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BURNOUT AMONG MEDICAL HOUSE OFFICERS IN KARACHI: A COMPARATIVE CROSS-SECTIONAL STUDY

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Abstract

Background. *Burnout is a common occupational health concern among early-career physicians due to long working hours, challenging clinical responsibilities and high patient care demand. It can affect both clinicians and the quality of patient care. However, limited evidence exists regarding differences in burnout levels among medical house officers in Karachi.*

Aim. *To compare burnout among house officers working in government and private hospitals in Karachi, Pakistan.*

Methods. *A cross-sectional comparative study was conducted, including 300 house officers aged 22 to 35 who were recruited from government and private hospitals in Karachi through stratified random sampling. Burnout was measured with the Maslach Burnout Inventory Human Services Survey for Medical Personnel (MBI-HSS-MP), which yields scores for emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). Scores were compared across the two hospital sectors using independent-samples t-tests.*

Results. *Emotional exhaustion was higher in government hospitals than in private hospitals ($M = 31.63$, $SD = 7.73$ vs. $M = 25.64$, $SD = 6.04$; $t(298) = 7.40$, $p < .001$, $d = 0.86$). Depersonalization was also higher in government settings ($M = 15.94$ vs. 14.09; $t(298) = 3.64$, $p < .001$, $d = 0.42$), and personal accomplishment was lower ($M = 24.21$ vs. 30.86; $t(298) = -7.44$, $p < .001$, $d = 0.86$). The composite MBI score did not differ significantly between sectors ($t(298) = 1.09$, $p = .28$).*

Conclusion. *House officers in government hospitals reported greater emotional exhaustion and depersonalization and lower personal accomplishment than those in private hospitals, although overall (composite) burnout was similar across sectors. The dimension-level differences point to a need for sector-specific support for early-career physicians in Pakistan's public hospitals.*

INTRODUCTION

Burnout has become a major occupational health concern for healthcare providers globally(1). It is usually described along three lines: emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment (2,3). For doctors, sustained burnout is linked to poorer well-being and has implications for the safety and quality of the care they provide(4). Early-career physicians are a particular concern. House officers move abruptly from the structure of academic training into the demands of full clinical responsibility, and that shift carries well-documented psychological strain.

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The downstream effects of physician burnout reach well beyond the individual. Burnout has been associated with more medical errors, lower patient satisfaction, reduced quality of care, and a greater intention to leave the profession (5). These consequences matter most where clinicians are already stretched thin by the hospital duty schedule and patient burden, which is often the case for junior doctors working with limited experience and support from their supervisor.

Internationally, burnout among trainee and resident doctors is consistently high, though estimates vary with setting and measurement. Two meta-analyses of medical residents placed the pooled prevalence at roughly a third (6,7). A large systematic review reported wide variability across studies, ranging from near zero to over 80% (8). In the United States, reviews of residency training have described high emotional exhaustion in about half of trainees and depersonalization in roughly a third (9). Rates reported elsewhere are often higher: a multicentre Saudi study found that 81.22% of resident doctors scored high on at least one burnout dimension (10). Similarly, a national Chinese survey of more than 25,000 medical staff found that 61% reported at least one burnout symptom (11). Within South Asia, a study at a tertiary-care institute in India reported higher burnout among resident doctors than among faculty members (12). Together, this work establishes burnout among junior doctors as a universal problem and provides a backdrop against which the Pakistani situation can be read.

Evidence from Pakistan fits this pattern. At a tertiary-care hospital, around a fifth of emergency-department staff reported moderate-to-high burnout (13). Among medical students in Lahore, roughly 31% reported high burnout, with contributing factors that included gender, limited peer support, and fear of failure (14). A more recent study of house officers of Government and private hospitals in Karachi reported high-grade burnout in around half of respondents (15). While numerous studies have explored burnout in junior medical doctors, there is a limited comparative research focusing on burnout levels among house officers in various clinical environments. Specifically, there is a scarcity of direct comparisons between public and private hospitals in Pakistan. These two sectors have significant differences in workload, staffing, and resources, which could influence burnout levels, but this has not been examined side by side using a validated instrument, especially in Karachi (16).

Two complementary frameworks help interpret why the sector might matter. The Job Demands Resources model holds that burnout develops when job demands outstrip the resources available to meet them (17,18), and the Conservation of Resources theory frames burnout as the result of threatened or lost resources such as job security, mentorship, and opportunities for growth (19). Both predict greater strain in lower-resource environments, which in the Pakistani context typically describes the public sector.

This study contributes the first direct, instrument-based comparison of burnout between public and private hospital house officers in Karachi. By examining the three MBI dimensions separately rather than as a single score, it shows where the two sectors actually diverge — information that a composite measure can obscure. The findings are intended to help hospital administrators and health policymakers target support where early-career physicians are most strained, and to add South Asian evidence to a literature still dominated by high-income settings.

Methodology

Research Design and Setting

This was a cross-sectional, comparative study of medical house officers working in government and private hospitals in Karachi, Pakistan. Data were collected between September and December 2024. The institutions involved included both public and private sector hospitals.

Sample Size

The required sample size was determined a priori for an independent-samples *t*-test comparing two groups. Assuming a medium standardized effect

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size (Cohen's d = 0.50), a two-sided significance level of α = 0.05, and 80% statistical power (1 − β = 0.80), the minimum required sample size was estimated to be 128 participants (64 per group). To account for potential incomplete responses and to provide sufficient statistical power for prespecified subgroup analyses, the recruitment target was increased to 300 house officers. At this sample size, the study had >95% power to detect a medium effect (Cohen's d = 0.50) under the same assumptions, thereby providing adequate precision and statistical sensitivity for the primary comparisons.

Participants and Sampling

A total of 300 house officers participated in the study. Stratified random sampling was used, with hospital sector (public vs. private) as the stratifying variable. For each participating hospital, a list of house officers posted during the study period was obtained from the relevant administrative office and used as the sampling frame; participants were then selected at random from these lists within each stratum. Of the 300 participants, 161 (53.7%) were drawn from public hospitals and 139 (46.3%) from private hospitals. Of 500 house officers approached, 300 returned usable questionnaires, a response rate of 60%.

The inclusion criteria comprised individuals currently serving as house officers, aged between 22 and 35 years, located in Karachi, and proficient in reading English. House officers who were on extended leave during the data collection phase or who submitted incomplete questionnaires were not included in the study.

Measure

Burnout was assessed with the Maslach Burnout Inventory–Human Services Survey for Medical Personnel (MBI-HSS-MP; Maslach & Jackson, 1986). The 22 items form three subscales: emotional exhaustion (9 items), depersonalization (5 items), and personal accomplishment (8 items) each rated from 0 (never) to 6 (every day). The instrument's reliability is well established, with reported alphas of approximately .80–.90 (EE), .50–.79 (DP), and .69–.82 (PA).

Statistical Analysis

Descriptive statistics (means, standard deviations, and standard errors) were computed for each subscale by sector. Before group comparisons, subscale scores were checked for approximate normality (skewness and kurtosis), and Levene's test was used to assess equality of variances; where variances were unequal, the corresponding adjusted t and degrees of freedom were used. Independent-samples t-tests compared public and private hospitals on each subscale and on the composite score, and Cohen's d was calculated to express the magnitude of each difference.

Results

Sample Characteristics

The 300 house officers had a mean age of 24.4 years (SD = 2.8). Most were female (202, 67.3%), and most were aged 22–25 (263, 87.7%). Just over half worked in public hospitals (161, 53.7%) and the remainder in private hospitals (139, 46.3%). Table 1 summarises these characteristics

Table 1Demographic Characteristics of Participants (N = 300)

Characteristic	Category	n	%
Hospital sector	Public (government)	161	53.7
	Private	139	46.3
Gender	Female	202	67.3
	Male	98	32.7
Age group	22–25 years	263	87.7
	26–35 years	37	12.3

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Note. Mean age = 24.4 years (SD = 2.8).

MBI Scores by Hospital Setting

Table 2 reports descriptive statistics for the three MBI dimensions by sector. House officers in public hospitals scored higher, on average, for emotional exhaustion and depersonalization, and markedly lower for personal accomplishment, than those in private hospitals. Personal-accomplishment scores were more variable in the private sector (SD = 9.42), indicating wider individual differences there

Table 2 Descriptive Statistics of MBI Subscales by Hospital Setting (N = 300)

MBI Subscale	Setting	N	Mean	SD	SE Mean
MBI Sum	Public	161	71.81	14.97	1.18
	Private	139	70.16	10.44	0.89
Emotional Exhaustion	Public	161	31.63	7.73	0.61
	Private	139	25.64	6.04	0.51
Depersonalization	Public	161	15.94	4.76	0.38
	Private	139	14.09	3.93	0.33
Personal Accomplishment	Public	161	24.21	5.88	0.46
	Private	139	30.86	9.42	0.79

Group Comparisons

Table 3 presents the t-test results together with effect sizes. The composite MBI score did not differ significantly between sectors ($t(298) = 1.09$, $p = .28$, $d = 0.13$). At the level of individual dimensions, however, the differences were clear. Emotional exhaustion was significantly higher in public hospitals, with a large effect (mean difference = 5.99; $t(298) = 7.40$, $p < .001$; $d = 0.86$). Depersonalization was also higher in public hospitals, with a small-to-moderate effect (mean difference = 1.85; $t(298) = 3.64$, $p < .001$; $d = 0.42$). Personal accomplishment was significantly lower in public hospitals, again a large effect (mean difference = −6.66; $t(298) = -7.44$, $p < .001$; $d = 0.86$).

Table 3 Independent-Samples t-Test Results for MBI Subscales (N = 300)

Subscale	Levene's F (p)	t	df	p	Mean Diff.	Cohen's d
MBI Sum	17.78 (<.001)	1.09	298	.28	1.65	0.13
Emotional Exhaustion	14.40 (<.001)	7.40	298	<.001	5.99	0.86
Depersonalization	5.08 (.025)	3.64	298	<.001	1.85	0.42
Personal Accomplishment	57.74 (<.001)	−7.44	298	<.001	−6.66	0.86

Note. Negative mean difference for personal accomplishment indicates lower scores in public hospitals. Cohen's d is reported as magnitude. Where Levene's test indicated unequal variances, adjusted t and degrees of freedom were used.

Discussion

This study compared burnout between house officers in government and private hospitals in Karachi and found significant sector differences on all three MBI dimensions, alongside no significant difference in the composite score. Public-hospital house officers reported more emotional exhaustion and depersonalization and a lower sense of personal accomplishment.

The emotional-exhaustion difference was the largest, with a gap of about six points and a large

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effect size. Emotional exhaustion is widely regarded as the core of burnout and often the

first dimension to develop (20,21), so its elevation in the public sector is notable. The depersonalization difference was smaller but still meaningful; depersonalization reflects a more detached, impersonal stance toward patients and is generally understood as a coping response to sustained emotional demand (21). The lower personal-accomplishment scores in public hospitals are arguably the most striking finding, since a reduced sense of professional efficacy among early-career doctors can affect both their development and their engagement with patients.

The present design did not measure workload, staffing levels, supervision, mentorship, or patient volume, so the study cannot attribute the observed sector differences to any of these factors. Prior research in comparable settings has linked such job demands and resource constraints to burnout (22,23), and the Job Demands–Resources and Conservation of Resources frameworks would predict greater strain where demands are high and resources are limited. The extent to which these mechanisms explain the observed differences remains to be determined in future research that directly measures them; this issue was not observed using the current cross-sectional data.

The pattern of composite versus dimensional results is itself informative. The overall MBI score did not differ among the groups while all three subscales were different. A single summed index can mask offsetting differences between the groups. For example, higher exhaustion in one group alongside accomplishment differences shifted the total in the opposite direction. This reinforces the value of analysing the MBI at the subscale level rather than relying on a composite score.

Implications

The dimensional differences suggest that support for house officers may need to be tailored by sector. In public hospitals, measures recommended in the wider literature manageable rotation schedules, peer-support arrangements, structured mentorship, and clearer feedback and recognition may be worth considering, although their effectiveness in this specific context would need to be evaluated rather than assumed. Generally, the findings support treating burnout among early-career physicians as a systemic issue tied to working conditions, rather than as a matter of individual resilience alone.

Limitations and Future Directions

The cross-sectional design rules out causal inference and cannot establish the direction of any relationship. The sample was confined to Karachi and may not represent house officers elsewhere in Pakistan. Reliance on self-report leaves the data open to social-desirability and recall bias. Finally, because potential explanatory factors such as workload and supervision were not measured, the reasons for the observed sector differences remain open. Future work using longitudinal designs, direct measurement of job demands and resources, and qualitative accounts of house officers' experiences would help clarify how and why burnout differs between sectors.

Conclusion

House officers in Karachi's government hospitals reported higher emotional exhaustion and depersonalization and lower personal accomplishment than those in private hospitals, even though overall composite burnout was similar across the two sectors. These cross-sectional findings identify where the sectors differ and add South Asian evidence to a largely literature from developed countries. This study suggests a need for sector-specific support for hospital-based junior medical practitioners in Pakistan's public hospitals by taking in account specific circumstances that are encountered by these physicians at their workplace setting.

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Conflict of interest

All listed authors declare no conflict of interest in any capacity.

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Availability of data and materials:

The data used in this study are available from the corresponding author upon reasonable request.

Ethics approval and consent to participate:

Informed consent was obtained from all the participants prior to data collection. The study participants' confidentiality was maintained throughout the study by assigning a unique code number to each participant and no personally identifiable information was included in the study records or reported in the findings.

REFERENCES

Burn-out an "occupational phenomenon": International Classification of Diseases [Internet]. [cited 2026 Aug 10]. Available from: https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases

Maslach C, Schaufeli WB, Leiter MP. Job burnout. Annu Rev Psychol. 2001 Feb 1;52(Volume 52, 2001):397–422. doi:10.1146/ANNUREV.PSYCH.52.1.397/CITE/REFWORKS PubMed PMID: 11148311.

Hodkinson A, Peters D, Panagioti M, Pifarre J, Yuguero O. Editorial: The public health problem of burnout in health professionals. Front Public Health. 2023 Mar 21;11:1173312. doi:10.3389/FPUBH.2023.1173312/TEXT PubMed PMID: 37026133.

Taking action against clinician burnout : a systems approach to professional well-being [Internet]. 2019 [cited 2026 Aug 10];312. Available from: https://books.google.com/books/about/Taking_Action_Against_Clinician_Burnout.html?id=cnHJDwAAQBAJ

Hodkinson A, Zhou A, Johnson J, Geraghty K, Riley R, Zhou A, et al. Associations of physician burnout with career engagement and quality of patient care: systematic review and meta-analysis. BMJ. 2022 Sep 14;378. doi:10.1136/BMJ-2022-070442 PubMed PMID: 36104064.

Rodrigues H, Cobucci R, Oliveira A, Cabral JV, Medeiros L, Gurgel K, et al. Burnout syndrome among medical residents: A systematic review and meta-analysis. PLoS One. 2018 Nov 1;13(11):e0206840. doi:10.1371/JOURNAL.PONE.0206840 PubMed PMID: 30418984.

Low ZX, Yeo KA, Sharma VK, Leung GK, McIntyre RS, Guerrero A, et al. Prevalence of Burnout in Medical and Surgical Residents: A Meta-Analysis. International Journal of Environmental Research and Public Health 2019, Vol 16, Page 1479. 2019 Apr 26;16(9):1479. doi:10.3390/IJERPH16091479 PubMed PMID: 31027333.

Rotenstein LS, Torre M, Ramos MA, Rosales RC, Guille C, Sen S, et al. Prevalence of Burnout Among Physicians: A Systematic Review. JAMA. 2018 Sep 18;320(11):1131–50. doi:10.1001/JAMA.2018.12777 PubMed PMID: 30326495.

IsHak WW, Lederer S, Mandili C, Nikravesh R, Seligman L, Vasa M, et al. Burnout During Residency Training: A Literature Review. J Grad Med Educ. 2009 Dec 30;1(2):236. doi:10.4300/JGME-D-09-00054.1 PubMed PMID: 21975985.

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

Alenezi NK, Alyami AH, Alrehaili BO, Arruhaily AA, Alenazi NK, Radman Al-Dubai SA. Prevalence and Associated Factors of Burnout Among Saudi Resident Doctors: A Multicenter Cross-Sectional Study. Alpha psychiatry. 2022 Jul 4;23(4):173–83. doi:10.5152/ALPHAPSYCHIATRY.2022.21361 PubMed PMID: 36425745.

Xiao Y, Dong D, Zhang H, Chen P, Li X, Tian Z, et al. Burnout and Well-Being Among Medical Professionals in China: A National Cross-Sectional Study. Front Public Health. 2022 Jan 17;9. doi:10.3389/FPUBH.2021.761706 PubMed PMID: 35111713.

Grover S, Sahoo S, Bhalla A, Avasthi A. Psychological problems and burnout among medical professionals of a tertiary care hospital of North India: A cross-sectional study. Indian J Psychiatry. 2018 Apr 1;60(2):175–88. doi:10.4103/PSYCHIATRY.INDIANJPSYCHIATRY_254_17 PubMed PMID: 30166673.

Shah A, Wyatt M, Gourneau B, Shih G, De Ruyter M. Emotional exhaustion among anesthesia providers at a tertiary care center assessed using the MBI burnout survey. Psychol Health Med. 2019 May 28;24(5):620–4. doi:10.1080/13548506.2018.1546019 PubMed PMID: 30451535.

Muzafar Y, Khan HH, Ashraf H, Hussain W, Sajid H, Tahir M, et al. Burnout and its Associated Factors in Medical Students of Lahore, Pakistan. Cureus. 2015 Nov 29;7(11). doi:10.7759/CUREUS.390 PubMed PMID: 26719833.

View of Effects of Burnout on Quality of Life Among MBBS House Officers in Government and Private Hospitals of Karachi [Internet]. [cited 2026 Aug 10]. Available from: https://jhwcr.com/index.php/jhwcr/article/view/138/231

Challani P, Irfan FM, Faiz A, Afzal M, Sami-Ur-Rehman S, Kanwer B. Effects of Burnout on Quality of Life Among MBBS House Officers in Government and Private Hospitals of Karachi. Journal of Health, Wellness and Community Research. 2025 Jun 20;e138–e138. doi:10.61919/PXMQZT22

Demerouti E, Nachreiner F, Bakker AB, Schaufeli WB. The job demands-resources model of burnout. Journal of Applied Psychology. 2001;86(3):499–512. doi:10.1037/0021-9010.86.3.499 PubMed PMID: 11419809.

Bakker AB, Demerouti E. The Job Demands-Resources model: state of the art. Journal of Managerial Psychology. 2007 Apr 3;22(3):309–28. doi:10.1108/02683940710733115

Hobfoll SE. Conservation of Resources: A New Attempt at Conceptualizing Stress. American Psychologist. 1989 Mar;44(3):513–24. doi:10.1037/0003-066X.44.3.513 PubMed PMID: 2648906.

Maslach C, Schaufeli WB, Leiter MP. Job burnout. Annu Rev Psychol. 2001 Feb 1;52(Volume 52, 2001):397–422. doi:10.1146/ANNUREV.PSYCH.52.1.397/CITE/REFWORKS PubMed PMID: 11148311.

Maslach C, Leiter MP. Understanding the burnout experience: recent research and its implications for psychiatry. World Psychiatry. 2016 Jun 1;15(2):103. doi:10.1002/WPS.20311 PubMed PMID: 27265691.

Elbarazi I, Loney T, Yousef S, Elias A. Prevalence of and factors associated with burnout among health care professionals in Arab countries: a systematic review. BMC Health Serv Res. 2017 Jul 17;17(1). doi:10.1186/S12913-017-2319-8 PubMed PMID: 28716142.

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

Sarwar S, Mahmood A, Raja MF, Mahmud Y. Burnout and Health Related Quality of Life among emergency physicians working at emergency at Tertiary Care Hospital in Lahore Pakistan. Pak J Med Sci. 2023 Sep 1;39(5):1372–7. doi:10.12669/PJMS.39.5.7560 PubMed PMID: 37680812.