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Burnout and Perceived Stress among Post-Graduate Medical Residents: Findings of a Longitudinal Survey

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Abstract

Background: Few longitudinal studies have been conducted on burnout, workload, and perceived stress in resident doctors. We assessed the degree and correlates of burnout and perceived stress among postgraduate resident doctors over two academic years.

Materials and Methods: Over 90 post-graduate resident doctors were surveyed at the end of their first and second academic years. The ICD-10 Symptom Checklist, Cohen's perceived stress scale (PSS-10), Maslach burnout inventory (MBI), Zung self-reported depression scale (ZSRDS), somatic symptom scale-8 (SSS-8) were administered along with pre-designed proforma to collect data on socio-demographic and work-related variables.

Results: The majority (80%) of residents reported some level of burnout. A higher number of residents reported high burnout at the end of the first academic year compared to the second year. The mean scores of the MBI, ZSRDS, PSS-10, and SSS-8 were significantly lower at the end of the second year than at the first year. The multivariate analysis revealed that marital status and workload were significantly associated with burnout. Unmarried resident doctors had significantly lower emotional exhaustion sub-domain scores on the MBI at the end of the first and second sessions. Higher workload is very likely to be associated with burnout (odds ratio, 15; 95% CI, 1.89–119.0; p <0.001).

Conclusion: A greater number of post-graduate resident doctors reported high burnout and perceived stress at the end of the first academic year compared to the second year. Workload was found to be the most significant factor associated with burnout. Interventions to manage stress and address burnout among resident doctors in the first academic year are recommended.

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Introduction

The medical profession is a very demanding and stressful branch of science, requiring dedication, commitment, precision, long hours, and night shifts at work to care for critically ill patients. It is well established that prolonged exposure to a stressful work environment negatively affects the physical and mental well-being of an individual. Resident doctors work under suboptimal con-

ditions, are rewarded less financially, and must cope with different sources of stress, such as the absence of infrastructure for healthcare and substandard economic conditions.[1,2] This long-standing stress in medical professionals can often lead to burnout syndrome, which affects healthcare workers and patient care.

Burnout can be defined as a state of exhaustion, lack of motivation, and disillusionment or hopelessness in one's job or career that arises from poor coping with work-related stress. The concept was first introduced by Herbert J. Freudenberger, the psychiatrist and psychoanalyst in his 1974 article "Staff burnout" to qualify a state of failure or exhaustion among the staff of alternative self-help institutions for drug addicts.[3] However, Maslach and Jackson were the first to give a detailed description of the burnout syndrome along with formulating the most widely accepted instrument to measure it, the Maslach burnout inventory (MBI).[4] According to Maslach, burnout can present in three dimensions, namely, emotional exhaustion (EE), depersonalization (DP), and lack of personal achievement (PA). Emotional exhaustion can lead to irritability, low frustration tolerance, and excessive fatigue. Depersonalization can be explained as an indifferent attitude towards work and patients. This is an attempt to distance oneself from patients by using an apathetic attitude. The lack of personal accomplishment arises in burnout leading to a constant feeling of being a failure and low self-esteem. [5,6]

Burnout syndrome, related to work stress is an occupational phenomenon among health care personnel present on a global scale affecting their personal well-being and patient care.[7] The detrimental consequences of burnout have been also well described, and include increased medical errors, unprofessional conduct, reduced patient satisfaction, stress-related health problems, drug addiction, depression, suicidal ideation, and marital and family discord.[8] Multiple surveys have documented the alarming percentage of physicians and trainee residents experiencing the symptoms and signs of burnout. Burnout has been studied among practicing doctors in many parts of the world, including the USA[9,10], European countries[11,12], and Latin America,[13] while very few studies have been reported from India.[14-17]Most research conducted so far has been cross-sectional in design, with a focus on stress rather than burnout, and very limited data are available on the evolution of the condition over the course of residency programs. Given this background, a longitudinal survey was conducted to study burnout syndrome and its relationship with particular socio-demographic and work-related factors among resident doctors.

Material and Methods

This longitudinal survey was conducted in the Department of Psychiatry of a teaching institute from March 2019 to April 2020. The private sector institute provides multispecialty tertiary-level health services to the southwestern region of Rajasthan, India. The Institutional Ethics Committee approved the study protocol and written informed consent was obtained from all participants. All medical postgraduate residents (n = 90) in the institute from the academic year 2018 were invited to participate in this study. Residents were defined as those undergoing their master's or postgraduate degrees in medicine and allied specialties. The first survey was conducted near the end of the first academic year of residency in 2019, and a repeat survey near the end of the second academic year in 2020. The residents were contacted in person by a psychiatry resident, and data were collected in written format. Sociodemographic, job environment and work-related variables were recorded on a predesigned proforma. Residents who gave incomplete responses did not respond to the repeat survey, or were unwilling to participate were excluded from the final data analysis. Participants with clinically significant scores on the assessment tools were advised to consult with the student counselor and/or psychiatrist. The following tools were administered by psychiatry residents and ratified by the consultant:

ICD-10-AM Symptom Checklist for Mental Disorders

This is a semi-structured instrument designed for use by clinicians for the assessment of the main

psychiatric symptoms and syndromes in the F0 to F6 categories of ICD-10.[18]

Maslach Burnout Inventory (MBI)[4]

This is a copyrighted, extensively validated, 22-item self-report questionnaire subdivided into three areas: emotional exhaustion (EE), depersonalization (DP), and professional achievement (PA). These were further categorized based on severity into low, moderate, or high levels of burnout. Respondents rated the frequency of burnout symptoms on a 7-point Likert scale ranging from 0 (never) to 6 (every day). For the present study, the MBI-Human Services Survey for medical personnel was used.[4] The average scores were calculated by dividing the sum of the answered domain scores by the total items for that domain. The emotional exhaustion domain was classified using the following cut-off scores: low (≤16 points, average score ≤1.7), moderate (17–26 points, average score 1.8–2.8), and high (≥27 points, average score ≥3). The depersonalization domain was classified according to the following scores: low (≤6 points, average score ≤1.2), moderate (7–12 points, average score 1.4–2.4), and high (≥13 points, average score ≥2.6). For the professional achievement domain, scores are inversely related to burnout and the cut-off scores are: low (≤31 points, average score <4), moderate (34–38 points, average score 4–4.7), and high (≥39 points, average score ≥4.8)

Perceived Stress Scale (PSS-10)[19]

It is a self-reported measure of the degree to which situations in one's life are appraised as stressful and also includes a number of direct queries about current levels of experienced stress. The PSS questions asked about feelings and thoughts during the past month. A score of 13 or below was considered an average, and a score of 20 or higher was considered a high level of stress.

Zung Self-Rating Depression Scale (ZSRDS)[20]

A 20-item self-report questionnaire that is widely used as a screening tool, covering affective, psychological and somatic symptoms associated with depression. The questionnaire took about 10 minutes to complete, and the items were framed in terms of positive and negative statements. The total score ranges from 20 to 80. Most people with depression score between 50 and 69, while a score of 70 and above indicates severe depression.

Somatic Symptom Scale - 8 (SSS-8)[21,22]

A brief self-report questionnaire was used to assess somatic symptom burden, which measures the perceived burden of common somatic symptoms. Respondents rated how much they had been bothered by common somatic symptoms within the last seven days on a five-point Likert scale. Ratings are summed to create a simple sum score (which can vary between 0 and 32 points).

Data Analysis

Statistical analyses were done using the Statistical Package for Social Sciences for Windows, version 16 (SPSS Inc., Chicago, Ill., USA). Continuous variables were expressed as mean with standard deviation. Binary logistic regression was used to look for the association of various variables and burnout. All statistical analyses were done at a 95% confidence interval, and $p < 0.05$ was considered statistically significant.

Results

There was a total of 90 residents enrolled in the institute at the first survey. The response rate of residents who participated in the survey was 94.4% (85 of a total of 90). Of the five residents who did not respond, three refused to participate and two reported being too busy in their schedules/duties to complete the questionnaires.

Table 1 presents the characteristics of the study participants. The mean age of the residents was 27 (± 2.7) years and the median age was 25.5 years. Most of the residents were single Hindu males who belonged to an urban nuclear family, currently residing in the hostel on campus.

Most residents (72%) had a mixed duty of working in critical (49.4%) and routine patient areas, more than 72 working hours per week, and more than two night shift duties per week (Table 2). Around

Table 1: Sociodemographic of the study participants

Groups	*Number (N = 85)*	*Percentage*
Age (in years)		
< 25	21	24.7
25–30	58	68.2
> 30	6	7.1
Gender		
Female	31	36.5
Male	54	63.5
Marital status		
Engaged	1	1.2
Married	25	29.4
Single	59	69.4
Living with family currently		
No	71	83.5
Yes	14	16.5
Religion		
Hindu	80	94.1
Muslim	5	5.9
Sociodemographic background		
Rural	3	3.5
Urban	82	96.5
Family type		
Extended	1	1.2
Joint	26	30.6
Nuclear	56	65.9
Others	2	2.4
Family size		
< 5	57	67.1
6 to 10	21	24.7
more than 10	7	8.2
Current field of postgraduation		
Anesthesia	10	11.8
Community medicine	1	1.2
Dermatology	4	4.7
ENT	1	1.2
Medicine	10	11.8
Microbiology	2	2.4
Obstetrics and gynecology	9	10.6
Ophthalmology	4	4.7
Orthopedics	7	8.2
Pathology	4	4.7
Pediatrics	8	9.4
Psychiatry	3	3.5
Radiology	7	8.2
Radiotherapy	1	1.2
Respiratory medicine	4	4.7
Surgery	10	11.8
Total	85	100.0

one-third (36.5%) reported having an exhaustive workload (Table 2).

Degree of Burnout, Stress and Depression among Residents

The scores obtained using the study tools are presented in Table 3. On the MBI, in the first academic year, 24 residents (28.2%) scored high on emotional exhaustion, 16 (18.8%) scored high on depersonalization, and 24 (28.2%) reported a high degree of lack of personal accomplishment. In the second academic year, there was a decline in the number of residents with a high degree of burnout in EE, DP, and PA domains. More than half of the participants reported experiencing moderate levels of stress (65.9%), and another 7.1% reported high levels of stress in the first academic year. By the second year, only one resident had reported high stress. In the first year, 5.9% of residents reported mild to moderate depression on the ZSRDS, whereas in the second year, none of the residents reported depressive symptoms. In the first academic year, nearly half (41.2%) had a moderate to very high burden on SSS-8. In the subsequent year, only one (1.2%) resident scored very high, and the other two (2.4%) scored high on the SSS-8 (Table 3).

Table 2: Distribution of residents according to work associated factors

Type of working area		
Type of unit	*Number*	*Percentage*
IPD*	3	3.5
LAB†	6	7.1
MIX§	72	84.7
OPD‖	1	1.2
OPD+IPD	3	3.5
Type of duty		
Day	20	23.5
Shift	65	76.5
Workload		
Exhaustive	31	36.5
Moderate	54	63.5
Working Hours per week		
48–72	1	1.2
49–72	20	23.5
72+	64	75.3
Night shifts per week		
> 2	55	64.7
< 2	23	27.1
Nil	7	8.2
Type of patients		
Both	42	49.4
Critical	27	31.8
Routine	16	18.8

*In-patient department unit;†Clinical laboratory unit; §Mixed type unit; ‖Out-patient department unit

Association of Burnout, Stress and Depression with the Academic year of Residency

The mean scores of EE, DP, PA domains of MBI, PSS-10, ZSRDS and SSS-8 in the first year of residency were 2.29 ± 1.20, 1.59 ± 1.12, 4.48 ± 0.91, 17.99 ± 6.51, 34.82 ± 9.82 and 7.79 ± 4.88, respectively. In the second year, mean scores were 1.52 ± 1.02 (EE), 0.91 ± 0.87 (DP), 5.03 ± 0.70 (PA) 11.33 ± 4.83 (PSS), 27.09 ± 6.20 (ZSRDS), 4.72 ± 3.51 (SSS-8). All scores showed improvement in the second year and changes in the first and second years were statistically highly significant (p <0.001) (Table 4).

Association of Burnout with Sociodemographic and Working-related Factors

Age, gender, living status with family, type of duty, number of night shifts, and type of patient care setting did not show any statistical significance with any subscale of MBI in either academic year (Tables 5-7).

Being single and the type of workload, however, showed statistical significance with all three MBI subscales. Workload being exhaustive in the second year showed a statistically significant association with EE scores (p = 0.028). The type of workload was also found to be significantly related to depersonalization scores in the first year (p = 0.050), with a significant association noted in the second year (p = 0.070). Working >72 hours per week was significantly associated with lower PA in the second year (p = 0.017). Bivariate and logistic regression was utilized to examine the association of the aforementioned factors with >50% improvement in burnout subscales, out of which only workload was found to have an impact on EE scores (odds ratio, 15; 95% CI, 1.89–119.0; p <0.001).

Discussion

This study surveyed the factors associated with burnout in resident doctors at two points in time. The majority of the resident doctors experienced burnout. In the present study, the dimensions of burnout, depressive symptoms, somatic symptom burden, and perceived stress were significantly lower at the end of the second academic year than at the first. The frequency of a high degree of burnout at the end of the first year of residency also declined significantly when residents were at the end of the second year. Of the various factors studied, a decrease in workload intensity was found to be the single most significant variable, showing an association with improvement in EE scores.

According to Malasch, the lack of professional effectiveness seems to emerge more clearly from the lack of relevant resources, while emotional

Table 3: Distribution of various scores in study candidates as per residency year

	First year		*Second year*	
Degree of MBI scores	*No. of participants*	*Percentage*	*No. of participants*	*Percentage*
EE* score				
High	24	28.2	8	9.4
Medium	29	34.1	19	22.4
Low	32	37.6	58	68.2
DP† score				
High	16	18.8	7	8.2
Medium	29	34.1	13	15.3
Low	40	47.1	65	76.5
Lack of PA‡ score				
High	24	28.2	6	7.1
Medium	32	37.6	19	22.4
Low	29	34.1	60	70.6
PSS-10§ score				
High	6	7.1	1	1.2
Medium	56	65.9	29	34.1
Low	23	27.1	55	64.7
ZSRDS‖ score				
Severe	0	0.0	0	0.0
Moderate	1	1.2	0	0.0
Mild	4	4.7	0	0.0
Normal	80	94.1	85	100.0
SSS-8¶ score				
Very high	9	10.6	1	1.2
High	9	10.6	2	2.4
Medium	17	20.0	16	18.8
Low	40	47.1	25	29.4
Minimum	10	11.8	41	48.2
Total	85	100.0	85	100.0

Maslach burnout inventory-*EE: Emotional exhaustion; †DP: Depersonalization; ‡PA: Personal achievement; §Perceived Stress Scale; ‖Zung Self-Rating Depression Scale; ¶SSS-8 Somatic symptom scale-8

exhaustion seems to emerge from the presence of work overload.[23] It has been remarked that residents who suffer from high degrees of burnout have an increased risk of substance abuse and suicidal ideation.[24] Pompili *et al.* in their study noted that burnout was significantly associated with increased suicide risk among medical doctors.[25] Few studies have suggested that among physicians, the MBI's emotional exhaustion and depersonalization sub-scales are associated with patient care outcomes.[26-28]

Table 4: Comparison of measures of burnout, stress and depression in the residents as per residency year

	First year		Second year		t	p-value	95% Confidence Interval of the difference	
Measure	Mean	SD	Mean	SD			Lower	Upper
MBI EE*	2.29	1.20	1.52	1.02	15.079	<0.001	0.67	0.87
MBI DP†	1.59	1.12	0.91	0.87	14.322	<0.001	0.59	0.77
MBI PA‡	4.48	0.91	5.03	0.70	-8.549	<0.001	-0.68	-0.42
PSS-10§ score	17.99	6.51	11.33	4.82	20.132	<0.001	6.00	7.32
ZSRDS‖ score	34.82	9.82	27.09	6.20	12.485	<0.001	6.50	8.96
SSS-8¶	7.79	4.88	4.72	3.51	13.798	<0.001	2.63	3.51

Maslach burnout inventory-*EE: Emotional exhaustion; †DP: Depersonalization; ‡PA: Personal achievement; §Perceived Stress Scale; ‖Zung Self-Rating Depression Scale; ¶SSS-8 Somatic symptom scale-8

The current finding also demonstrates how first-year post-graduate residents are more stressed, highly vulnerable to burnout, and possibly face greater hardship and challenges. The perceived stress of the residents was greater in the first year, perhaps due to fewer opportunities to be exposed to stressful situations. Young residents are naïve and in an unfamiliar environment where they have to learn to adapt and deal with multiple facets of the residency program.

These findings are however contrary to a study from Kerala, India by Sreelatha *et al.* where the second-year residents scored high on burnout measures when compared to first- and third-year residents although it should be noted that it was a cross-sectional study comparing three different groups of individuals.[29]

Shirom *et al.* remarked that workload did not have a direct effect on burnout but mediated its effect through perceived stress.[30] Previous data from India indicated that inadequate time to study due to extra duties and work burden were the major factors for perceived stress in junior residents.[31,32] In another recent study, residents of both the surgical and anesthesia branches scored high in perceived stress.[33] The score was significantly higher in surgical residents ($p = 0.03$) and increased progressively with the year of residency. Most residents felt that they were overloaded with work.

The present study found a strong association between a person's marital status and being single on all the subscales of the MBI (EE, DP, PA), which is in accordance with previous studies. A study by Martini *et al.* found less burnout in married residents.[34] Married residents have the social support of their spouse which acts as a buffer for the period of a residency program and protects against the proneness for burnout.[35] However, a systematic review of burnout in residency training found conflicting results of the effect of gender and marital status on burnout.[36] It was remarked that married residents may have added responsibilities which could add to burnout. However, other studies[37,38] have found no association between relationship status and burnout.

Hochberg *et al.* emphasized that along with the recognition of stress and burnout, it was also important to recognize the signs of depression, which could potentially lead to substance abuse, interpersonal problems, and suicidal tendencies in both residents and faculty suffering from chronic burnout.[39] In the present study, in the first year, only one resident had moderate depression and four (4.7%) residents had mild depression. None of the residents screened positive for depressive disorder. This finding could be explained by the significant overlap between the symptoms and the findings of depression and burnout. The authors of a recent meta-analysis of the relationship between burnout and depression remarked that "the distinction between burnout and depression is conceptually fragile."[40] Future studies should fully delineate whether these conditions exist on a continuum or as distinct entities.

Table 5: Relationship between socio-demographic and work-related factors with first- and second-year residency MBI-EE scores

Factors	Variables	MBI EE*					
		1st year			2nd year		
		Mean ± SD	T	p	Mean ± SD	t	p
Age	<25 yrs	2.32 ± 1.30	0.147	0.883	1.44 ± 1.02	-0.405	0.686
	>25 yrs	2.28 ± 1.17			1.54 ± 1.026		
Sex	Female	2.05 ± 1.03	-1.403	0.164	1.48 ± 1.05	-0.256	0.799
	Male	2.43 ± 1.27			1.54 ± 1.01		
Marital	Married	1.87 ± 1.36	-2.192	0.031	1.23 ± 0.87	-1.748	0.084
	Single	2.47 ± 1.185			1.65 ± 1.06		
Living with family	No	2.29 ± 1.19	-0.053	0.958	1.52 ± 1.34	0.070	0.944
	Yes	2.31 ± 1.27			1.50 ± 0.97		
Type of family	Nuclear	2.44 ± 1.03	1.629	0.107	1.68 ± 0.96	2.076	0.041
	Joint	2.00 ± 1.43			1.21 ± 1.03		
Shift type	Day	2.46 ± 1.10	0.709	0.481	1.65 ± 0.91	0.673	0.503
	Night	2.24 ± 1.28			1.48 ± 1.055		
Working hours per week	<72 hrs	2.42 ± 1.59	0.568	0.571	1.58 ± 1.13	0.338	0.736
	>72 hrs	2.25 ± 1.04			1.50 ± 0.98		
Night Shifts per month	<2	2.43 ± 1.37	0.803	0.424	1.53 ± 1.04	0.082	0.934
	>2	2.21 ± 1.09			0.89 ± 1.02		
Type of patients	Critical	2.06 ± 1.02	-1.188	0.238	1.45 ± 1.08	-0.407	0.685
	Both & routine	2.40 ± 1.27			01.55 ± 0.99		
Work load	Exhaustive	2.60 ± 1.02	1.826	0.071	1.84 ± 1.01	2.232	0.028
	Moderate	2.11 ± 1.26			1.34 ± 0.99		

MBI: Maslach burnout inventory- *EE: Emotional exhaustion

Furthermore, stronger clinical definitions of burnout are required to distinguish it from depression.

In the current survey, we managed to cover 16 different specialties over a span of two years and achieved a good response rate. However, the number of samples in each specialty was relatively small and the study group comprised residents of one medical school. The present study has several limitations. We could not gather data for Anatomy, Biochemistry, Forensic Medicine, and Pharmacology specialties, as this institute did not have residents in these departments for the academic year that was studied. Data at the end of the third year of residency could not be collected, which could provide further insight into the nature of work burden, perceived stress, and the development of burnout. Factors such as a resident's thesis work and concerns related to it, local situations and atmosphere in different departments, resources available at a particular institute, substance use, and personal factors are other variables that can possibly affect burnout and prevent generalization of the results, as different institutes have different policies and may need further study. The possibility of a self-reporting bias cannot be ruled out. More objective metrics, such as the number of safety incidents and performance-based indicators influenced by burnout, were not assessed in the present survey. However, these limitations are not unique to the present study, but it does underscore the need for further research on the relationship between burnout in medical professionals, workload, well-being and patient care.[41]

Table 6: Relationship between socio-demographic and work-related factors with first- and second-year residency MBI-DP scores

Factors	Variables	MBI DP*					
		1st year			2nd year		
		Mean ± SD	t	P	Mean ± SD	t	P
Age	<25 yrs	1.91 ± 1.12	1.541	0.127	0.98 ± 0.91	0.426	0.671
	>25 yrs	1.48 ± 0.91			0.89 ± 0.86		
Sex	Female	1.34 ± 0.85	-1.561	0.121	0.78 ± 0.71	-1.047	0.298
	Male	1.73 ± 1.23			0.99 ± 0.94		
Marital	Married	1.18 ± 0.84	-2.323	0.023	0.68 ± 0.67	-1.609	0.111
	Single	1.77 ± 1.18			1.01 ± 0.93		
Living with family	No	1.60 ± 1.13	0.174	0.862	0.93 ± 0.67	0.452	0.652
	Yes	1.54 ± 1.13			0.81 ± 0.93		
Type of family	Nuclear	1.64 ± 1.04	0.515	0.608	0.95 ± 0.82	0.527	0.600
	Joint	1.50 ± 1.27			0.84 ± 0.96		
Shift type	Day	1.58 ± 0.91	-0.048	0.962	0.86 ± 0.72	-0.297	0.768
	Night	1.59 ± 1.18			0.93 ± 0.91		
Working hours per week	<72 hrs	1.42 ± 1.16	-0.808	0.421	0.83 ± 0.82	-0.497	0.621
	>72 hrs	1.65 ± 1.11			0.94 ± 0.89		
Night shifts per month	<2	1.64 ± 1.11	0.299	0.765	0.89 ± 0.77	-0.187	0.852
	>2	1.56 ± 1.13			0.92 ± 0.92		
Type of patients	Critical	1.41 ± 1.05	-0.989	0.326	0.86 ± 0.85	-0.370	0.712
	Both & routine	1.67 ± 1.15			0.93 ± 0.88		
Work load	Exhaustive	1.90 ± 1.07	1.987	0.050	1.14 ± 0.89	1.836	0.070
	Moderate	1.41 ± 1.11			0.78 ± 0.83		

MBI: Maslach burnout inventory-*DP: Depersonalization

Table 7: Relationship between socio-demographic and work-related factors with first- and second-year residency MBI-PA* scores

Factors	Variables	MBI PA					
		1st year			2nd year		
		Mean ± SD	t	p	Mean ± SD	t	p
Age	<25 yrs	4.40 ± 1.2	0.442	0.660	5.03 ± 0.66	0.028	0.978
	>25 yrs	4.51 ± 0.79			5.03 ± 0.69		
Sex	Female	4.63 ± 0.92	1.153	0.252	5.02 ± 0.69	-0.072	0.943
	Male	4.39 ± 0.89			5.03 ± 0.71		
Marital	Married	4.83 ± 0.65	2.399	0.019	5.16 ± 0.51	1.123	0.264
	Single	4.33 ± 0.96			4.97 ± 0.77		
Living with family	No	4.45 ± 0.95	-0.759	0.450	5.03 ± 0.74	0.095	0.925
	Yes	4.65 ± 0.66			5.01 ± 0.52		

Type of family	Nuclear	4.43 ± 0.93	-0.732	0.466	5.01 ± 0.72	0.394	0.695
	Joint	4.58 ± 0.88			5.07 ± 0.68		
Shift type	Day	4.53 ± 1.02	-0.998	0.321	5.16 ± 0.87	0.932	0.354
	Night	4.53 ± 0.87			4.97 ± 0.65		
Working hours per week	<72 hrs	4.16 ± 0.95	-1.887	0.063	4.71 ± 0.65	-2.444	0.017
	>72 hrs	4.58 ± 0.87			5.13 ± 0.69		
Night shifts per month	<2	4.41 ± 0.96	-0.523	0.602	5.08 ± 0.86	0.456	0.650
	>2	4.52 ± 0.88			5.00 ± 0.61		
Type of patients	Critical	4.52 ± 0.89	0.256	0.799	4.96 ± 0.64	-0.585	0.560
	Both & routine	4.46 ± 0.92			5.06 ± 0.73		
Work load	Exhaustive	4.48 ± 0.92	-0.007	0.994	5.00 ± 0.64	-0.337	0.737
	Moderate	4.48 ± 0.91			5.05 ± 0.74		

MBI: Maslach burnout inventory-*PA: Personal achievement

Conclusion

A higher number of postgraduate resident doctors reported high burnout and perceived stress at the end of the first academic year compared to the second academic year. A high workload is significantly associated with burnout. Early interventions to manage stress and address burnout in resident doctors are highly recommended and should start at the very beginning of the first year of residency programs as early as possible.

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Declarations of Interest

None.

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