Burnout Among Pathology Residents in Pakistan

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ABSTRACT

Objective: To determine the frequency of burnout among pathology residents and the drivers contributing to its development at a tertiary care centre.

Study Design: Cross-sectional, descriptive study.

Place and Duration of the Study: Armed Forces Institute of Pathology, Rawalpindi, and Combined Military Hospital, Lahore, Pakistan, from September to October 2023.

Methodology: A total of 80 pathology residents participated in the study by submitting a self-reported questionnaire. The first part covered demographic and work-related factors, while the second part used a validated 22-item Maslach Burnout Inventory (MBI) assessing emotional exhaustion, depersonalisation, and personal achievement with Likert scores from 0 to 6.

Results: A total of 68% of residents were burned out, with 65% showing high emotional exhaustion (EE), 71% high depersonalisation (DP), and 69.4% low personal achievement (PA). Histopathology residents had the highest burnout rates. Cronbach's alpha scores confirmed the reliability of the EE (0.96), PA (0.90), and DP (0.74) scales.

Conclusion: A high prevalence of burnout was observed among pathology residents in this study. Nationwide studies are required to understand, correlate, and formulate measures for preventing and managing it.

Key Words: *Burnout*, *Emotional exhaustion*, *Depersonalisation*, *Personal achievement*, *Pathology residents*.

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INTRODUCTION

Medical residency is a period of intense work-related stress, with a higher prevalence among trainees than in the general population. This global issue spans all specialities, often persisting into practice and potentially hindering personal and professional development.[1,2] Factors within learning and working environment may contribute more than personal attributes as significant drivers of burnout.[2] Burnout can be classified into three categories, according to Maslach *et al*. (i) emotional exhaustion (EE), which is characterised by a depletion of personal energy; (ii) depersonalisation (DP) and cynicism, which is the detachment of the person from their work; and (iii) feelings of personal achievement (PA) or inefficacy, which are the perception of not having achieved one's own goals.[3,4] The 22-item Maslach Burnout Inventory (MBI) assesses burnout across three dimensions, scoring symptoms from 0 to 6.

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The gold standard in medical research, the MBI assigns subscores to each dimension, classified as low, medium, or high. High scores in EE or DP are clinically significant and associated with reduced job efficacy, dedication, health issues, and career satisfaction.[5] It denotes a high level of DP, low self-esteem, and EE that weakens professional traits such as self-control, honesty, integrity, and altruism, increasing the likelihood of an unprofessional approach.[6] Beyond its negative professional effects, burnout can have tremendous personal impact, with depression and suicidal thoughts being more prevalent among the residents.[3,7]

Despite extensive burnout research in developed countries, little has been done to study its prevalence and causes among residents in Pakistan, especially in pathology.

This study aimed to determine burnout frequency and its drivers among pathology residents in Pakistan to inform future preventive strategies.

METHODOLOGY

A cross-sectional, descriptive study was designed. The license to administer this questionnaire was bought from Mind Garden Inc. by the authors. This study was conducted at the Armed Forces Institute of Pathology (AFIP), Rawalpindi, and Combined Military Hospital (CMH), Lahore, Pakistan, from September to October 2023. A total of 80 pathology residents belonging to all pathology subspecialities enrolled in the postgraduate training for at least six months were included. Residents with fewer than

six months of training or who did not provide informed consent were excluded.

All pathology residents in various subspecialities of pathology completed a validated and reliable tool, the self-administered 22-item MBI questionnaire. The initial section gathered demographic data on the residents and inquired about various factors that may contribute to burnout among them (Table I). The second part comprised of 3 MBI domains: EE, DP, and personal accomplishment (PA). MBI defines burnout as (EE = 19-26, high >27), (DP = 6-9, high >10), and (PA = 39-34, low <33, Table I).

The data were entered in SPSS version 22. Chi-square test was applied to compare the frequencies, whereas ANOVA was utilised for the comparison of means. A value of $p \leq 0.05$ was considered statistically significant. To check for the reliability and internal consistency of the questionnaire tool, Cronbach's alpha was applied.

RESULTS

A total of 80 residents specialising in various pathology subspecialities, including virology, immunology, histopathology, haematology, chemical pathology, and microbiology, participated in the study. The main demographic and residency-related characteristics of these residents are shown in Table II.

The response rate was 100%. Cronbach's alpha score of EE was 0.96, the PA scale was 0.90, and the DP scale was 0.74, respectively (Table III), which showed it to be a reliable tool to be used in the setup.

Table I: Burnout dimensions and levels.

Burnout dimensions	Burnout levels		
	Low	Moderate	High
Emotional exhaustion	<20	21-26	>27
Depersonalisation	<5	6-9	>10
Personal achievement	>40	39-34	<33

Table II: Descriptive statistics of demographic variables.

Variables	Categories	No burnout n = 26	Burnout n = 54	Total n = 80	p-value
Age in years	21–29 years, mean ± S.D, 28 ± 0.8	15 (57.70)	31 (57.40)	46 (57.50)	0.27
	30-39 years, mean ± S.D, 32 ± 0.9	11 (42.30)	23 (42.60)	34 (42.50)	
Gender	Male	13 (50.00)	23 (42.60)	36 (45.00)	<0.001*
	Female	13 (50.00)	31 (57.40)	44 (55.00)	
Marital status	Married	24 (92.30)	48 (88.90)	72 (90.00)	0.003*
	Unmarried	2 (7.70)	4 (7.40)	6 (7.50)	
	Divorced	0 (0)	2 (3.70)	2 (2.50)	
Ethnic group	Punjabi	18 (69.20)	33 (61.10)	51 (63.80)	<0.001*
	Pathan	3 (11.50)	13 (24.10)	16 (20.00)	
	Sindhi	0 (0)	8 (14.80)	8 (10.00)	
	Other	5 (19.20)	0 (0)	5 (6.30)	
Category of trainee	Army	10 (38.50)	42 (77.80)	52 (65.00)	<0.001*
	Civilian	16 (61.50)	12 (22.20)	28 (35.00)	
Year of residency training	First	12 (46.20)	36 (66.70)	48 (60.00)	<0.001*
	Second	11 (42.30)	7 (13.00)	18 (22.50)	
	Third	1 (3.80)	6 (11.10)	7 (8.80)	
	Fourth	2 (7.70)	5 (9.30)	7 (8.80)	
Hours of working/day	8 hours	1 (3.80)	11 (20.40)	12 (15.00)	0.002*
	<8 hours	25 (96.20)	43 (79.60)	68 (85.00)	
Gross Income per month	<50,000	16 (61.50)	22 (40.70)	38 (47.50)	0.006*
	50 to 100 thousand	10 (38.50)	32 (59.30)	42 (52.50)	
Number of children	0	17 (65.40)	5 (9.30)	22 (27.50)	<0.001*
	1	3 (11.50)	34 (63.00)	37 (46.30)	
	2	6 (23.10)	15 (27.80)	21 (26.30)	
Distance from the workplace	<30 Minutes	16 (61.50)	25 (46.30)	41 (51.20)	<0.001*
	>30 Minutes	10 (38.50)	29 (53.70)	39 (48.80)	

Chi-Square test was applied for significance.

Table III: Descriptive statistics and comparison of the Likert scale among training years.

Parameters	1st Year mean ± SD n = 48	2nd year mean ± SD n = 18	3rd year mean ± SD n = 7	4th year mean ± SD n = 7	Cronbach alpha	p-value
EE Likert scale	68 ± 1.61	69 ± 2.61	74 ± 1.91	55 ± 1.88	0.96	0.004
PA Likert scale	40 ± 2.61	39 ± 1.81	35 ± 1.71	39 ± 3.03	0.90	<0.001
DP Likert scale	15 ± 3.04	13 ± 2.69	12 ± 1.91	13 ± 1.99	0.74	<0.001

ANOVA

Table IV: Percentage of burnout among pathology subspecialities groups.

Pathology subspeciality groups	n (%)	Burnout n (%)	No burnout n (%)	p-value
Chemical pathology group	20 (26)	14 (71)	6 (29)	0.004
Haematology group	23 (27.30)	15 (69)	7 (31)	<0.001
Microbiology group	17 (20.90)	10 (61)	7 (39)	0.004
Virology group	02 (2.40)	1 (50)	1 (50)	1.00
Immunology group	02 (3.70)	1 (50)	1 (50)	1.00
Histopathology group	16 (19.00)	13 (80)	3 (20)	0.002

Chi-square test.

The study results showed that 46/80 (58%) residents were female, while 34/80 (42%) were male. Females were associated with 94% rate of feeling burntout (p = 0.001) with high EE, DP, and low PA scores. The participants in the age range of 21-29 years were 46/80 (58%), while 34/80 (42%) were in 30-39 years of age group. However, age was statistically insignificant. Higher rates of burnout were observed in Punjabis (p = 0.001), army trainees (p = 0.001), first-year residents (p = 0.002), working hours >80/week or >8 hours/day (p = 0.002 and 0.007), having one or more children (p = 0.001), salary 30 minutes (p = 0.006). Residing in joint 48 (60%) or nuclear family systems 33 (41%) was statistically non-significant. A total of 68% residents were burntout with 43.8% having severe and 33.8% moderate burnout rate with high EE scores (p <0.001), while 71% had high DP with 43.8% having severe and 62.5% moderate burnout (p <0.001), and 69.4% had low PA with 43.8% severe and 28.7% having moderate levels of burnout (p <0.001).

The percentage of burnout among pathology subspecialities groups is shown in Table IV. It was significantly higher in chemical pathology, haematology, microbiology, and histopathology specialities.

DISCUSSION

Burnout is a response to prolonged EE, cynicism, and a low sense of PA at the workplace.[1] Several studies have conducted comparisons of burnout levels among residents in various specialities, but burnout within pathology has not been well-studied.[5] It results in decreased quality of care and poorer patient safety and satisfaction.[2,3,6] The burnout carries the risk of adversely affecting the welfare of residents as well as compromising the quality of care and safety provided to patients.[2,6,7]

This study represents the largest pathology residents' cohort regarding the prevalence of burnout in Pakistan. It aimed to study its prevalence and the important drivers, both individual and system-based. The demographic data reflected correlates of burnout in two-thirds of the pathology residents, similar to other studies with an overall prevalence rate of 68%, which is much higher than that reported by Shalaby *et al*.[2,8-10] Keith *et al*. reported burnout rate of 58% in Canada in 2023.[5] Similar to other studies such as Keith *et al*. and Shalaby *et al*., this study also showed that female gender was the main driver for the high rate of burnout (p <0.001) with high EE and DP as well as low PA scores.[2,5] Age factor was insignificant, similar to the study by Cohen *et al*., however, in contrast to a study by Shalaby *et al*., where age of less than 30 years was predicted to be a significant driver for high burnout score.[11] Malik *et al*. showed that age was insignificant as a predictor of causing burnout syndrome.[12] The married residents had a significantly higher likelihood of burnout syndrome (p <0.003). In contrast, Martini *et al*. showed that married residents had lower levels of burnout.[13] Similar to Shalaby *et al*., the first-year residents were most prone out of all residents to report burnout syndrome, and histopathology residency was a strong driver of the highest burnout score (p <0.002).[2,11,14] Workload is a key driver of burnout globally and in this study also, as is evident with working >80 hours per week significantly linked to high burnout scores (p <0.002).[2,5,14,15] Out of all demographic data, working >8 hours per day was found to be an independent risk factor for the high rate of burnout (p <0.007). Multivariate analysis revealed statistically significant prevalence of burnout by the year of training (p <0.002), gender (p <0.001), marital status (p <0.003), salary (p <0.006), number of working hours (p <0.002), and having children (p <0.001).

For the first time in Pakistan, this study has shown higher burnout levels in pathology residents. Burnout also adversely affects the quality of care provided to the patients, such as medical errors with high financial costs and low professional efforts.[2,7] Residency is seen as a demanding and taxing time with a lot of duties over which residents may feel powerless.[8] A Canadian study by Shalaby *et al*. found that 58% of residents had burnout overall, with significant levels of interpersonal disengagement and work weariness and 83.5% exhibiting a lack of professional fulfilment.[2] Numerous studies that have examined the incidence of burnout among residents have hypothesised that degrees of burnout can range from moderate to high. These may be linked to a decline in commitment and job performance and may also be predictive of stress-related health issues and low levels of career satisfaction.[12] With burnout rates ranging from 31 to 49.6% among medical students, 6% among surgical residents, 76% among internal medicine residents, and 45.8% among practicing physicians, the issue is well-established in the American healthcare system.[3,16]

A local study conducted by Malik *et al*. with surgical residents showed overall burnout, seen in 57.9% residents with

the majority being male, contrary to this study. On the PA scale, 53.4% of residents had modest levels of burnout, 49.6% had high levels on the DP category, and 50.4% had high levels on the EE category.[12] Males are more likely than females to experience burnout, with work dissatisfaction being the most common cause. In this study, there was a substantial correlation between the onset of burnout and smartphone ownership. In contrast to this study, having children and being aware of the burnout syndrome were two criteria that provided protection from burnout syndrome. Furthermore, this study found that smoking, drinking coffee or tea, working long hours, being married, and having a stable financial situation had no bearing on the onset of burnout syndrome.[5] This is in contrast to the current study's findings, where marital status, working hours, and financial status were found to be strong drivers of burnout in pathology residents. Thus, pathologists and residents in training experience significant prevalence rate of burnout. Literature recommends that both individual and system-based factors contributing to stress and burnout must be addressed.[17] Ensuring the development of individual resilience, ensuring supportive workplace culture, and engaging leadership and wellness programmes may be multi-pronged approaches in combating burnout.[8,11,18]

This study has several limitations. First, the sample size is relatively small. Second, data were assessed only at a single time point. Third, it could not clarify the coping mechanisms used by the residents for burnout.

CONCLUSION

Pathology residency is highly stressful, with burnout being common among the pathology residents, especially in the early years. The lack of national data on burnout hinders understanding its prevalence and causes. Integrating preventive measures into residency programmes is essential to train future doctors effectively and ensure optimal patient care.

ETHICAL APPROVAL:

Ethical approval was given by the Research Institutional Review Board, Combined Military Hospital, Lahore, Pakistan (IRB Number: 479/2023, Dated: August 2023).

PARTICIPANTS' CONSENT:

Written informed consent was taken from all the participants.

COMPETING INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

HMR: Conceived and designed the study, data collection, statistical analysis, and result compilation.

AAK, HT, SN, SR, QS: Data collection, results, discussion, and literature review.

All authors approved the final version of the manuscript to be published.

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