

Impact of Socio-Demographic Factors on the Prevalence of Generalized Anxiety Disorder Among Interns in Allied Health Sciences

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ABSTRACT

Background: Generalized Anxiety Disorder (GAD) is a prevalent mental health condition characterized by excessive worry and physiological symptoms, significantly impacting professional performance and quality of life. Interns in Allied Health Sciences (AHS) face high psychological stress due to workload, financial concerns, job insecurity, and disrupted sleep patterns, increasing their susceptibility to GAD.

Objective: To determine the prevalence of GAD among AHS interns and assess the impact of socio-demographic factors on anxiety levels.

Methods: A cross-sectional study was conducted among 220 AHS interns in hospitals and clinical setups in Lahore, Pakistan. Data were collected using a structured questionnaire, including socio-demographic variables and the validated Generalized Anxiety Disorder-7 (GAD-7) scale. The severity of GAD was categorized into minimal, mild, moderate, and severe. Statistical analysis was performed using SPSS version 26, with chi-square tests applied to assess associations ($p \leq 0.05$).

Results: The prevalence of Generalized Anxiety Disorder among interns was 92 (41.8%), while 128 (58.2%) had no GAD. Among those affected, 18.6% experienced minimal anxiety, 39.5% mild anxiety, 33.2% moderate anxiety, and 8.6% severe anxiety. Significant associations were identified between GAD and various socio-demographic factors, including workload ($p = 0.002$), financial concerns ($p < 0.001$), job insecurity ($p = 0.001$), sleep deprivation ($p < 0.001$), accommodation ($p = 0.016$), and part-time work ($p = 0.050$). However, gender, marital status, and training duration did not show significant correlations.

Conclusion: A high prevalence of Generalized Anxiety Disorder was observed among AHS interns, with workload, financial stress, and job insecurity as major contributors. Institutional strategies are needed to mitigate anxiety and enhance mental well-being in future healthcare professionals.

Keywords: Anxiety Disorders, Generalized Anxiety Disorder, Healthcare Personnel, Interns and Residents, Occupational Stress, Socioeconomic Factors, Psychological Stress.

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Introduction

Anxiety is a common human emotion, but when persistent and excessive, it can develop into a pathological condition, significantly impairing an individual's ability to function in daily life. Generalized Anxiety Disorder (GAD) is characterized by chronic worry and apprehension, accompanied by symptoms such as restlessness, fatigue, difficulty concentrating, irritability, muscle tension, and sleep disturbances. These symptoms often interfere with social, occupational, and academic performance, making GAD a major concern in medical education and training (1). Individuals with GAD struggle to regulate distressing emotions, leading to challenges in professional and social settings, particularly in high-pressure environments such as healthcare (2).

The Generalized Anxiety Disorder-7 (GAD-7) scale is a widely used screening tool for detecting anxiety, developed in 2006. It consists of seven items, each assessing the severity of anxiety symptoms. The scale has demonstrated strong sensitivity and specificity, making it a reliable measure for identifying GAD. A cut-off score of 10 or higher is indicative of a probable diagnosis of GAD, with severity categorized as mild, moderate, or severe based on scoring thresholds of 5, 10, and 15, respectively (3). The GAD-7 scale has been validated across various populations, including students and healthcare professionals, confirming its effectiveness in assessing anxiety levels (4).

GAD is one of the most prevalent anxiety disorders, associated with significant morbidity, impairment, and comorbid psychiatric conditions. The prevalence of GAD varies widely, with reported rates ranging from 3.7% to 14.8% in primary healthcare settings (5). Studies suggest that over 50% of anxiety disorders diagnosed in primary care are attributed to GAD, underscoring its clinical significance (6). The global burden of anxiety has been extensively documented, with prevalence rates reaching 87% in Pakistan, 68% in Australia, and 91% in the United States, highlighting the substantial psychological distress experienced by different populations (7).

Several socio-demographic and environmental factors contribute to the development and persistence of GAD. Life stressors such as financial instability, health concerns, and academic pressure have been strongly linked to anxiety, with research indicating that even after recovery, individuals who have experienced significant stressors remain at increased risk of relapse (8). Anxiety can affect physical and mental health which can also lead to facial palsy (9). Anxiety disorders exhibit high recurrence rates, with an annual relapse rate of 17.7%, yet GAD often remains underdiagnosed, delaying necessary interventions (10). The prevalence of GAD peaks in middle adulthood and declines with age, though younger populations, particularly medical students and interns, remain highly vulnerable (11). Factors such as female gender, adverse

childhood experiences, neurotic personality traits, family history of psychiatric disorders, and socioeconomic constraints have been identified as significant etiological contributors to GAD (12).

Healthcare professionals, including medical interns, are at an elevated risk of anxiety due to the rigorous demands of clinical training. Anxiety can negatively impact communication skills, clinical decision-making, and the ability to manage stress under pressure, ultimately compromising patient care (13). The transition from academic learning to practical training is particularly stressful for interns, as they face new responsibilities, long working hours, disrupted sleep patterns, and uncertainty about their future careers. Research suggests that young doctors experiencing anxiety may exhibit reduced work performance, higher rates of absenteeism, and increased susceptibility to medical errors, posing risks to both their well-being and patient safety (14).

Internships in allied health sciences (AHS) serve as essential training programs designed to enhance students' clinical skills and professional competence. These programs expose interns to real-world healthcare settings, where they encounter significant workloads and high expectations. Stressors such as job insecurity, financial concerns, lack of social support, and inadequate accommodation further exacerbate anxiety levels among interns (15). Studies have shown that up to 95% of medical professionals consider stress a serious issue, underscoring the urgent need for strategies to identify, prevent, and manage anxiety disorders in this population (16-17). Addressing GAD among AHS interns is critical for safeguarding their mental well-being and ensuring they develop resilience in their professional careers. Given the significant impact of socio-demographic factors on anxiety, this study aims to explore their role in the prevalence of GAD among AHS interns. Understanding these associations will provide valuable insights for developing institutional policies to mitigate anxiety and enhance the psychological well-being of future healthcare professionals.

Materials and Methods

This observational cross-sectional study was conducted among interns enrolled in Allied Health Sciences (AHS) training programs in various hospitals and clinical setups in Lahore, Pakistan. The study was carried out between September 2023 and January 2024. A total of 220 interns were recruited using non-probability convenience sampling. Ethical approval for the study was obtained from the Institutional Review Committee (IRC) of the University Institute of Physical Therapy, University of Lahore. Institutional permissions were also sought through internship coordinators and official email channels to facilitate participant recruitment. Prior to data collection, written informed consent was obtained from all participants, ensuring voluntary participation and

confidentiality of responses. Participants were assured that they could withdraw from the study at any time without any consequences.

Inclusion criteria for this study required participants to be interns in AHS fields such as optometry, medical imaging technology, diet and nutrition, and doctor of physical therapy (DPT). Eligible interns must have been actively engaged in internship training for a minimum duration of one month. Interns who had completed less than one month of training or were permanent employees in healthcare institutions were excluded from the study (19).

Data collection was conducted using a structured questionnaire, comprising two main sections. The first section gathered socio-demographic data, including age, gender, marital status, duration of internship, financial concerns, workload, job insecurity, working hours, part-time employment, accommodation type, social support, interest in the field, and career prospects. The second section assessed anxiety levels using the Generalized Anxiety Disorder-7 (GAD-7) scale. This standardized self-reported scale consists of seven items evaluating the frequency and severity of anxiety symptoms. The total score on the GAD-7 was categorized as minimal anxiety (0–4), mild anxiety (5–9), moderate anxiety (10–14), and severe anxiety (≥ 15). The GAD-7 has been extensively validated across various populations and is widely used in both clinical and research settings (20).

The survey was administered through both online platforms (Google Forms) and paper-based formats to maximize participation. To minimize potential biases, participants were instructed to complete the questionnaire independently without external influence. Data were carefully checked for completeness before analysis. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics, including frequency distributions and percentages, were used to summarize the demographic

characteristics of the participants. The chi-square test was applied to assess the association between GAD and socio-demographic factors, with a significance level set at $p \leq 0.05$. Results were reported with a 95% confidence interval.

To ensure compliance with ethical standards, all collected data were anonymized, and participant confidentiality was maintained throughout the study. The study adhered to ethical guidelines, with strict measures taken to protect participant privacy. All data were securely stored and accessible only to authorized researchers. Participants experiencing significant anxiety symptoms were advised to seek professional psychological support. The findings of this study will contribute to understanding the impact of socio-demographic factors on GAD prevalence among AHS interns, providing a foundation for future research and intervention strategies in medical education and mental health policy.

Results

A total of 220 interns participated in the study. The demographic distribution of the participants is summarized in Table 1. The majority of the interns were aged between 22–24 years (74.1%), followed by 25–27 years (22.7%), 19–21 years (2.7%), and 28 years or older (0.5%). The sample comprised 73.6% females and 26.4% males. Most interns were from the Doctor of Physical Therapy (DPT) department (70.5%), with smaller proportions from Optometry (10.5%), Medical Imaging Technology (MIT) (13.6%), and Diet and Nutrition (5.5%). The majority of participants were single (88.2%), while 11.8% were married.

The prevalence of GAD among interns, categorized by severity, is presented in Figure 1. Of the total participants, 41.8% had some degree of anxiety, with 18.6% classified as minimal anxiety, 39.5% as mild anxiety, 33.2% as moderate anxiety, and 8.6% as severe anxiety.

Table 1: Socio-Demographic Characteristics of Participants

| Variable | Category | n (%) |
|----------------|------------------|------------|
| Age (years) | 19–21 | 6 (2.7) |
| | 22–24 | 163 (74.1) |
| | 25–27 | 50 (22.7) |
| | ≥ 28 | 1 (0.5) |
| Gender | Male | 58 (26.4) |
| | Female | 162 (73.6) |
| Department | DPT | 155 (70.5) |
| | Optometry | 23 (10.5) |
| | MIT | 30 (13.6) |
| | Diet & Nutrition | 12 (5.5) |
| Marital Status | Single | 194 (88.2) |
| | Married | 26 (11.8) |

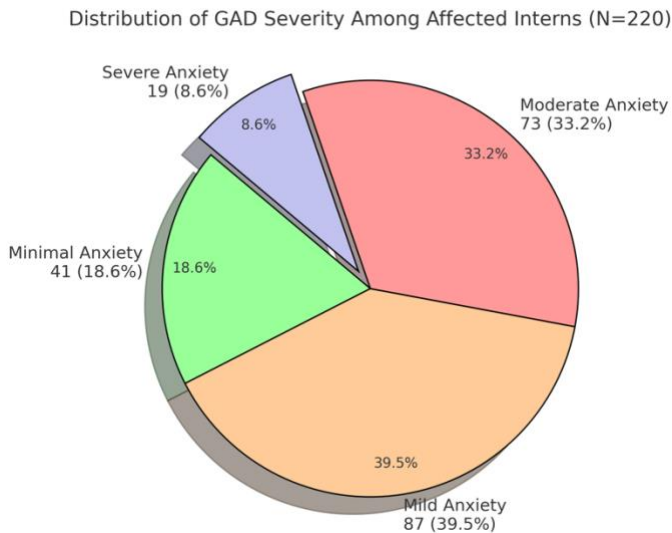


Figure 1: Overall Distribution of Generalized Anxiety Disorder

The analysis demonstrated that interns with financial concerns were significantly more likely to experience anxiety, with 58.6% reporting stress due to financial instability ($p = 0.000$). Workload was a major contributor, as 87.3% of interns felt that excessive work demands negatively impacted their mental health ($p = 0.002$). Job insecurity was another significant factor, with 66.8% of interns experiencing anxiety due to uncertainty about their career prospects ($p = 0.001$). Sleep deprivation also played a crucial role, with interns sleeping fewer than 4 hours per night reporting significantly higher anxiety levels ($p = 0.000$). Additionally, interns living in dormitories or away from family exhibited higher anxiety compared to those residing at home ($p = 0.016$). However, gender, marital status, and months of training did not show significant correlations with GAD.

Table 2: Association Between Socio-Demographic Factors and Generalized Anxiety Disorder

| Variable | Category | n (%) | p-value |
|------------------------------------|-------------------|------------|--------------|
| Gender | Male | 58 (26.4) | 0.817 |
| | Female | 162 (73.6) | |
| Marital Status | Single | 194 (88.2) | 0.224 |
| | Married | 26 (11.8) | |
| Months of Training | 1–2 months | 64 (29.1) | 0.435 |
| | 3–4 months | 63 (28.6) | |
| | 5–6 months | 93 (42.3) | |
| Financial Concerns (Stress Source) | Yes | 129 (58.6) | 0.000 |
| | No | 91 (41.4) | |
| Workload Affects Mental Well-being | Yes | 192 (87.3) | 0.002 |
| | No | 28 (12.7) | |
| Job Insecurity | Yes | 147 (66.8) | 0.001 |
| | No | 73 (33.2) | |
| Part-Time Work | Yes | 58 (26.4) | 0.050 |
| | No | 162 (73.6) | |
| Accommodation | Dormitory | 41 (18.6) | 0.016 |
| | Home with family | 150 (68.2) | |
| | Home with friends | 22 (10.0) | |
| | Home alone | 7 (3.2) | |
| Interest in Field | Low | 11 (5.0) | 0.070 |
| | Medium | 113 (51.4) | |
| | High | 96 (43.6) | |
| Sleep Hours | <4 hours | 18 (8.2) | 0.000 |
| | 4–6 hours | 105 (47.7) | |
| | 6–9 hours | 87 (39.5) | |
| | >9 hours | 10 (4.5) | |

Discussion

The findings of this study highlighted a high prevalence of Generalized Anxiety Disorder (GAD) among interns in Allied Health Sciences (AHS), with significant associations between anxiety and socio-demographic factors such as workload, financial concerns, job insecurity, sleep deprivation, accommodation, and part-time work. The overall prevalence of GAD in this study was 41.8%, with varying degrees of severity, reinforcing the concern that medical trainees experience substantial psychological distress during their internships. This prevalence was consistent with previous studies that reported high anxiety rates among medical interns, including research from Malaysia, where 39.9% of medical interns exhibited anxiety symptoms (12), and Saudi Arabia, where 62.1% of the general population was found to have anxiety using the GAD-7 scale (21). The significant relationship between workload and GAD aligns with earlier research demonstrating that excessive professional demands increase the likelihood of anxiety disorders among healthcare trainees (14). Similarly, financial concerns emerged as a major contributing factor, mirroring findings from previous studies that identified economic instability as a key predictor of anxiety among university students and healthcare professionals (9).

While this study found no significant association between GAD and gender, age, marital status, or months of training, contrasting evidence exists in the literature. Some studies have reported a higher prevalence of anxiety among female medical trainees, suggesting a gender disparity in psychological distress (22). However, other research has similarly found no gender-based differences in anxiety levels among interns (23). The lack of association between age and anxiety in this study was also observed in prior research on university students in Bangladesh, where age and marital status did not significantly impact GAD prevalence (23). These discrepancies highlight the complexity of anxiety disorders and suggest that multiple intrinsic and extrinsic factors influence mental health outcomes among medical trainees.

Students during internship have high risk of anxiety which is 28.9% claim by Tahani K. Alshammari et. Al. (17) The prevalence rate of GAD in students was 32.7% (8) Ismail M et al claims the prevalence of anxiety was 39.9% in medical interns which was significantly associated with young interns and females in Malaysia. (12) Nihal GN et al study on anxiety and stress in medical interns during covid. To measure anxiety they used GAD-7 scale. 34.58 % of sample was with mild anxiety. (18) Aljurbua FI et al studied that anxiety in population of Saudi Arabia was 62.1 % by using GAD-7 scale. And there was no association between GAD and gender (19).

The impact of sleep deprivation on anxiety was strongly evident in this study, with a significant proportion of interns reporting inadequate sleep hours and a corresponding increase in GAD symptoms. This finding aligns with research demonstrating that sleep disturbances contribute to heightened anxiety, cognitive impairment, and reduced emotional resilience (22). Accommodation was another crucial determinant of anxiety, as interns residing in dormitories or away from family exhibited higher levels of distress, supporting existing evidence that social support and stable living conditions mitigate anxiety disorders (16). Additionally, job insecurity was significantly associated with anxiety, consistent with studies indicating that uncertainty about future employment exacerbates mental health issues among young professionals (15).

The strengths of this study included its focus on AHS interns, a population that remains underrepresented in mental health research despite their critical role in the healthcare system. The use of the validated GAD-7 scale ensured reliable assessment of anxiety levels, and the study's cross-sectional design provided a comprehensive snapshot of interns' psychological well-being. However, several limitations must be acknowledged. The study was conducted in a single city, limiting the generalizability of the findings to broader populations. The reliance on self-reported measures introduced the possibility of response bias, as participants might have underreported or exaggerated symptoms. Additionally, the cross-sectional nature of the study prevented the establishment of causal relationships between socio-demographic factors and GAD. Longitudinal studies with larger, more diverse samples are needed to explore the long-term mental health trajectories of AHS interns (20).

Addressing anxiety among healthcare interns is imperative for ensuring their well-being and professional efficacy. Institutions should implement structured mental health support programs, incorporating stress management workshops, counseling services, and work-life balance initiatives. Early screening for anxiety disorders using validated tools like the GAD-7 should be integrated into training programs to facilitate timely interventions. Reducing workload intensity, improving financial assistance programs, and enhancing job security through structured career pathways may help alleviate stressors contributing to GAD. Furthermore, promoting adequate sleep hygiene and providing stable accommodation options could improve interns' overall mental health. Future research should employ longitudinal methodologies to examine the long-term psychological impact of internships and assess the effectiveness of targeted mental health interventions in reducing anxiety among AHS trainees.

Conclusion

The high prevalence of Generalized Anxiety Disorder among AHS interns underscores the urgent need for targeted interventions to support their mental well-being. The significant associations between anxiety and workload, financial concerns, job insecurity, sleep deprivation, and accommodation stress highlight critical areas for institutional policy improvements. Addressing these factors through structured mental health programs, workload management, financial aid, and career stability initiatives is essential to fostering resilience among future healthcare professionals.

Authors' Contributions

| ICMJE authorship criteria | Detailed contributions | Authors |
|---------------------------|--|---------|
| Substantial Contributions | Conception or Design of the work | 1 |
| | Data acquisition | 1,2 |
| | Data analysis or interpretation | 2 |
| Drafting or Reviewing | Draft the work | 1 |
| | Review critically | 1,2 |
| Final approval | Final approval of the version to be published. | 1,2 |
| Accountable | Agreement to be accountable for all aspects of the work. | 1,2 |

References

- Sapra A, Bhandari P, Sharma S, Chanpura T, Lopp L. Using Generalized Anxiety Disorder-2 (GAD-2) And GAD-7 In A Primary Care Setting. *Cureus*. 2020;12(5):e7956. doi:10.7759/cureus.7956
- Showraki M, Showraki T, Brown K. Generalized Anxiety Disorder: Revisited. *Psychiatr Q*. 2020;91(3):905-914. doi:10.1007/s11126-020-09738-7
- Byrd-Bredbenner C, Eck K, Quick V. Psychometric Properties Of The Generalized Anxiety Disorder-7 And Generalized Anxiety Disorder-Mini In United States University Students. *Front Psychol*. 2020;11:550533. doi:10.3389/fpsyg.2020.550533
- Gong Y, Zhou H, Zhang Y, Zhu X, Wang X, Shen B, et al. Validation Of The 7-Item Generalized Anxiety Disorder Scale (GAD-7) As A Screening Tool For Anxiety Among Pregnant Chinese Women. *J Affect Disord*. 2021;282:98-103. doi:10.1016/j.jad.2020.12.129
- Mohammadi MR, Pourdehghan P, Mostafavi SA, Hooshiyari Z, Ahmadi N, Khaleghi A. Generalized Anxiety Disorder: Prevalence, Predictors, And Comorbidity In Children And Adolescents. *J Anxiety Disord*. 2020;73:102234. doi:10.1016/j.janxdis.2020.102234
- Kamran R, Tufail S, Raja HZ, Alvi RU, Shafique A, Saleem MN, et al. Post COVID-19 Pandemic Generalized Anxiety Status Of Health Professional Undergraduate Students. *Pak J Med Health Sci*. 2022;16(12):144.
- Bamalan OA, Alosaimi NM, Alfryyan AA, Aljubran HJ, Alanazi FH, Siddiqui ZI. Generalized Anxiety Disorder: A Review Of Current Literature In Saudi Arabia. *Psychol*. 2023;14(1):35-51.
- Trindade SC, Sousa LFF, Carreira LB. Generalized Anxiety Disorder And Prevalence Of Suicide Risk Among Medical Students. *Rev Bras Educ Med*. 2021;45(2):e061.
- Gillani LZ. Impact of Physical and Mental Health in Patients With Facial Palsy: Health Impact of Facial Palsy. *Journal of Modern Health and Rehabilitation Sciences*. 2024 Dec 21:10-.
- Fagan HA, Baldwin DS. Pharmacological Treatment Of Generalised Anxiety Disorder: Current Practice And Future Directions. *Expert Rev Neurother*. 2023;23(6):535-548. doi:10.1080/14737175.2023.2210303
- Hussain SS, Bawar S, Abrar S. Generalised Anxiety Disorder In Consultants Versus Postgraduate Trainees In A Tertiary Care Hospital. *BMC J Med Sci*. 2022;3(2):60-64.
- Ismail M, Lee KY, Sutrisno Tanjung A, Ahmad Jelani IA, Abdul Latiff R, Abdul Razak H, et al. The Prevalence Of Psychological Distress And Its Association With Coping Strategies Among Medical Interns In Malaysia: A National-Level Cross-Sectional Study. *Asia Pac Psychiatry*. 2021;13(2):e12417. doi:10.1111/appy.12417
- Yusof A, Zolkefley MKI. A Preliminary Study On The Prevalence Of Work-Related Stress Among House Officers In Malaysia. *AIP Conf Proc*. 2024;2718:040001. doi:10.1063/5.0138323
- Leary MP, Sherlock LA. Service-Learning Or Internship: A Mixed-Methods Evaluation Of Experiential Learning Pedagogies. *Educ Res Int*. 2020;2020:1683270. doi:10.1155/2020/1683270
- Fisseha H, Mulatu HA, Kassu RA, Yimer SN, Woldeyes E. Burnout And Stress Among Interns In An Ethiopian Teaching Hospital: Prevalence And Associated Factors. *Ethiop Med J*. 2021;59(4):1-8.
- Rashtbari A, Saed O. Contrast Avoidance Model Of Worry And Generalized Anxiety Disorder: A Theoretical Perspective. *Cogent Psychol*. 2020;7(1):1800262. doi:10.1080/23311908.2020.1800262
- Alshammari TK, Rogowska AM, Alobaid AM, Alharthi NW, Albaker AB, Alshammari MA. Examining Anxiety And Insomnia In Internship Students And Their Association With Internet Gaming Disorder. *J Clin Med*. 2024;13(14):4054. doi:10.3390/jcm13144054
- Nihal GN, Challuri P, Reddy MPK, Babu RS. Stress And Anxiety Among Medical Interns And Doctors Deputed In COVID Duties: A Cross-Sectional Study. *Telangana J Psychiatry*. 2021;7(2):122-127.
- Aljurbua FI, Selaihem A, Alomari NA, Alrashoud AM. A Cross-Sectional Study On Generalized Anxiety Disorder And Its Socio-Demographic Correlates Among The General Population In Saudi Arabia. *J Family Med Prim Care*. 2021;10(10):3644-3649.
- Dhira TA, Rahman MA, Sarker AR, Mehareen J. Validity and reliability of the Generalized Anxiety Disorder-7 (GAD-7) among university students of Bangladesh. *PloS one*. 2021;16(12):e0261590.
- Otim M, Al Marzouqi AM, Subu M, Damaj N, Al-Harbawi S. Prevalence Of Generalised Anxiety Disorders Among Clinical Training Students At The University Of Sharjah. *J Multidiscip Healthc*. 2021;14:1863-1872. doi:10.2147/JMDH.S321198
- Nayak BS, Sahu PK. Socio-Demographic And Educational Factors Associated With Depression, Anxiety, And Stress Among Health Professions Students. *Psychol Health Med*. 2022;27(4):848-853. doi:10.1080/13548506.2021.1928373

23. Muhammad DG, Gbonjubola YT, Jamiu MO, Abiodun AO. Rate of Depression, Anxiety and Stress among Interns/House Officers in Nigeria. *Journal of Health and Allied Sciences NU*. 2024.