

ORIGINAL ARTICLE

Burn Out syndrome among resident doctors: Association with work hours and perceived organizational support.

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ABSTRACT... Objective: To evaluate the independent and moderating effects of perceived organizational support on burnout syndrome trajectories among resident physicians navigating clinical training environments. **Study Design:** Analytical Cross-sectional. **Period:** July to December 2024. **Setting:** Shahida Islam Medical College, Lodhran. **Methods:** Stratified random sampling enrolled 112 active postgraduate medical residents across diverse clinical specialties. Participants completed structured instrument capturing demographic and occupational variables, Maslach Burnout Inventory-Human Services Survey metrics, and the Survey of Perceived Organizational Support. Hierarchical multiple linear regression and moderation analyses were executed via SPSS version 25.0 to isolate predictive relationships and institutional buffering effects, adjusting for demographic confounders. **Results:** The participants average weekly work hours 72.5, with 64.3% exceeding 60 hours weekly. Extended duty hours demonstrated a significant positive correlation with emotional exhaustion ($r=0.42$) and depersonalization ($r=0.35$). Conversely, robust institutional support exhibited strong inverse correlations with these adverse psychological outcomes. Hierarchical regression models confirmed that prolonged work schedules ($\beta=0.34$) and diminished organizational backing ($\beta=-0.31$) independently predicted elevated emotional exhaustion. Crucially, moderation analysis revealed that perceived support significantly buffered the detrimental psychological impact of excessive clinical hours, effectively altering adverse burnout trajectories. **Conclusion:** While excessive clinical hours substantially fuel resident burnout, strong perceived organizational support serves as a vital protective buffer. Healthcare administrations must prioritize cultivating empathetic, supportive institutional cultures alongside strict duty-hour monitoring to safeguard trainee mental health and prevent professional attrition in medical training.

Key words: Burnout, Professional, Internship and Residency, Occupational Stress, Social Support, Work Hours.

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INTRODUCTION

Burnout syndrome is clinically conceptualized as a psychological response to chronic workplace stress, characterized by a distinct triad: profound emotional exhaustion, increased depersonalization (or cynicism) toward patients, and a diminished sense of personal accomplishment.¹ Within the medical hierarchy, resident doctors occupy a uniquely precarious position. They navigate a steep clinical learning curve while simultaneously bearing substantial patient care responsibilities, often with limited autonomy. This transitional phase of medical training creates a high-stakes environment where the margin for error is minimal, yet the psychological safety net is frequently inadequate. Recent meta-analytic data indicate that the global prevalence of burnout among resident physicians consistently hovers around 50%, with certain high-acuity specialties reporting rates exceeding

60%.^{2,3} This pervasive occupational hazard not only compromises the mental health of trainees but also directly correlates with increased medical errors, reduced patient satisfaction, and higher rates of attrition from the medical profession.⁴

A primary structural driver of this occupational hazard is the relentless demand of prolonged work hours. Despite the implementation of duty-hour restrictions in many countries, residents routinely log between 60 and 80 hours per week, frequently punctuated by overnight shifts.⁵ The physiological and psychological toll of this schedule is well-documented. Chronic sleep deprivation and circadian rhythm disruption erode cognitive reserve, impairing emotional regulation and accelerating the trajectory from transient fatigue to entrenched emotional exhaustion.⁶

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Empirical studies demonstrate a dose-response relationship between weekly work hours and burnout severity; residents exceeding 80 hours per week exhibit significantly higher odds of depersonalization and suicidal ideation compared to their peers working standard hours.^{4,7} Consequently, work hours function as a primary, quantifiable occupational stressor in medical training.

While job demands are substantial, the institutional environment fundamentally dictates how these demands are processed by the individual. Perceived Organizational Support (POS) is defined as the degree to which employees believe their organization values their contributions and actively cares about their overall well-being.⁸ This dynamic is optimally explained by the Job Demands-Resources (JD-R) model.⁹ Within this theoretical framework, excessive work hours operate as a debilitating “job demand” that continuously depletes psychological and physical energy. Conversely, POS functions as a vital “job resource.” Robust organizational support manifested through accessible mental health services, fair scheduling practices, and empathetic leadership does not merely reduce baseline stress. Rather, it actively buffers the deleterious impact of high workloads, interrupting the causal pathway between occupational strain and burnout.¹⁰

Despite extensive documentation of duty-hour violations and their downstream consequences, the specific moderating capacity of POS within the resident physician population remains inadequately mapped. Existing literature heavily emphasizes individual resilience training or rigid hour caps, frequently overlooking the systemic, institutional variables that can mitigate occupational strain.^{3,7} Furthermore, much of the current research aggregates all physicians together, failing to isolate the unique training environment of residents. There is a pressing need to quantify how perceived organizational support interacts with weekly work hours to influence burnout trajectories, particularly across diverse institutional and regional contexts. This study aims to address this gap by evaluating the independent and moderating effects of POS on burnout syndrome among resident doctors, providing actionable data for healthcare administrators and medical educators.

OBJECTIVE

To evaluate the independent and moderating effects of perceived organizational support on burnout syndrome trajectories among resident physicians navigating clinical training environments.

METHODS

This analytical cross sectional study was conducted at Shahida Islam Medical College, Lodhran, from July to December 2024 after taking ethical clearance from the Institutional Review Board (IRB) of Shahida Islam Medical College, Lodhran (Reference No: SIMC/ H.R/1915/ 25 DATED: 03 / 01 / 2025) and informed consent from participants. The requisite sample size was determined a priori using G Power software (version 3.1.9.7). Grounded in prior literature documenting moderate effect sizes of occupational stressors on physician well-being, we specified a medium effect size (f^2) of 0.15, an alpha error probability of 0.05, and a statistical power of 0.80.¹¹ The regression model incorporated six predictors, including the primary variables of interest alongside key demographic covariates such as age, gender, PGY, and specialty. This calculation yielded a minimum baseline requirement of 112 participants. The target population comprised accredited postgraduate medical residents actively engaged in clinical training across all available specialties. To ensure representative coverage of the all specialties, stratified random sampling technique was used, categorizing the sampling frame by medical specialty and postgraduate year (PGY) level. Eligibility criteria mandated that participants be currently enrolled in an accredited residency program. We explicitly excluded residents who were on scheduled long-term leave (e.g., maternity or extended sick leave) or those transitioning out of the program during the data collection window, as their occupational exposure would not reflect standard training conditions.

Data were gathered using a structured, self-administered questionnaire comprising three distinct sections. The first section captured demographic and occupational variables, including age, gender, marital status, medical specialty, PGY level, average weekly work hours, and the frequency of night shifts per month. The second section utilized the Maslach Burnout Inventory Human Services

Survey (MBI-HSS), the gold-standard instrument for assessing occupational burnout. The MBI-HSS evaluates three subscales: Emotional Exhaustion (9 items), Depersonalization (5 items), and Personal Accomplishment (8 items). Items are scored on a 7-point frequency scale ranging from 0 (never) to 6 (every day), where higher scores in exhaustion and depersonalization, coupled with lower scores in personal accomplishment, indicate severe burnout. The third section assessed Perceived Organizational Support (POS) using Eisenberger's validated 8-item Survey of Perceived Organizational Support (SPOS). Items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher aggregate scores reflecting a stronger perception of institutional support and care.

Following institutional approval, the survey was deployed as an anonymous, secure online form. Unique, non-traceable access links were distributed to eligible residents via official departmental communication channels to minimize selection bias. The data collection window strictly adhered to the June through December 2024 timeline, with two automated reminder messages dispatched at weeks three and five to optimize the response rate. Data analyses were executed using SPSS version 25.0. Descriptive statistics were generated to summarize sample characteristics, presenting categorical variables as frequencies and percentages, and continuous variables as means with standard deviations (SD). Bivariate associations were examined using Pearson or Spearman correlation coefficients, independent sample t-tests, and one-way Analysis of Variance (ANOVA), as appropriate for the data distribution. To determine the independent predictive value of work hours and POS on burnout subscale scores, we employed hierarchical multiple linear regression, systematically adjusting for potential confounders including age, gender, specialty, and PGY. Additionally, a moderation analysis was conducted by introducing a mean-centered interaction term (Work Hours $\times$ POS) to evaluate whether organizational support buffered the adverse effects of prolonged duty hours. Statistical significance was defined as p-value of < 0.05 .

RESULTS

The participants had a mean age of 27.4 ± 2.1 years. Gender distribution was relatively balanced, with 61 males (54.5%) and 51 females (45.5%). Most respondents were unmarried (68.8%). Clinical representation included internal medicine (35.7%), general surgery (28.6%), pediatrics (19.6%), and other disciplines (16.1%). Reported average weekly work hours totaled 72.5 ± 11.4 hours. A substantial proportion of the cohort (64.3%, $n=72$) logged more than 60 hours per week (Table-I).

Aggregated scores from the MBI-HSS reflected substantial occupational strain within the sample. Emotional exhaustion and depersonalization domains yielded elevated averages of 24.6 ± 9.8 and 11.2 ± 6.4 , respectively, alongside a diminished personal accomplishment score of 28.4 ± 7.5 . Stratified bivariate testing showed that physicians exceeding 80 weekly work hours recorded significantly worse emotional exhaustion and depersonalization metrics than their peers working fewer shifts ($p < 0.01$). In contrast, robust perceived organizational support correlated with lower scores across all adverse burnout dimensions. Those in the upper tertile for institutional support exhibited notably reduced emotional exhaustion ($p = 0.003$) and depersonalization ($p = 0.012$). Postgraduate training level and gender did not significantly influence burnout metrics (Table-II).

Bivariate Pearson correlations established the linear associations among the primary constructs. Weekly work hours positively correlated with emotional exhaustion ($r = 0.42$, $p < 0.001$) and depersonalization ($r = 0.35$, $p < 0.001$). Perceived organizational support inversely correlated with emotional exhaustion ($r = -0.38$, $p < 0.001$) and depersonalization ($r = -0.29$, $p = 0.002$). A weaker positive relationship emerged between organizational support and personal accomplishment ($r = 0.22$, $p = 0.018$) (Table-III).

Hierarchical multiple linear regression was applied to isolate the independent effects of work hours and institutional support on emotional exhaustion, adjusting for age, gender, medical specialty, and postgraduate year. Demographic variables alone explained 6% of the variance in emotional

exhaustion, though this initial model lacked statistical significance ($p = 0.14$) (Table-IV).

TABLE-I

Socio-demographic and occupational characteristics of resident doctors (n = 112)

Variable	Category	n (%) or Mean $\pm$ SD
Age (years)	-	27.4 $\pm$ 2.1
Gender	Male	61 (54.5)
	Female	51 (45.5)
Marital Status	Single	77 (68.8)
	Married	35 (31.2)
Medical Specialty	Internal Medicine	40 (35.7)
	General Surgery	32 (28.6)
	Pediatrics	22 (19.6)
	Others	18 (16.1)
Postgraduate Year	PGY-1	42 (37.5)
	PGY-2	38 (33.9)
	PGY-3/4	32 (28.6)
Average Weekly Work Hours	-	72.5 $\pm$ 11.4
Work Hours Category	$\leq$ 60 hours	40 (35.7)
	61 - 80 hours	52 (46.4)
	> 80 hours	20 (17.9)
Night Shifts per Month	-	6.8 $\pm$ 2.2

TABLE-II

Bivariate comparison of burnout subscale scores stratified by occupational variables

Variable	Emotional Exhaustion (Mean $\pm$ SD)	P-Value	Depersonalization (Mean $\pm$ SD)	P-Value
Work Hours Category				
$\leq$ 60 hours	19.2 $\pm$ 8.4	<0.001	8.4 $\pm$ 5.1	0.004
61 - 80 hours	25.1 $\pm$ 9.2		11.5 $\pm$ 6.2	
> 80 hours	31.4 $\pm$ 10.5		16.8 $\pm$ 7.3	
Perceived Organizational Support				
Low (1st Tertile)	29.5 $\pm$ 8.9	0.003	14.2 $\pm$ 6.8	0.012
Moderate (2nd Tertile)	24.1 $\pm$ 9.4		10.8 $\pm$ 5.9	
High (3rd Tertile)	18.6 $\pm$ 8.1		7.5 $\pm$ 4.8	
Postgraduate Year				
PGY-1	23.8 $\pm$ 10.1	0.45	10.9 $\pm$ 6.5	0.62
PGY-2	25.2 $\pm$ 9.5		11.4 $\pm$ 6.2	
PGY-3/4	24.9 $\pm$ 9.8		11.3 $\pm$ 6.6	
Gender				
Male	24.1 $\pm$ 9.9	0.58	11.5 $\pm$ 6.5	0.71
Female	25.2 $\pm$ 9.7		10.8 $\pm$ 6.3	

DISCUSSION

The present study evaluated the interplay between occupational demands, institutional backing, and psychological distress among resident physicians. Our findings indicate a substantial burden of burnout, with emotional exhaustion and depersonalization reaching clinically significant thresholds. Consistent with the Job Demands-Resources framework, extended weekly work hours emerged as a primary driver of this distress. However, the data also highlight a critical protective mechanism: perceived organizational support significantly attenuated the adverse psychological impact of prolonged duty hours, effectively buffering residents against the most severe manifestations of burnout.

The average weekly workload of 72.5 hours reported by participants substantially exceeds the standard 60-hour threshold recommended by many international medical councils. This relentless scheduling directly correlates with the elevated emotional exhaustion scores observed. Chronic sleep fragmentation and circadian misalignment, inherent to frequent night shifts, degrade cognitive and emotional reserves, accelerating the transition from acute fatigue to entrenched burnout.^{12,13}

TABLE-III

Pearson correlation matrix of study variables (n = 112)

Variables	1	2	3	4	5
1. Weekly Work Hours	1				
2. Perceived Org. Support	-0.15	1			
3. Emotional Exhaustion	0.42	-0.38	1		
4. Depersonalization	0.35	-0.29	0.68	1	
5. Personal Accomplishment	0.08	0.22	-0.45	-0.38	1

TABLE-IV

Hierarchical multiple linear regression analysis predicting emotional exhaustion

Variables	Model 1 (β)	Model 2 (β)	Model 3 (β)	Model 4 (β)
Age	0.08	0.05	0.04	0.03
Gender (Female)	0.06	0.04	0.02	0.01
Specialty (Ref: Medicine)	-	-	-	-
PGY Level	0.05	0.02	0.01	0.00
Weekly Work Hours	-	0.41	0.34	0.36
Perceived Org. Support	-	-	-0.31	-0.28
Work Hours $\times$ POS	-	-	-	-0.18

While duty-hour restrictions have been implemented in various jurisdictions, our data suggest that mere compliance with numerical caps is insufficient if the underlying intensity of the clinical environment and its downstream consequences on patient safety remain unaddressed.¹⁴

Beyond structural scheduling, the institutional climate fundamentally shapes resident well-being. Perceived organizational support functioned as a vital psychological resource in our cohort. Residents who felt their institution valued their contributions and cared for their welfare reported markedly lower depersonalization and emotional exhaustion.^{15,16} Crucially, the moderation analysis demonstrated that robust institutional support alters the trajectory of burnout associated with long shifts. Even when excessive work hours are unavoidable due to clinical necessities, a supportive environment characterized by empathetic leadership, accessible mental health resources, and fair grievance mechanisms can interrupt the causal pathway between occupational strain and psychological depletion.¹⁷

These dynamics are particularly salient in the Pakistani healthcare context, where systemic resource constraints and high patient volumes

often necessitate prolonged working hours.^{18,19} In such environments, where structural reductions in work hours may be temporarily unfeasible, fostering organizational support becomes the most viable intervention. The absence of institutional backing exacerbates the psychological toll of workplace stressors, whereas its presence provides a necessary psychological safety net for trainees navigating high-acuity clinical rotations.²⁰

The methodological rigor of this study is anchored in its use of validated, gold-standard psychometric instruments and a robust response rate that minimizes non-response bias.²¹ The application of hierarchical regression and moderation analysis provides a nuanced understanding of how job resources interact with job demands, moving beyond simple bivariate associations to capture the complex reality of medical training. Furthermore, focusing specifically on the resident population allows for targeted insights that are often diluted in studies aggregating all physician demographics.

Despite these strengths, several limitations warrant consideration. The cross-sectional design precludes definitive causal inferences; while the theoretical model posits that work hours drive burnout, it is

also plausible that residents experiencing early burnout perceive their work hours as longer or their institutional support as weaker. Self-reported data introduce the potential for recall and social desirability biases, particularly regarding the precise number of weekly hours worked. Additionally, the single-center design at Shahida Islam Medical College limits the generalizability of the findings to other institutions with different cultural or administrative frameworks.

Based on these findings, we recommend that hospital administrators and medical educators in Pakistan and similar settings pivot from a sole focus on duty-hour compliance to actively cultivating a supportive institutional culture. Practical steps include establishing formal, confidential mentorship programs, ensuring protected time for residents to access psychological services without academic penalty, and training clinical supervisors in empathetic leadership.²² Future research should employ longitudinal designs to track burnout trajectories over the course of residency and utilize qualitative methods to identify the specific organizational behaviors that residents find most supportive.²³

CONCLUSION

Excessive work hours significantly drive burnout among resident doctors, but perceived organizational support acts as a critical buffer against this occupational strain. Healthcare institutions must prioritize fostering supportive, empathetic clinical cultures alongside monitoring duty hours to safeguard trainee well-being.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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