

Prevalence of Psychological Distress among Medical Students: A Screening Study Using GHQ-12

Khyati Nimavat¹, Jayna Devalia², Pratik Trivedi³

¹Assistant Professor, Department of Community Medicine, GMERS Medical college, Junagadh.

²Associate Professor, Department of Physiology, GMERS Medical college, Valsad.

³Assistant Professor, Department of Anatomy, GMERS Medical college, Junagadh.

Corresponding Author: Khyati Nimavat

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ABSTRACT

Background: Mental health problems among adolescents and young adults represent a significant public health concern. Medical students are particularly vulnerable due to the demanding nature of medical training. Early identification of psychological distress through screening tools is essential to promote mental well-being.

Objectives: To assess the prevalence of mental health problems among medical students and to screen for students at higher risk using the General Health Questionnaire-12 (GHQ-12).

Materials and Methods: A cross-sectional study was conducted among 575 undergraduate medical students over a period of two months. Data were collected using a self-administered questionnaire comprising demographic details and the GHQ-12. A GHQ-12 score of ≥ 3 was considered indicative of higher risk for mental health problems. Data were analyzed using descriptive statistics and Chi-square test, with a p-value < 0.05 considered statistically significant.

Results: Out of 575 students, 204 (35.5%) had a GHQ-12 score ≥ 3 , indicating higher risk for mental health problems. The distribution of GHQ-12 risk status did not show a statistically significant association with age, sex, or academic batch ($p > 0.05$).

Conclusion: A considerable proportion of medical students experience psychological distress. Routine mental health screening and supportive interventions during medical training are essential to promote student well-being and resilience.

Keywords: Mental health; Medical students; Psychological distress; GHQ-12

INTRODUCTION

Mental health is an integral component of overall health and well-being and is defined by the World Health Organization as a state in which an individual realizes his or her abilities, can cope with the normal stresses of life, can work productively, and can contribute meaningfully to the community.¹ Mental health disorders comprise a major public health challenge worldwide and are

among the leading causes of disability, particularly in adolescents and young adults. Globally, a significant proportion of adolescents and youth experiences mental health problems currently. Anxiety, depression, and psychological distress are being the most common manifestations. These disorders often begin during late adolescence or early adulthood, a critical developmental phase marked by significant biological, psychological, and social

transitions.² In low- and middle-income countries such as India, mental health disorders contribute considerably to years lived with disability, yet remain under-recognized and inadequately addressed.

India has one of the largest youth populations in the world, and studies conducted in community, school, and college settings have reported a wide variation in the prevalence of mental health problems, ranging from approximately 20% to over 40%, depending on the population studied and the screening tools used.³⁻⁴ Research among adolescents and youth has consistently demonstrated that psychosocial stress factors such as academic pressure, socioeconomic status, family structure, and gender significantly influence mental health outcomes.³⁻⁵

Medical students represent a particularly vulnerable subgroup within this population. Medical education is inherently demanding, characterized by an extensive academic curriculum, frequent examinations, competitive environments, long study hours, and high expectations from family and society. These factors, along with reduced leisure time and sleep deprivation, predispose medical students to anxiety, depression, burnout, and psychological distress.⁶ Although mental health problems among medical students have been reported in the literature, screening-based studies using standardized tools to estimate the current burden of psychological distress in medical student populations remain limited, particularly in routine academic settings.

The present study was therefore undertaken to assess the prevalence of mental health problems and to screen for students at higher risk for psychological problems using the GHQ-12 questionnaire. Such screening provides an overview of the mental health status of medical students and underscores the importance of early identification and supportive interventions during medical training period.

The GHQ-12 is a validated and widely used screening instrument for detecting non-psychotic mental health problems such as

anxiety and depression in adolescent and young adult populations. It has demonstrated good reliability and validity in Indian as well as international settings and is suitable for large-scale screening studies among students.^{3, 7}

MATERIALS & METHODS

Study Design

A cross-sectional, self-administered questionnaire-based study was conducted among undergraduate medical students. This study was done as part of Interns' research project.

Study Setting and Study Population

The study was carried out at a medical college of Junagadh district among undergraduate MBBS students from different academic batches. All students present at the time of data collection and willing to participate were included in the study.

Sample Size and Sampling

All eligible students were invited to participate in the study. A total of 575 medical students participated after providing verbal informed consent.

Study Duration

The study was conducted over a period of 2 months during August to September 2022.

Study Tool

Data were collected using a self-administered, structured questionnaire consisting of two parts:

Basic demographic details:

Information regarding age, sex, and academic batch was collected.

General Health Questionnaire-12 (GHQ-12)⁸:

The GHQ-12 is a validated screening tool used to identify psychological distress and possible non-psychotic mental health problems such as anxiety and depression. It consists of 12 items assessing concentration, sleep disturbance, perceived stress,

decision-making ability, self-confidence, and overall happiness.

Each item of the GHQ-12 was scored as per standard guidelines. A GHQ-12 score of ≥ 3 was considered indicative of higher risk for mental health problems, while a score of < 3 indicated lower risk.

Data Collection Procedure

Data collection was done by interns as a part of their research project during internship period. Students were briefed about the purpose of the study and assured of confidentiality. The questionnaire was administered using a Google Form, which students completed while seated in the classroom. Participation was voluntary, and responses were collected anonymously to encourage honest reporting.

Ethical Considerations

Participation was voluntary, and verbal informed consent was obtained from all participants prior to data collection. No personal identifiers were collected. Confidentiality and anonymity of responses were strictly maintained throughout the study.

Statistical Analysis

Data were entered and analyzed using Microsoft Excel. Descriptive statistics were used to summarize the data, with categorical variables such as age group, sex, and academic batch expressed as frequencies and percentages. The prevalence of mental health problems was estimated based on the proportion of students with a GHQ-12 score

of ≥ 3 , indicating higher risk for mental health problems. The distribution of GHQ-12 risk status across age groups, sex, and academic batches was assessed using percentage comparison and Chi-square test to evaluate statistical significance. A p-value < 0.05 was considered statistically significant.

RESULT

A total of 575 undergraduate medical students participated in the study. The age of the participants ranged from 18 to 23 years. The majority of students were aged 20 years (30.6%), followed by 21 years (24.9%) and 19 years (24.7%). Students aged 18 years constituted 8.3%, while those aged 22 years and above constituted 11.5% of the study population. With regard to sex distribution, 325 students (56.5%) were males and 250 students (43.5%) were females. Participants belonged to four academic batches. The highest proportion of students were from the 2021 batch (30.8%), followed by the 2019 batch (30.3%), 2020 batch (29.2%), and 2018 batch (9.7%). (Table 1)

Prevalence of Mental Health Problems (GHQ-12)

Based on GHQ-12 scoring, 204 students (35.5%) had a GHQ-12 score ≥ 3 , indicating a higher risk for mental health problems, while 371 students (64.5%) had a score < 3 , suggesting lower risk. Thus, approximately one-third of the medical students screened positive for psychological distress. (Table 1)

Table 1. Prevalence of Mental Health Problems Based on GHQ-12 score

GHQ-12 score	Number (n)	Percentage (%)
< 3 (Low risk)	371	64.5
≥ 3 (High risk)	204	35.5
Total	575	100

Item-wise Distribution of GHQ-12 Responses

Analysis of individual GHQ-12 items revealed that 70.5% of students reported being able to concentrate on what they were doing, while 25.4% reported loss of sleep

due to worry. Feelings of constant strain were reported by 19.8%, and 22.7% felt unable to overcome difficulties. Symptoms suggestive of depressed mood were less frequently reported, with 17.9% feeling unhappy or depressed and 12.5% reporting

feelings of worthlessness. Overall, the majority of students reported positive coping and functional abilities across most GHQ-12 domains. (Table 2)

Table 2. Item-wise Distribution of GHQ-12 Responses

GHQ-12 Item	Yes n (%)	No n (%)
Able to concentrate	445 (70.5)	130 (29.5)
Lost sleep over worry	160 (25.4)	415 (74.6)
Playing a useful role	464 (73.5)	111 (26.5)
Capable of making decisions	485 (76.9)	146 (23.1)
Felt constantly under strain	125 (19.8)	506 (80.2)
Unable to overcome difficulties	143 (22.7)	488 (77.3)
Enjoying daily activities	497 (78.8)	134 (21.2)
Able to face problems	520 (82.4)	111 (17.6)
Felt unhappy or depressed	113 (17.9)	518 (82.1)
Losing confidence	135 (21.4)	496 (78.6)
Felt worthless	79 (12.5)	552 (87.5)
Feeling reasonably happy	477 (75.6)	154 (24.4)

Table 3 shows distribution of GHQ-12 Risk Status for demographic and academic variables. Among male students, 32.6% were classified as high risk, while 39.2% of female students had GHQ-12 scores ≥ 3 . Although a higher proportion of females screened positive for psychological distress compared to males, the difference was not statistically significant on Chi-square testing ($p > 0.05$). Across different age groups, the proportion of students with GHQ-12 score ≥ 3 ranged from 25.0% to 37.8%. The highest prevalence was observed among students aged 21 years (37.8%), followed by 20 years (36.4%) and 19 years (36.6%).

Chi-square test did not demonstrate a statistically significant association between age group and GHQ-12 risk status ($p > 0.05$). The proportion of students with GHQ-12 score ≥ 3 was relatively similar across all academic batches. High-risk prevalence ranged from 33.9% to 36.7%. Among batches, 2018 and 2020 batches had 35.7% risk prevalence while 2019 batch had 33.9%, and 2021 batch had 36.7%. Chi-square analysis showed no statistically significant difference in GHQ-12 risk status across academic batches ($p > 0.05$).

Table 3. Distribution of GHQ-12 Risk Status by Demographic and Academic Variables (N = 575)

Variable*	Category	GHQ-12 ≥ 3 n (%)	GHQ-12 < 3 n (%)	Total (n)
Sex	Male	106 (32.6)	219 (67.4)	325
	Female	98 (39.2)	152 (60.8)	250
Age (years)	18	15 (31.3)	33 (68.8)	48
	19	52 (36.6)	90 (63.4)	142
	20	64 (36.4)	112 (63.6)	176
	21	54 (37.8)	89 (62.2)	143
	22	17 (29.3)	41 (70.7)	58
	23	2 (25.0)	6 (75.0)	8
Academic Batch	2018	20 (35.7)	36 (64.3)	56
	2019	59 (33.9)	115 (66.1)	174
	2020	60 (35.7)	108 (64.3)	168
	2021	65 (36.7)	112 (63.3)	177

*Chi-square test showed no statistically significant association between GHQ-12 risk status and sex, age group, or academic batch ($p > 0.05$).

DISCUSSION

The present study assessed the prevalence of mental health problems among

undergraduate medical students using the GHQ-12 screening tool. It was observed that 35.5% of students screened positive for

psychological distress, indicating that more than one-third of the study population was at higher risk for common mental health problems. This finding supports the growing recognition of mental health issues among adolescents and young adults, as highlighted by Gaur and Keshri in their study on Indian youth, which emphasized early adulthood as a vulnerable period for psychological distress.² Similar concerns regarding stress and mental health challenges in academically demanding environments such as medical colleges have also been reported by El-Gabry et al.⁶

The prevalence observed in the present study falls within the range reported by previous studies conducted among adolescents, youth, and student populations in India. Studies by Panesar et al. in rural Haryana and Chauhan and Dhar among adolescents living in urban slums of Lucknow have reported prevalence rates ranging from approximately 20% to over 40%.³⁻⁴ Comparable prevalence figures have also been reported among medical students in international settings. El-Gabry et al. reported high levels of psychological distress among Egyptian medical students, while Dyrbye et al., in their systematic review of medical students in the United States and Canada, documented a substantial burden of depression, anxiety, and psychological distress, underscoring the global nature of this problem.^{6,9}

In the present study, the distribution of GHQ-12 risk status was comparable across different age groups and academic batches, with no statistically significant association observed. This suggests that psychological distress may be experienced throughout the course of medical training rather than being confined to a particular academic year or age group. Similar observations have been discussed in the literature reviewed by Dkhar and Sailo, who noted that mental health problems among adolescents and students are influenced by persistent academic and psychosocial stressors rather than a single transitional phase.⁵ Findings from Panesar et al. also suggest that

psychological distress can be widely distributed across age groups, reinforcing the need for continuous mental health support.³

With regard to sex distribution, a higher proportion of female students screened positive for psychological distress compared to male students; however, the difference was not statistically significant. Previous studies have often reported higher levels of anxiety and emotional distress among female students, which has been attributed to both biological and psychosocial factors.^{3, 5, 7} The absence of statistical significance in the present study indicates that psychological distress is prevalent among both male and female medical students and underscores the need for inclusive mental health support strategies rather than gender-specific assumptions.

Item-wise analysis of GHQ-12 responses revealed that while the majority of students reported adequate concentration, decision-making ability, and enjoyment of daily activities, a considerable proportion experienced symptoms such as sleep disturbance, feelings of strain, reduced confidence, and depressive affect. Similar symptom patterns have been reported by El-Gabry et al. among medical students and by Mokhtari et al. in female student populations, suggesting that subclinical psychological distress is common in student communities and may exist even in the absence of overt psychiatric illness.^{6,7} These findings are also consistent with observations summarized by Dyrbye et al., who emphasized that psychological distress among medical students often remains unrecognized despite its impact on well-being and academic performance.⁹

It is important to emphasize that the GHQ-12, originally developed by Goldberg, is a screening instrument designed to identify individuals at risk for non-psychotic mental health problems and does not provide a clinical diagnosis.⁸ Therefore; the results of this study reflect the burden of psychological distress rather than confirmed mental disorders. Nonetheless, as

emphasized by the World Health Organization and supported by several screening-based studies, early identification through tools such as the GHQ-12 is valuable for initiating timely counseling, stress management, and preventive mental health interventions among students.^{1, 7}

CONCLUSION

The present study highlights a substantial burden of psychological distress among undergraduate medical students, with more than one-third of participants screening positive for mental health problems using the GHQ-12 questionnaire. Although no statistically significant association was observed between GHQ-12 risk status and age, sex, or academic batch, the findings indicate that psychological distress is prevalent across all subgroups of medical students.

These results emphasize that mental health concerns are not confined to a specific stage of medical training or demographic group but are widespread throughout the student population. Early identification through screening tools such as the GHQ-12 can play an important role in recognizing students at risk and facilitating timely supportive interventions. Promoting mental well-being among medical students is essential for their academic success, personal development, and future professional competence.

Limitations of the Study

The study has certain limitations. Its cross-sectional design precludes the establishment of causal relationships. Data were collected using a self-administered questionnaire, which may be subject to reporting bias. Additionally, the study focused on screening for psychological distress and did not explore specific etiological risk factors or clinical diagnoses

Declaration by Authors

Ethical Approval: Approved

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