

Work-Related Stress and Its Contributing Factors Among Allied Health Professionals in a Tertiary Care Academic Medical Centre

Afshan Abro¹, Rukhsana Lalani^{2*}, Misbah Shams³, Sabah Akram Butt⁴, Shelina Bhamani⁵

¹Incharge Physiotherapist, Aga Khan University, Karachi, Pakistan

²Coordinator, Aga Khan University, Karachi, Pakistan

³Senior Research, Assistant Aga Khan University, Karachi, Pakistan

⁴Assistant Manager, Aga Khan University, Karachi, Pakistan

⁵Assistant Professor & Associate Director, Aga Khan University, Karachi, Pakistan

ABSTRACT

Background of the study: Work-related stress is a significant concern in workplaces, particularly in healthcare settings, where healthcare professionals, including Allied Health Professionals (AHPs), often face high levels of stress and burnout, which affects their efficiency and productivity at the workplace. This study aims to investigate the levels of work-related stress and explore the difference in work-related stress based on age, gender, and education level among AHPs.

Methodology: A cross-sectional survey was conducted at an academic medical institution in Karachi, Pakistan, involving 114 Allied Health Professionals. The study utilized non-random purposive sampling, employing descriptive statistics to explore stress prevalence and inferential tests to examine stress level differences based on Age, Gender, and Education level.

Results: Of 114 participants, 45 (39.5%) reported moderate stress levels, and 36 (31.6%) reported severe ones. Only 21 (18.4%) indicated low stress levels, with a small proportion of 5 (4.4%) reporting feeling calm and relaxed, and 7 (6.1%) of participants reported potentially dangerous stress levels. Furthermore, an independent t-test comparing stress levels between gender participants showed no significant difference ($p=0.62$). ANOVA tests examining the influence of age and education level on workplace stress also revealed non-significant results.

Conclusion: The study highlights that most of the participants experience moderate to severe workplace stress, with some potentially dangerous levels.

Keywords: *Allied Health Personnel, allied health occupations, professional burnout, occupational stress, academic medical centers, workplace.*

INTRODUCTION

In today's competitive work environment, one of the most alarming issues to our mental health is stress, presenting a challenge for both employers and employees alike. Stress is characterized as an individual's response to any mental, physical, or even emotional burden resulting in chemical changes in the human body that may elevate blood pressure, pulse rate, and blood pulse rate, blood sugar levels and other parameters¹. Prolonged stress can lead to feelings of frustration,

*Corresponding Author: Rukhsana Lalani

Email: rukhsana.naushad@aku.edu

Citation: Abro A, Lalani R, Shams M, Butt SA, Bhamani S. Work-Related Stress and Its Contributing Factors Among Allied Health Professionals in a Tertiary Care Academic Medical Centre. Pakistan Journal of Rehabilitation. 2025 Jan;14(1):144-151. Available from: <https://doi.org/10.36283/pjr.zu.14.1/018>

Received: Thu, April 04, 2024

Accepted: Mon, Jan 6, 2025

Published: Tue, Jan 7, 2025

depression, anger or anxiety, impeding one's efficiency and efficacy at work². While some work stress is always there, due to the nature and demand of work, excessive stress may lead to burnout, negatively impacting the individual and the workplace. The concept of work-related stress, sometimes called burnout, was introduced by American psychologist Herbert Freudenberger in 1975³. He described burnout as an individual's inability to cope with excessive demands on one's energy, strength, or resources. Many researchers document their research, have highlighted high levels of stress in healthcare professionals' physicians^{4,5}, nurses^{6,7}, and allied health professionals^{8,13-15} who are continually engaged in all types of patient care. This continuous working in settings with health issues can lead to staff exhaustion and frustration, ultimately affecting the wellbeing of the healthcare providers⁹⁻¹¹. AHPs comprise over 60% of the health workforce in the USA¹², but researchers have often overlooked their concerns regarding work-life balance. Friganović conducted a systematic review regarding stress and the incidence of burnout among nurses and healthcare professionals. Of the 29 studies included in the review, 24 were quantitative, and 5 were qualitative, with reported prevalence varying from 18.3% of prevalence of burnout in Slovenian trainees to 33.3% from a study in Singapore¹³. A prevalence of 73% burnout was reported in a study conducted at a cardiovascular centre¹⁴. Studies from various countries have reported high stress and burnout levels among AHPs. A multi-country study from Europe surveyed the risk of burnout among radiographers during the pandemic, and 86% of participants self-reported increased workload, while 35% considered giving up on the academic component of their job¹⁵. Similarly, a study exploring burnout among Taiwanese dental technicians reported a significant correlation between work-related burnout and intention to leave the job¹⁶. In Singapore, 67.4% of AHPs self-reported a high burnout level¹⁷. Most studies have been conducted in high-income countries, while very few are from Low- and Middle-Income Countries. Addressing this gap, our study aimed to investigate work-related stress and its associated factors among AHPs working across various departments within an academic medical centre in Karachi.

METHODOLOGY

The cross-sectional survey was conducted at an academic tertiary care medical centre in the Metropolis of Karachi, Pakistan. The survey was open to all AHPs, including physical, respiratory, and occupational therapists, pharmacists, dietitians, anaesthesia and OR technologists, radiographers, lab technologists, and speech-language pathologists working in the academic medical centre. An inclusion criterion ensured that all participating AHPs must have full-time employment and five years of working. A total of 114 AHPs from all departments of an academic medical centre participated in the study. Data related to participants' demographics, like gender, age, and education level, were sought (Table 1). The Workplace stress scale¹⁸, a validated self-reported measure, was used in the study. It consists of 8 items with five response categories. Each item is scored on a five-point Likert scale ranging from 0 (never) to 5 (very often). It takes up to 10 minutes to complete the questionnaire. High scores of (31 – 40) infer potentially dangerous stress levels, while low score categories refer to the stress levels as severe (26 – 30), moderate (21 – 25), and relatively low (≤ 15). The survey was conducted between August 2023 and September 2023. The study participants were recruited via non-random purposive sampling. All the AHPs were sent the Google link, which included an inbuilt consent form. The professionals who opted to consent were required to complete the survey using the same link. Once the form was filled, the data was stored in the drive. SPSS (Statistical Package for Social Sciences) version 25.0 was used to analyze data. Descriptive statistics were used to explore the stress prevalence, and inferential statistics were used to explore the gender differences and differences within the group in stress levels. Informed consent was sought for ethical compliance. No identified data was collected as the form did not have the option of name, employee number, or email. All the data was kept

anonymous, and confidentiality was maintained. There were no implications for participants' refusal or withdrawal whatsoever. The Aga Khan University ethics review board provided an exemption for research ethics approval for this study. (Review reference - 2023-8569-25746).

Characteristics	No. (%) of respondents n= 114
Gender	
Male	51 (44.7)
Female	63 (55.3)
Age	
25 – 35	90 (78.9)
36 – 45	22 (19.3)
46 – 55	02 (1.8)
Education level	
Graduate	66 (57.9)
Postgraduate	41(36)
Others	07 (6.1)

Table 1. Demographic Data

RESULTS

In the conducted cross-sectional study regarding the stress in allied health professionals, there were 51 males and 63 females, 78.9 % between the 25 – 35 years of age bracket and the rest between the 36 – 55 bracket. Participants who attained graduate degrees comprised 57.9% of the sample size, 36% had attained postgraduate, and 6.1% reported others as their qualification. The majority of the sampled population belonged to the younger age group. The result of the workplace stress scale (Figure 1) indicated that many participants were experiencing varying stress levels. Out of the total respondents, 39.5% of participants reported moderate stress levels, while 31.6% reported severe stress levels. Only 18.4% indicated low stress levels, and a small proportion of 4.4% considered themselves calm and relaxed. However, it is of concern that 7 participants, accounting for 6.1% of total participants, reported potentially dangerous stress levels and needed immediate assistance, particularly if their health was being significantly affected. These findings highlight the importance of addressing mental health concerns and providing support to individuals who are experiencing high levels of stress.

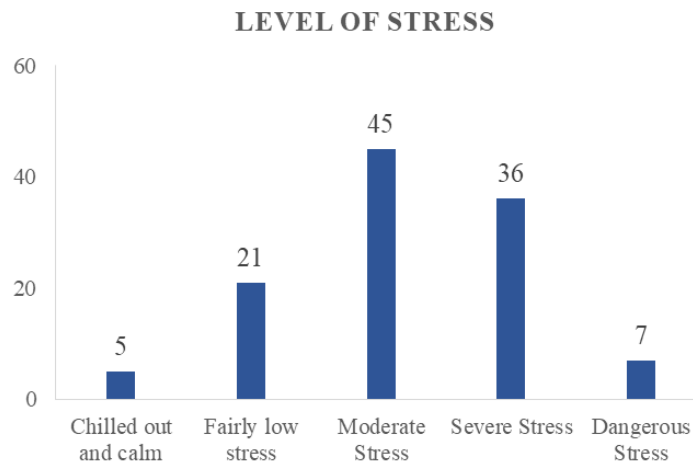


Figure 1. Proportion of Level of Stress among Participants

An independent t-test was conducted to compare the mean scores of Male (M =23.49, SD =5.25, N = 51) and Female (M = 24.02, SD =4.17, N = 63) on the stress level. The t-test revealed no significant difference between male and female participants (t (112) .595, p = 0.070), indicating the marginal effect of gender on stress levels raises the possibility that other variables, such as expectations from the workplace or individual circumstances, more heavily influence stress.

Gender	N	Mean	SD	t-score	df	P
Male	51	23.49	5.25	-0.59		
Female	63	24.02	4.17		112	0.070

Table 2. Independent Sample t test

A one-way ANOVA was performed to evaluate the relationship between the trainee’s age group and stress levels. A one-way ANOVA revealed an insignificant effect of age group on the stress levels, F ([2], [111]) = F[1.56], p = 0.215. There was no significant difference in means between the group and the groups.

Source	Df	SS	MS	F	P
Between Groups	2	67.589	33.79	1.56	.215
Within groups	111	2403.93	21.65		
Total	113	2471.52			

Table 3. One-Way Analysis of Variance of Stress Levels by Age Groups

Similarly, a one-way ANOVA revealed an insignificant relation of education levels on the stress levels among trainees F ([2], [111]) = F [1.11], p = 0.894

Source	Df	SS	MS	F	P
Between Groups	2	4.962	2.481	.112	.894
Within groups	111	2466.56	22.221		
Total	113	2471.52			

Table 4:One-Way Analysis of Variance of Stress Levels by Education Level

DISCUSSION

In this study, the researchers attempted to explore the stress levels of allied health professionals working in a tertiary care academic medical centre. The sample comprised 114 AHPs representing different gender, age groups and qualification categories. Based on our first objective, it was found that 39.5% of the AHPs from the academic medical centre reported experiencing moderate stress levels. Furthermore, 31.6% and 6.1% of the participants reported severe and dangerous stress levels, respectively. 77.2% of the participants reported being under moderate or higher stress levels on the workplace stress scale. These findings are reflected in research studies in Another context as well. A similar proportion of 67% and 69% of stress is reported in a systematic review to estimate the prevalence of burnout among physicians⁴ and nurses, respectively⁶. Moreover, 73% of AHPs in a quaternary cardiac centre reported burnout¹⁴. It also affirms that AHPs experience similar kinds of stress in their jobs and would benefit from interventions to manage the job stress and their quality of life. Our findings indicated a higher proportion of stress than a study among Jordanian AHP students, who reported that 54.2% of the study sample was under stress¹⁹. The difference may be because the students and the professionals are at different life stages and may have different responsibilities, workloads, financial and career concerns. There could be several potential reasons for this stress. One of the substantial reasons is the workload with the recent brain drain in the country, and most healthcare professionals are leaving the country for better opportunities. It increases the work pressure on the AHPs, giving temporary cover to their departments^{20, 21}. Another potential reason could be the lack of mental health and wellbeing activities in healthcare settings. The literature showed that in healthcare setups, a heavy patient workload often leads to less attention being paid to the well-being of healthcare providers²². Nonetheless, moderate to high-stress levels are alarming indicators that must be considered. While exploring the gender differences, we did not find a significant relationship between gender and stress levels in this study, which was in line with the results from other studies among AHPs¹⁴. However, studies have shown female gender to be significantly more affected by stress levels^{19, 23}. Most of our participants were from a younger age bracket, so these females may still need social pressure and family responsibilities. A larger sample size or inclusion of their marital and social status might have given us a better picture; however, it was out of the scope of the study. Similarly, our study did not find a significant relationship between age and education level with stress levels. Other researchers have reported that the age of >46 years and the length of service >21 years had a significant relationship among physicians with a higher risk of burnout²⁴. A study in Singapore also found a relation of burnout with age > 40 years¹⁷. Most of our study participants, 78.9%, belonged to the younger age bracket of 25 - 35 years, which might have been a reason for the insignificant results for age. Low education level is found to be in significant relation to high-stress level (mean difference = -15.60, $p < 0.05$) among men compared to women as per a study conducted in Greece which explored gender differences in occupational stress²⁵. Prolonged stress at work increases the odds of adverse consequences as it compromises the person's ability to perform everyday tasks regardless of gender, age, and education level. It affects individuals' quality of life and may simultaneously reduce the quality of care, increase practice errors, problems with peers and managers and deterioration of the work environment

Limitations

Our study may have limitations. The data collection was performed using a self-reported questionnaire; it is plausible that participants may have hesitated in their responses. Such hesitancy raises a concern about confidentiality or fear, which might have affected the accuracy of the reported stress levels. In addition, self-reported measures are considered subjective, making the study ascertained regarding the exact degree of stress experienced by the participants. Further studies in future can fill this gap area using objective measures such as some biomarkers for stress to validate self-reported data. It was a cross-sectional study with a minimal number of variables.

Presence of design restricts the ability to properly identify causal relationships between stress and other contributing factors. Longitudinal studies in future could help understand better about the evolution of stress level over time. Inclusion of qualitative data can also provide more information and coping mechanisms of AHPs. Further, the study's generalizability is limited due to the small sample size, stemming from a convenient sampling of participants

CONCLUSION

The present study concluded that more than half of the AHPs, including males and females, are under work stress. There is a small proportion who need immediate health care assistance to cope with the dangerous stress levels. No significant association was found between gender, age, and education level with the stress levels in this study. Institutes need to take measures to adopt effective stress-coping strategies. Department managers and unit heads should actively involve Human Resources (HR) in conducting regular sessions to manage work-related stress. By doing so, hospitals can take necessary measures to ensure that employees' work-related stress is effectively addressed, ultimately promoting their mental and physical wellbeing. This is essential because work-related stress can significantly impact employee productivity and the quality of care provided. Furthermore, it is essential to recognize the policy implications of addressing work-related stress. When employees' stress levels are managed and reduced, their overall productivity and quality of care will likely improve. By investing in the wellbeing of their workforce, hospitals can foster a healthier and more supportive work environment and ultimately enhance patient outcomes. However, deep diving into understanding the specific stressors affecting employees' mental and physical health is required. This will allow hospitals to tailor their stress management initiatives according to identified stressors and develop interventions that effectively address them.

AUTHORS' CONTRIBUTION:

The following authors have made substantial contributions to the manuscript as under:

Conception or Design: Afshan Abro, Rukhsana Lalani, Shelina Bhaman

Acquisition, Analysis or Interpretation of Data: Afshan Abro, Rukhsana Lalani, Misbah Sham, Sabah Akram Butt, Shelina Bhaman

Manuscript Writing & Approval: Afshan Abro, Rukhsana Lalani-, Misbah Sham, Sabah Akram Butt, Shelina Bhaman

All authors acknowledge their accountability for all facets of the research, ensuring that any concerns regarding the accuracy or integrity of the work are duly investigated and resolved.

ACKNOWLEDGEMENTS: We thanks all the participants in this study.

INFORMED CONSENT: Written Informed Consent was taken from each patient.

CONFLICT OF INTEREST: None declared.

FUNDING STATEMENTS: None declared.

ETHICS STATEMENTS: The protocol of the present study was registered by the local ethics committee of Aga Khan University approval code 2023-8569-25746.

REFERENCES

1. Carola V, Vincenzo C, Di Vincenzo G, Morale C, Cecchi V, Nicolais G. Psychological risk factors and cardiovascular disease. *Front Psychol.* 2024;15:1419731.
2. Chen B, Wang L, Li B, Liu W. Work stress, mental health, and employee performance. *Front Psychol.* 2022;13:1006580.

3. Edú-Valsania S, Laguía A, Moriano JA. Burnout: A Review of Theory and Measurement. *Int J Environ Res Public Health*. 2022;19(3):1780.
4. Fortuna F, Gonzalez D, Fritzler A, Ibar C, Nenda G, D'Isa E, et al. Burnout components, perceived stress and hair cortisol in healthcare professionals during the second wave of COVID 19 pandemic. *Sci Rep*. 2024;14(1):28828.
5. De Hert S. Burnout in Healthcare Workers: Prevalence, Impact and Preventative Strategies. *Local Reg Anesth*. 2020;13:171-183.
6. Sayehmiri K, Gheshlagh R, Parizad N, Dalvand S, Zarei M, Farajzadeh M, et al. The prevalence of job stress among nurses in Iran: A meta-analysis study. *Nurs Midwifery Stud*. 2017;6(4):143.
7. Woo T, Ho R, Tang A, Tam W. Global prevalence of burnout symptoms among nurses: A systematic review and meta-analysis. *Journal of Psychiatric Research*. 2020;123:9–20.
8. Bai C, Ma J, Bai B. How does strength use relate to burnout among Chinese healthcare professionals? Exploring the mediating roles of beliefs about stress and basic psychological needs satisfaction. *BMC Nurs*. 2024;23(1):222.
9. Bould MD, Tuyishime E, Nkurunziza C, Mpirimbanyi C, Mutabezi G, Wiwchar L, Yilma L, Charles C, Rangel C. Lived experience of burnout and fatigue in perioperative healthcare professionals in Rwanda: a qualitative study. *Br J Anaesth*. 2024;133(5):1051-61
10. Rehder K, Adair KC, Sexton JB. The Science of Health Care Worker Burnout: Assessing and Improving Health Care Worker Wellbeing. *Arch Pathol Lab Med*. 2021;145(9):1095–109.
11. Klingemann J, Sienkiewicz-Jarosz H, Molenda B, Świtaj P. Peer Support Workers in Mental Health Services: A Qualitative Exploration of Emotional Burden, Moral Distress and Strategies to Reduce the Risk of Mental Health Crisis. *Community Ment Health J*. 2024.
12. R Zou Y. Improving healthcare workforce diversity. *Front Health Serv*. 2023;3:1082261.
13. Hanna R, Jolanta B, Katarzyna B, Kornelia Z, Mariusz J. The impact of patient death on the risk of developing occupational burnout in midwives a preliminary cross-sectional study. *Sci Rep*. 2024;14(1):25634
14. Rubin B, Goldfarb R, Satele D, Graham L. Burnout and distress among allied health care professionals in a cardiovascular centre of a quaternary hospital network: a cross-sectional survey. *CMAJ Open*. 2021;9(1):29–37.
15. Knapp KM, Venner S, McNulty JP, Rainford LA. The risk of burnout in academic radiographers during the COVID-19 pandemic. *Radiography [Internet]*. 2022;28(4):1010–5.
16. Teng TY, Wu JH, Lee CY. Acceptance and experience of digital dental technology, burnout, job satisfaction, and turnover intention for Taiwanese dental technicians. *BMC Oral Health*. 2022;22(1).
17. Teo YH, Xu JTK, Ho C, Leong JM, Tan BKJ, Tan EKH, et al. Factors associated with self-reported burnout in allied healthcare professionals in a tertiary hospital in Singapore. Wilkinson J, editor. *PLOS ONE*. 2021;16(1):e0244338.
18. He Y, Liu Q. The excessive celebrity worship behavior questionnaire: Chinese scale development and validation. *PLoS One*. 2024;19(5):e0303683.
19. Sperling EL, Hulett JM, Sherwin LB, Thompson S, Bettencourt BA. Prevalence, characteristics and measurement of somatic symptoms related to mental health in medical students: a scoping review. *Ann Med*. 2023;55(2):2242781.
20. Ghanbari-Jahromi M, Ahmadi Marzaleh M. Factors Affecting Brain Drain and a Solution to Reduce it in Iran's Health System: A Qualitative Study. *Arch Iran Med*. 2024;27(8):427-38.

21. Tariq Z, Aimen A, Ijaz U, Khalil KUR. Career Intentions and Their Influencing Factors Among Medical Students and Graduates in Peshawar, Pakistan: A Cross-Sectional Study on Brain Drain. *Cureus*. 2023;15(11):e48445.
22. Khammissa RA, Nemitandani S, Shangase SL, Feller G, Lemmer J, Feller L. The burnout construct with reference to healthcare providers: A narrative review. *SAGE Open Med*. 2022;10:20503121221083080.
23. Juy R, Nieto A, Contador I, Ramos F, Fernández-Calvo B. Psychosocial Factors Associated with Burnout and Self-Perceived Health in Spanish Occupational Therapists. *International Journal of Environmental Research and Public Health*. 2022;20(1):44.
24. Maple E, Kebbell M. "DV Fatigue": Work Stress and Officers' Attitudes and Performance at Domestic and Family Violence Incidents. *Violence Against Women*. 2024;30(8):1984-2014.
25. Üngüren E, Onur N, Demirel H, Tekin ÖA. The Effects of Job Stress on Burnout and Turnover Intention: The Moderating Effects of Job Security and Financial Dependency. *Behav Sci (Basel)*. 2024;14(4):322



© *Pakistan Journal of Rehabilitation*. This article is published under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and source are properly cited. Creative Commons Attribution License ([CC BY 4.0](https://creativecommons.org/licenses/by/4.0/))