform mental health support strategies in non-institutional academic settings.

METHODS

A descriptive cross-sectional study was conducted over a period of four months, from October 2024 to January 2025, in Nagpur city, among graduate adults preparing for various medical, engineering, banking, and other competitive examinations at public libraries. A line listing of all 196 libraries in the city was prepared, from which five libraries were selected using a convenience sampling technique, based on accessibility and feasibility of data collection. Among the five selected libraries, two were reserved exclusively for medical graduates.

The sample size was determined using the single proportion formula, considering the prevalence of severe anxiety as 27.3% from the study by Pachole et al, a 95% confidence interval, and 5% absolute precision, which yielded an estimated 305 participants; this was rounded up to a total of 310.⁹ From each selected library, graduate adults were recruited using a convenience sampling approach to achieve the calculated sample size.

Graduate adults who were not appearing for exams in the coming year and those who did not provide consent for participation were excluded. Data were collected using a structured, self-administered questionnaire comprising the DASS-42 scale, socio-demographic variables such as age, gender, and occupation of parents, as well as other relevant factors including duration of exam preparation, average sleeping hours, and the presence of financial stress in the family. The collected data were coded, validated, and entered using Epi Info (version 7) and Microsoft Excel. Descriptive statistics were generated, and the Mann-Whitney U test was applied to examine associations between gender and levels of depression, anxiety, and stress. The study was conducted in accordance with the Declaration of Helsinki, and informed consent was obtained from all participants prior to data collection.

RESULTS

As shown in (Table 1), out of the 310 participants, the majority (58.38%) were in the 25-30 years age group, which typically represents aspirants in their peak academic and cognitive performance years. This age range often coincides with heightened career focus, intense preparation for competitive exams, and a willingness to devote extended hours to study. Females formed 55.80% of the sample, slightly outnumbering males, reflecting strong female participation in competitive exam preparation. The educational profile of the participants was diverse, ensuring representation from across professional and scientific domains. MBBS graduates constituted the largest group (24.51%), closely followed by engineering graduates (23.22%), both of which are academically demanding disciplines often linked with rigorous preparation schedules. Participants from BAMS backgrounds formed 11.30%, para-medical graduates accounted for 9.36%, and other science graduates contributed 9.03%, indicating a broad distribution of educational specializations. A notable proportion (76.46%) of aspirants reported sleeping for 6-8 hours daily, suggesting relatively healthy rest patterns among most respondents. Educational satisfaction was reported by 67.42% of participants, which reflects a generally positive perception of their academic journey. Furthermore, 78.06% of participants reported no financial stress in their families, indicating stable socio-economic support, which may reduce certain stressors but does not necessarily eliminate academic and competitive pressure. These demographic and socio-economic findings provide

important background context for interpreting the mental health patterns observed in this population.

Table 1: Demographic variable of the study participants.

Demographic	Variables	Number of participants N (%)
Age (years)	< 25	91 (29.36)
	25 - 30	181 (58.38)
	> 30	38 (12.26)
Sex	Male	137 (44.20)
	Female	173 (55.80)
Graduates	MBBS	76 (24.51)
	BAMS	35 (11.30)
	BDS	21 (6.78)
	Nursing	22 (7.10)
	Para Medical	29 (9.36)
	Engineers	72 (23.22)
	Arts	11 (3.34)
	Commerce	16 (5.16)
	Science (other)	28 (9.03)
Months of preparation	< 12	68 (21.94)
	13 - 24	81 (26.13)
	25 - 36	94 (30.33)
	37 - 48	41 (13.22)
	> 49	26 (8.38)
Satisfied with own education	Satisfied	209 (67.42)
	Not satisfied	101 (32.58)
Sleeping hours per day	<6	59 (19.03)
	6-8	237 (76.46)
	>8	14 (4.51)
Financial stress in the family	Yes	68 (21.84)
	No	242 (78.06)

The overall prevalence of depression, anxiety, and stress among participants was 36.46%, 39.04%, and 33.23% respectively (Table 2), which indicates that almost one-third to nearly two-fifths of all library-based exam aspirants were experiencing significant psychological distress. Using the DASS-42 scale, the severity classifications revealed that depression manifested as mild in 11.62% of participants, moderate in 14.84%, severe in 7.10%, and extremely severe in 2.90%. For anxiety, 10.32% were classified as mild, 14.52% as moderate, 9.68% as severe, and 4.52% as extremely severe. Stress was mild in 14.83% of aspirants, moderate in 11.94%, severe in 4.20%, and extremely severe in 2.26%. The considerable proportion of participants with moderate to extremely severe symptoms especially for anxiety and depression points to a significant mental health burden that could impact concentration, motivation, and exam performance. The DASS-42 categorization not only quantifies prevalence but also reveals that among those affected, many experience symptoms that are likely to interfere with daily functioning and sustained academic effort.

Table 2: Levels of depression, anxiety and stress among study participants.

DASS level	Depression N (%)	Anxiety N (%)	Stress N (%)
Normal	197 (63.54)	189 (60.96)	207 (66.77)
Mild*	36 (11.62)	32 (10.32)	46 (14.83)
Moderate*	46 (14.84)	45 (14.52)	37 (11.94)
Severe*	22 (7.10)	30 (9.68)	13 (4.20)
Extremely* severe	9 (2.90)	14 (4.52)	7 (2.26)
Total	310 (100)	310 (100)	310 (100)

*Respondents were affected by depression (36.46%), anxiety (39.04%), and stress (33.23%)

Table 3: Gender-wise Depression, Anxiety and Stress Scale (DASS) scores among study participants.

DASS-42	Gender (Mean±SD)		Mean difference	Mann-Whitney U-test (Z,P)
	Male	Female		
Depression	7.10±7.95	9.35±8.80	2.25	2.10, 0.05
Anxiety	6.20±5.70	7.83±7.33	1.63	2.08, 0.05
Stress	9.00±6.95	10.93±8.45	1.93	2.12, 0.05

As presented in (Table 3), a clear gender disparity was noted, with female participants experiencing significantly greater psychological distress compared to males. Female aspirants had higher mean scores for depression (9.35±8.80), anxiety (7.83±7.33), and stress (10.93±8.45) relative to their male counterparts (7.10±7.95, 6.20±5.70, and 9.00±6.95, respectively). Statistical analysis using the Mann-Whitney U test confirmed these differences to be significant (p=0.05). This finding aligns with broader mental health literature reporting higher self-reported distress levels among women, potentially due to intersecting academic pressures, social expectations, personal safety concerns, and in some cases, additional family responsibilities. The result underlines the importance of considering gender-sensitive mental health initiatives, since female candidates may experience compounding stressors that differ qualitatively as well as quantitatively from those of males.

Stratification by educational background, as shown in (Table 4), revealed distinct trends. MBBS graduates recorded the highest prevalence of depression (40.78%) and stress (36.84%), with anxiety levels also notably high (42.10%). This could be attributed to the competitive nature of postgraduate medical entrance exams, long study hours, and the pressure of high performance in a field directly impacting human health. BAMS and BDS graduates exhibited the highest anxiety prevalence (44.64%), combined with elevated depression (39.28%) and stress (35.71%), potentially reflecting overlapping academic and professional pressures, as well as uncertainty about career stability. Nursing and

paramedical students showed considerable anxiety levels (39.21%) but relatively lower stress (29.41%), which may indicate more acute worry about future prospects than sustained high stress. Engineering graduates demonstrated the lowest depression (31.94%) and stress (29.16%) rates, with moderate anxiety (36.11%) suggesting that while they do experience psychological challenges, the levels are comparatively less than in medical disciplines. Graduates from arts, commerce, and other science streams reported slightly lower prevalence across all three conditions, which may relate to differences in exam types, career paths, or perceived societal pressure. Overall, the data indicate that medical and allied health graduates face comparatively higher psychological burdens during competitive exam preparation.

Table 4: Prevalence of depression, anxiety and stress among different types of graduates.

Graduates	N	Depression	Anxiety	Stress
MBBS	76	40.78	42.10	36.84
BAMS + BDS	56	39.28	44.64	35.71
Nursing + Paramedical	51	37.25	39.21	29.41
Engineers	72	31.94	36.11	29.16
Arts + Commerce + Science (Others)	55	32.72	34.54	30.90
Overall	310	36.46	39.04	33.23

DISCUSSION

The present study aimed to assess the prevalence of depression, anxiety, and stress among graduate adults preparing for competitive examinations in library settings within a city in Central India. The findings reveal that a considerable proportion of participants are experiencing psychological distress: 36.46% showed symptoms of depression, 39.04% reported anxiety, and 33.23% exhibited stress. These findings indicate that a significant segment of this population is emotionally vulnerable during the high-pressure phase of exam preparation.

The academic and competitive pressure associated with national and state-level entrance and recruitment exams in India is intense. For many aspirants, success in these exams is closely tied to career prospects, family expectations, and social mobility. The period of preparation, especially when done in shared public spaces like libraries, can become emotionally taxing due to prolonged hours of study, limited recreational activity, social comparison, and fear of failure. Such pressures can manifest as negative emotional states, particularly when support systems are lacking.

These findings are consistent with previous Indian studies using the DASS-42 scale. For example, Reddy et al reported depression in 36.2%, anxiety in 40.6%, and stress in 33.7% of NEET aspirants in Andhra Pradesh, suggesting similar psychological patterns in exam-preparing youth.¹ Likewise, Sharma et al found elevated levels of DASS-42 scores among medical entrance exam aspirants, particularly females.²

Several factors may contribute to this psychological morbidity. Competitive exam aspirants often undergo prolonged preparation, face academic uncertainty, and experience social isolation, all of which are known stressors. The library-based setting, usually lacking institutional mental health support, may exacerbate feelings of loneliness and performance pressure. The DASS-42 scale is a well-validated tool that captures the emotional states of depression, anxiety, and stress, and is suitable for assessing non-clinical populations in such community-based studies.³

Our findings also revealed gender disparities, with female students reporting higher mean scores for all three domains, a pattern frequently observed in similar Indian studies.⁴ This may be due to a complex interplay of hormonal, emotional, and sociocultural factors that influence stress perception and coping.

Furthermore, associated variables like financial stress, inadequate sleep, and prolonged study hours may have amplified the psychological burden. Mishra et al noted that sleep deprivation and financial insecurity were strong predictors of higher DASS-42 scores among engineering and competitive exam students.⁵

However, this study has limitations. Being cross-sectional, it cannot establish causality between stressors and psychological outcomes. Moreover, DASS-42 captures only symptom severity, not clinical diagnoses. The possibility of underreporting due to social desirability or mental health stigma must also be considered.

This study has certain limitations. Since it was a cross-sectional, only captures the psychological status of participants at one point in time, limiting causal interpretation. The use of self-reported data through the DASS-42 scale may be influenced by response bias or underreporting due to mental health stigma. As the study was conducted only in libraries within one urban area of Central India, the findings may not be generalizable to aspirants from rural areas, coaching institutes, or home-based settings. Lastly, while DASS-42 is a reliable screening tool, it does not substitute for clinical diagnosis.

CONCLUSION

This study demonstrates a high prevalence of depression, anxiety, and stress among graduate adults preparing for competitive examinations in public libraries in Nagpur city. Among the three domains, anxiety was found to be

the most common psychological issue. The findings highlight the significant emotional and mental health burden faced by aspirants who often engage in prolonged and high-pressure academic preparation without structured institutional support. Notably, female aspirants reported higher levels of distress across all three domains, indicating the need for gender-sensitive mental health strategies. Since these students frequently rely on informal learning environments such as public libraries rather than colleges or coaching centers with built-in student support systems, the results underscore the urgent need for integrated and accessible mental health services tailored to such populations. Addressing these issues is essential not only for the well-being of these young individuals but also for ensuring their academic persistence and long-term productivity.

Recommendations

To reduce the mental health problems found in this study, it is important to provide support services at study centers like libraries and coaching classes. These places should have access to counselors or trained volunteers who can guide students and refer them for help if needed. Awareness programs such as workshops on stress management, time management, and mental health should be conducted regularly to educate students and reduce stigma. Regular screening using simple tools like DASS-21/42 or the Kessler scale can help identify students who are struggling, allowing for early support.

In addition, digital mental health solutions like mobile apps for meditation, counseling, or stress relief should be promoted among aspirants, as they are easy to use and private. Finally, future research should focus on long-term studies to track changes in students' mental health during different stages of exam preparation. This will help understand their needs better and improve mental health support systems for exam aspirants.

ACKNOWLEDGEMENTS

Authors would like to thank the mentors and colleagues at Government Medical College (GMC), Nagpur, for their unwavering support and guidance throughout the study.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Ramteke R, Patle R, Divekar S, Narlawar U. Depression, anxiety, and stress among graduate adults preparing for competitive exams at libraries in a city of Central India: a cross-sectional study. *Int J Community Med Public Health* 2025;12:4137-42.