Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/vqzcpq14

COMPARATIVE ASSESSMENT OF MENTAL HEALTH AND SLEEP QUALITY AMONG MEDICAL AND NON-MEDICAL STUDENTS IN WEST BENGAL: A CROSS-SECTIONAL STUDY

Anik Chakraborty[1*], Surjendu Bikash Khatua[2], Anurag Banerjee[3], Saswata Tripathi[4], Sreejani Chowdhury[5], Soumyadeep Bera[6], Sukanta Sen[7]

[1*]Assistant Professor, Department of Community Medicine, ICARE Institute of Medical Sciences & Research-Haldia, 721645, West Bengal, India.
[2]Assistant Professor, Department of Psychiatry, ICARE Institute of Medical Sciences & Research - Haldia, 721645, West Bengal, India.
[3]MBBS Batch 2021-22, ICARE Institute of Medical Sciences & Research-Haldia, 721645, West Bengal, India.
[4]MBBS Batch 2021-22, ICARE Institute of Medical Sciences & Research -Haldia, 721645, West Bengal, India.
[5]BDS Batch 2022-23, Haldia Institute of Dental Sciences and Research-Haldia, 721645, West Bengal, India.
[6]MBBS Batch 2021-22, ICARE Institute of Medical Sciences & Research-Haldia, 721645, West Bengal, India.
[7]Professor & Head, Department of Pharmacology, ICARE Institute of Medical Sciences & Research -Haldia, 721645, West Bengal, India.

***Corresponding Author:** Anik Chakraborty
[*]Assistant Professor, Department of Community Medicine, ICARE Institute of Medical Sciences & Research-Haldia, 721645, West Bengal, India.

ABSTRACT

Background: College students, especially in developing countries, face mounting mental health challenges and sleep disturbances due to academic, psychosocial, and lifestyle-related stressors. Comparative data between medical and non-medical students in India remain limited. **Objectives:** To assess and compare mental health status and sleep quality among medical and non-medical college students in West Bengal using validated tools, and to explore associations between psychological distress and sleep domains. **Methods:** This cross-sectional study included 255 students (114 medical, 141 non-medical) from various colleges in West Bengal, selected via snowball sampling. Mental health was assessed using the Depression Anxiety Stress Scales (DASS-21), and sleep quality was measured with the Global Sleep Assessment Questionnaire (GSAQ). Comparative and multivariate analyses were performed using Python and SPSS v26. **Results:** Non-medical students reported significantly higher levels of depression (15.36 ± 10.7 vs. 10.75 ± 9.37, $p = 0.0003$), anxiety (13.53 ± 9.09 vs. 10.98 ± 8.46, $p = 0.0215$), and stress (14.88 ± 8.9 vs. 12.00 ± 8.95, $p = 0.0110$) compared to medical students. Although overall GSAQ scores did not significantly differ ($p = 0.224$), the Depression/Anxiety-related sleep disturbance subdomain was significantly higher in non-medical students (1.39 vs. 1.11, $p = 0.005$). Multivariate regression identified depression and stress as independent predictors of poor sleep quality, and both depression and anxiety as predictors of mood-related sleep disturbances. **Conclusion:** Non-medical students exhibit a higher burden of

psychological distress and mood-related sleep disruptions than their medical counterparts. These findings underscore the need for targeted mental health and sleep wellness interventions across academic streams.

Keywords: DASS-21, GSAQ, depression, anxiety, stress, sleep quality, medical students, non-medical students, West Bengal

INTRODUCTION

College students are particularly vulnerable to psychological distress and sleep disorders due to the transitional nature of their academic and personal lives. Academic stress, competitive environments, and shifting social dynamics during this phase can significantly impact both mental health and sleep hygiene. Notably, mental health and sleep disturbances are bidirectionally associated, where psychological distress can impair sleep quality, and poor sleep can exacerbate symptoms of depression, anxiety, and stress.

A multicentric study conducted among Indian college students revealed that the prevalence of moderate to severe depression and anxiety was approximately 40% and 35%, respectively, with significant comorbidity between the two [1]. Another large-scale Indian survey noted that nearly 52% of students had poor sleep quality, as assessed using the Pittsburgh Sleep Quality Index (PSQI), and poor sleepers had significantly higher anxiety and depression scores [2].

Medical students often experience unique stressors related to academic overload, clinical exposure, and performance pressure. A meta-analysis by Quek et al. (2019) found that the global prevalence of anxiety among medical students was 33.8%, significantly higher than the general population [3]. Similarly, a study from central India using the DASS-21 reported that over 45% of medical students experienced moderate to severe levels of stress and depression [4].

Non-medical students, while often overlooked in mental health research, face equally pressing challenges, including financial uncertainty, lack of structured support systems, and career-related anxiety. A comparative study from Karnataka showed that although both groups are affected, non-medical students exhibited higher levels of anxiety and sleep disturbances, possibly due to a perceived lack of direction or institutional guidance [5].

Despite the increasing mental health burden, comparative research exploring both mental health and sleep domains between medical and non-medical students in the Indian context remains sparse. Furthermore, integrated assessment using both psychological and sleep-focused tools is rare, especially in semi-urban and rural settings such as West Bengal.

There is an urgent need to comprehensively evaluate the mental health and sleep quality of students from diverse academic backgrounds to identify high-risk groups and inform targeted interventions. While medical students are traditionally seen as vulnerable, non-medical students often go unrecognized in institutional well-being programs. This study was conceptualized to fill this gap by utilizing validated psychometric tools (DASS-21) and sleep assessment instruments (GSAQ) to provide a detailed understanding of the mental health–sleep interplay across academic streams in West Bengal.

AIM & OBJECTIVES

Aim

To assess and compare the mental health status and sleep quality among medical and non-medical college students in West Bengal.

Objectives

1. To assess the levels of depression, anxiety, and stress among medical and non-medical students using the DASS-21 scale.
2. To evaluate the overall sleep quality and specific sleep disturbances using the Global Sleep Assessment Questionnaire (GSAQ).

3. To compare the mental health and sleep quality between medical and non-medical student groups.
4. To explore the association between psychological distress and specific domains of sleep disturbance.
5. To identify predictors of poor sleep quality and mood-related sleep issues using multivariate analysis.

RESEARCH HYPOTHESIS

Null Hypothesis (H_0): There is no significant difference in mental health status or sleep quality between medical and non-medical college students.
Alternate Hypothesis (H_1): There is a significant difference in mental health status and/or sleep quality between medical and non-medical college students.

MATERIALS & METHODS

Study Design and Setting

This was a descriptive, cross-sectional study conducted among undergraduate and postgraduate students enrolled in medical and non-medical colleges in West Bengal, India.

Study Population

The study population included students from both medical (MBBS, BDS, medical postgraduates) and non-medical streams (B.Sc, B.A., B.Com, B.Tech, and their respective postgraduate programs) currently pursuing their courses in West Bengal.

Sample Size and Sampling

A total of 255 students were successfully recruited through snowball sampling during the data collection period.

Inclusion Criteria

- Students currently enrolled in full-time academic programs (medical or non-medical).
- Willingness to participate and provide informed consent.

Exclusion Criteria

- Students with known psychiatric illness under treatment.
- Those unwilling to complete the full questionnaire.

Study Tools

1. **DASS-21 Scale**: A validated self-report instrument measuring symptoms of depression, anxiety, and stress using 21 items scored on a 4-point Likert scale. [6]
2. **Global Sleep Assessment Questionnaire (GSAQ)**: A 12-item screening questionnaire assessing various sleep domains including insomnia, daytime sleepiness, parasomnia, OSA symptoms, circadian rhythm disturbances, and mood-related sleep disruptions. Each item was scored on a 4-point frequency scale from "Never" to "Always". [7]

Data Collection Procedure

Data were collected through a structured Google Form distributed to eligible participants over a 3-month period. Participants were briefed on the objectives of the study and provided informed e-consent before proceeding with the questionnaire. Participants were also asked to circulate the form to their peer groups who were willing to participate in the study.

Scoring and Outcome Measures

- DASS-21 scores were computed for each domain and categorized according to standard severity thresholds.

- GSAQ responses were scored (0 = Never, 1 = Sometimes, 2 = Usually, 3 = Always), and domain-specific subscores were computed (e.g., Insomnia, OSA).
- A total GSAQ score and a separate Depression/Anxiety-related sleep subscore were also calculated.

Statistical Analysis

Data were analyzed using Python 3.10 and SPSS v26. Descriptive statistics were used to summarize demographic variables and mean scores. Group comparisons between medical and non-medical students were performed using independent t-tests or Mann–Whitney U tests as appropriate. Multivariate linear regression was conducted to identify predictors of poor sleep (GSAQ Total) and mood-related sleep issues (GSAQ Depression/ Anxiety subdomain). A p-value < 0.05 was considered statistically significant.

RESULTS

A total of 255 college students participated in the study, of which 114 (44.7%) were from medical streams and 141 (55.3%) were from non-medical streams. The mean age of the participants was 20.87 ± 1.53 years. Overall scores of mental health domain for the participants were as follows: depression 13.3 ± 10.4, anxiety 12.4 ± 8.9 and stress 13.6 ± 9. According to the scores, participants were moderately depressed and moderately anxious. Stress level was observed as normal among our participants. GSAQ score among participants was 8.64 ± 5, indicating an overall poor sleep quality among them.

On further exploration, it was found that the mean scores for Depression**,** Anxiety, and Stress were significantly higher among non-medical students compared to medical students. Specifically, non-medical students had a mean depression score of 15.36 ± 10.7 compared to 10.75 ± 9.37 in medical students (p = 0.0003). Similarly, anxiety scores were significantly higher in non-medical students (13.53 ± 9.09 vs. 10.98 ± 8.46, p = 0.0215), as were stress scores (14.88 ± 8.9 vs. 12 ± 8.95, p = 0.0110). Table 1 and figure 1 shows the above findings.

Table 1: Comparison of DASS-21 domains and GSAQ score among medical and non- medical participants

		Medical group	Non-medical group	p value (t-test)
DASS-21 domains	Depression	10.75 ±9.37	15.36 ± 10.7	0.0003*
	Anxiety	10.98 ± 8.46	13.53 ± 9.09	0.0215*
	Stress	12 ± 8.95	14.88 ± 8.9	0.0110*
GSAQ total		8.21 ± 5.11	8.98 ± 4.87	0.224

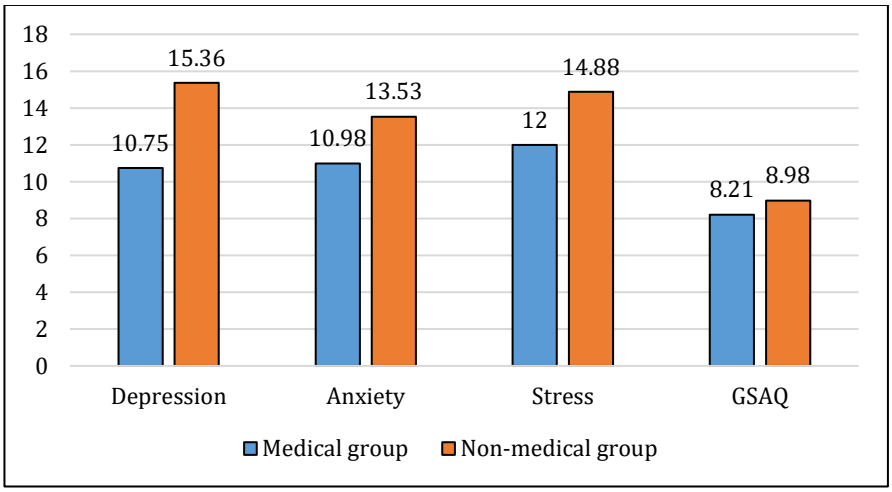

Fig.1 Comparison of DASS-21 domain scores and GSAQ score among medical and non-medical participants

The mean GSAQ total sleep disturbance score did not differ significantly between medical and non-medical students (8.98 ± 4.87 vs. 8.21 ± 5.11, $p = 0.224$). However, among the various GSAQ subdomains, the Depression/ Anxiety-related sleep disturbance was significantly higher in non-medical students (1.39 vs. 1.11, $p = 0.0055$).

Other subdomains—such as Insomnia, Excessive Daytime Sleepiness, Daytime Consequences, Obstructive Sleep Apnea (OSA), Restless Legs Syndrome (RLS), Parasomnia, and Circadian Rhythm Disorder—did not differ significantly between the two groups (all $p > 0.05$), although Daytime consequences of sleep disorder approached significance ($p = 0.08$). Comparison of GSAQ subdomains among medical and non- medical participants has been described below in table 2.

Table 2: Comparison of GSAQ subdomains score among medical and non- medical participants

GSAQ subdomains	Medical Mean	Non-Medical Mean	p-value (Mann-Whitney U test)
Insomnia	1.05	1.17	0.16
Excessive daytime sleepiness	0.96	1.02	0.74
Daytime consequences of sleep disorder	0.90	1.08	0.08
Lack of sleep opportunity	1.09	1.23	0.25
OSA	0.67	0.52	0.1
RLS	1.05	1.20	0.33
Parasomnia	0.54	0.59	0.4
Circadian rhythm sleep disorder	0.82	0.76	0.5
Depression/ Anxiety	1.1	1.39	0.005*

Multivariate linear regression was conducted to explore predictors of poor sleep quality and depression/ anxiety-related sleep symptoms.

For overall sleep quality (GSAQ Total score), Depression and Stress emerged as significant predictors after adjusting for age, sex, and academic stream. For the Depression/ Anxiety-related sleep subdomain, both Depression and Anxiety scores were found to be significant predictors ($p < 0.01$), independent of other covariates.

These findings underscore the interrelationship between psychological distress and sleep problems among college students.

DISCUSSION

The present study provides a comprehensive comparison of mental health status and sleep quality between medical and non-medical college students in West Bengal. The findings revealed significantly higher levels of depression, anxiety, and stress among non-medical students compared to their medical counterparts, highlighting a vulnerable but often overlooked group.

These results are consistent with earlier Indian studies that reported high psychological distress among college students, particularly among those outside structured academic environments like medicine [2, 5]. The DASS-21 tool has been shown to be reliable in assessing subclinical psychological distress in student populations [6].

One notable finding was the significantly higher Depression/Anxiety-related sleep disturbances among non-medical students. This aligns with existing evidence that sleep quality is tightly linked with emotional regulation, especially among young adults [8, 9]. Although the overall GSAQ score did not differ significantly between groups, the higher burden in specific subdomains indicates nuanced differences that might be masked in global indices.

Interestingly, multivariate regression showed that Depression and Stress predicted overall poor sleep quality, while Depression and Anxiety were independently associated with mood-related sleep disturbances. This suggests a bi-directional relationship, where psychological strain impacts sleep,

which in turn can worsen mental health—a finding corroborated by Gupta et al. during their COVID-19 lockdown survey among Indian students [2].

Medical students, though traditionally considered high-risk for burnout and anxiety, showed relatively better outcomes here. This could reflect structured academic schedules, greater mental health awareness, or supportive institutional ecosystems.

However, the study has limitations. First, its cross-sectional design limits causal inference. Second, data were self-reported and thus susceptible to reporting bias. The use of snowball sampling may also limit generalizability. Despite these, the study's strengths lie in its comparative framework, use of validated tools, and comprehensive domain-level analysis.

CONCLUSION

This study highlights a significant mental health burden and subclinical sleep dysfunction among college students in West Bengal, with non-medical students exhibiting greater vulnerability. Targeted mental health promotion and sleep hygiene programs should be integrated into college wellness frameworks, especially for non-medical institutions. Longitudinal research and qualitative insights may further enrich understanding of these dynamics.

Ethical Approval: The study was accorded Ethical Committee Approval vide Ethics Committee IIMSAR-Haldia No. IIMSAR-Haldia/ IEC/ May 2024/06 dated 29.05.24.

REFERENCES

1. Verma S, Sharma S, Larson JS. Prevalence and correlates of anxiety and depression among college students in India. Indian J Psychol Med. 2021;43(4):338-44.
2. Gupta R, Grover S, Basu A, et al. Changes in sleep pattern and psychological health among college students during COVID-19 lockdown in India: results of a web-based survey. Sleep Vigil. 2021;5(1):1-7.
3. Quek TT, Tam WW, Tran BX, Zhang M, Zhang Z, Ho CS, et al. The global prevalence of anxiety among medical students: a meta-analysis. Int J Environ Res Public Health. 2019;16(15):2735.
4. Bansal R, Goyal S, Srivastava K. Study of prevalence of depression in adolescent students of a public school. Ind Psychiatry J. 2009;18(1):43-6.
5. Reddy KJ, Menon KR, Thattil A. Academic stress and its sources among university students. Biomed Pharmacol J. 2018;11(1):531–7.
6. Lovibond SH, Lovibond PF. *Manual for the Depression Anxiety Stress Scales*. 2nd ed. Sydney: Psychology Foundation of Australia; 1995.
7. Roth T, Zammit G, Kushida C, Doghramji K, Mathias SD, Wong JM, et al. A new questionnaire to detect sleep disorders. Sleep Med. 2002;3(2):99–108.DOI: 10.1016/S1389-9457(01)00131-9
8. Alvaro PK, Roberts RM, Harris JK. A systematic review assessing bidirectionality between sleep disturbances, anxiety, and depression. Sleep. 2013;36(7):1059–68.
9. Lund HG, Reider BD, Whiting AB, Prichard JR. Sleep patterns and predictors of disturbed sleep in young adults. J Adolesc Health. 2010;46(2):124–32.