

Effect of Stress Coping on Burnout: A Prospective Study with First-year Postgraduate Medical Students

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ABSTRACT

Background: Many studies have recognized that the first postgraduate year (PGY-1) of residency training is the most stressful. Failing to cope with the stress will have a negative impact on their work performance and the quality of patient care.

Aims and objectives: To investigate stress and burnout in PGY-1 residents and to explore the relationship between stress, coping strategies, and burnout.

Methods: Fifty-four PGY-1 residents completed the Perceived Stress Scale, the Copenhagen Burnout Inventory and Coping Inventory at baseline and after 6-month follow-up. The association among stress, burnout, and coping strategies was examined by paired t-test.

Results: PGY-1 resident students had an increase in the level of perceived stress, level of personal burnout, work-related burnout, and patient-related burnout from baseline to 6-month follow-up ($p > 0.05$). In male resident doctors, only work-related burnout increased significantly with the duration of residency, while in females, a significant increase in the level of personal, work-related and patient-related burnout was observed.

Conclusion: The present study revealed high levels of stress that are predictor of burnout, which increases with the duration of the residency program.

Keywords: Burnout, Coping strategies, First-year resident, Perceived stress.

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INTRODUCTION

Residency is a particularly stressful time; the trainee is tasked with a tremendous responsibility of consistently providing high-quality care while learning and integrating new skills. Adapting to these job demands has a direct consequence on one's emotional and intellectual reserve, and the ability to establish a healthy home-work interface.¹ Postgraduate trainees and registrars working in a tertiary care teaching hospital experience stress in day-to-day life because of a heavy workload, long duty hours, night shift, little vacation time, inadequate time to sleep, eat, and study; this is compounded by the expectations of teachers, parents, and patients, which are higher in a tertiary care institute.² Being exposed to the sudden level of workload and stress can cause psychological distress in resident doctors, and there are studies to show that stress level is significantly higher in resident doctors.³⁻⁵ There is evidence suggesting a high prevalence of burnout in medical trainees.^{6,7} The global prevalence of burnout among postgraduate medical students was recently estimated to be 47.3% (95% confidence interval, 43.1–51.5%) according to a meta-analysis of 114 studies from 47 countries.⁸ Numerous studies, including Indian data, have recognized that the first postgraduate year (PGY-1) of residency training is the most stressful year for physicians under professional training and assuming the responsibility of patient care.^{3,9-13}

Stress can be defined as a stability imbalance that occurs when an individual is emotionally activated and perceives that cognitive and/or performance requirements outweigh the available resources.¹⁴ Exposure to stressful working conditions in the absence of adequate stress-coping strategies may lead to burnout or depression.¹⁵

Stress in students could be caused by their academic life, both from internal and external demands. These demands require students to adapt and overcome their problems.¹⁶ Additionally, poorly managed stress experiences could lead to burnout in junior doctors and result in diminished patient care.¹⁷ One way

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for individuals to overcome stress is to employ a suitable coping mechanism. Coping mechanisms include all forms of cognitive and emotional efforts carried out by individuals to overcome stressors of the presenting situation. Using appropriate coping mechanisms may reduce burnout symptoms,¹⁸ while poor coping mechanism over time can develop into depressive symptoms.¹⁹

In India and abroad, various studies have conducted about coping, stress, and burnout among resident doctors. Nevertheless, the majority of them are all cross-sectional studies, they all include postgraduate students of all years, and intern doctors have been included in some studies. The first-year resident doctors are the one doing most of the physical work and handling other multiple responsibilities in the ward, outpatients, academic activities, and other work. This study aimed to systematically examine coping strategies among PGY-1 and their relationship with the level of perceived stress, burnout, and psychological well-being over time.

MATERIALS AND METHODS

This was a follow-up, observational, noninterventional, classroom study. It took place in a single center at a tertiary care general civil hospital in Surat, India. The study was conducted between April 2019 and October 2019. Ethical approval was granted by the ethics committee. Informed written consent was required and was obtained by the principal or coinvestigator.

Participants

All the first-year residents who joined the residency program in the year 2019–2020 and gave valid and informed consent were included in the study, and those posted in different preclinical, paraclinical, and clinical speciality departments were considered as the study population.

Data Collection Tools

Semistructured Performa

Self-reported Performa filled up by the study participants containing background characteristics, such as demographic details, like name (optional), age, gender, department, marital status, and children, living arrangements as well as past and present history of psychiatric illness and medical illness, any substance use at present.

General Health Questionnaire 28 (GHQ-28)

Goldberg and Hiller developed this questionnaire in 1979. This tool involves 28 questions and 4 subscales, each of which contains 7 questions. Domains of the four subscales are somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression.²⁰ The scoring of this questionnaire is as follows: The score for each subscale ranges from 0 to 21, and total score range is 0–84. A score of 22 has been considered as the cutoff point of this study. Scores higher than 22 are indicative of psychiatric disorders, whereas scores below 22 are considered to be normal.

Perceived Stress Scale-10²¹

It is a 10-item self-report measure of global perceived stress. A total score ranging from 0 to 40 is computed by reverse-scoring the four positively worded items and then summing all the scale items. Higher scores indicate greater levels of perceived stress. Subscale scores were computed by summing the six negatively worded items (Items 1, 2, 3, 6, 9, and 10) for Factor 1 (negative) and the four positively worded items (Items 4, 5, 7, and 8) for Factor 2 (positive), with higher scores indicating greater negative distress/stress feelings and greater positive stress feelings and coping abilities, respectively.

Copenhagen Burnout Inventory (CBI)²²

The CBI is a 19-item questionnaire that measures three burnout subdimensions: personal burnout (six items), work-related burnout (seven items), and client-related burnout (six items). The original version presented a good internal consistency for all three subscales: personal burnout ($\alpha = 0.87$), work-related burnout ($\alpha = 0.87$), and client-related burnout ($\alpha = 0.85$). All items use a five-point scale score with a range between 0 (low burnout) and 100 (severe burnout). A score between 50 and 74 represents a moderate level of burnout and a score between 75 and 99 represents a high level of burnout, while a score of 100 represents severe burnout. When comparing the Maslach Burnout Inventory and CBI scales, Winwood and Winefield²³ found the CBI (1) accurately conceptualized burnout as a fatigue phenomenon, (2) had good

reliability and validity, (3) distinguished between work and personal factors, and (4) was suitable for use with health professionals because of the inclusion of client-related burnout. The CBI was therefore chosen in the current study.

COPE inventory was developed by Carver et al.²⁴ The COPE consists of 60 statements representing 15 strategies, 4 items per strategy. The COPE inventory measures the following strategies: active coping, planning, use of instrumental social support, use of emotional social support, suppression of competing activities, turning to, positive interpret interpretation, restraint, acceptance, focus on and venting of emotions, denial, mental disengagement, behavioral disengagement, substance use, and humor.

METHODOLOGY

Baseline data were collected at the end of 1 month of Residency Performa containing demographic details, GHQ-28, Perceived Stress Scale (PSS), CBI, and COPE inventory. After 6 months of residency, they were approached and asked to fill the same proforma again (postassessment data).

All first-year residents were approached during their postgraduate induction program out of which 75 residents filled the baseline assessment form. Ten forms were excluded because they were incompletely filled. Out of the remaining 65 residents, 54 (83.08%) residents filled and returned the follow-up assessment form after 6 months. Therefore, the final sample analyzed for the result was 54.

Data Analysis

Statistical analysis was done with SPSS version 22.0 (IBM, New York, USA) and Spearman's rank correlation coefficient method. $p < 0.05$ was considered statistically significant.

RESULTS

Demographics Details

Out of 54 participants, 16 (29.6%) were male with a mean age of 26.56 ± 6.74 , and 38 (70.4%) were female with a mean age of 25.26 ± 1.87 ; the mean age of all participants was 25.65 ± 3.96 . Only one participant was of 51 years, and all others were between the age of 24–30 years so we did not compare the change in the level of stress and burnout with age.

All the 54 participants were grouped according to the branch in preclinical, clinical medical, and clinical surgical. Preclinical branches included physiology, biochemistry, pharmacology, and preventive and social medicine. The clinical medical branches included medicine, pathology, microbiology, skin and venereal diseases, emergency medicine, immunohematology and blood transfusion medicine. Clinical surgical branches included surgery, otorhinolaryngology, ophthalmology, and anesthesia.

Maximum participants were from the clinical medical branch ($N = 26$) while the minimum were from preclinical branches ($N = 10$). Department-wise analysis of stress and burnout parameters was not done because of a small number of participants from individual departments.

Only five (9.3%) participants were married while only one participant had a child so we did not compare the relationship between those parameters and change in the level of stress and burnout.

Three participants (5.6%) gave a history of having a prior psychiatric illness but all denied having current psychiatric illness

and only one participant reported having a current chronic medical condition. Because of a small number of participants with medical illness and none with present psychiatric illness, correlational analysis was not done with these parameters.

Almost half of the participants were working in the branch of their choice (28; 51.9%). The remaining 26 (48.1%) could not get admission to their first branch of choice (Table 1).

GENERAL HEALTH OF THE PARTICIPANTS

In our study, participants with psychological distress were 21 (38.88%) at baseline which increased to 28 (51.54%) at follow-up which was not statistically significant (df = 1; p = 0.189).

Perceive Stress and Burnout

Overall, the mean score of perceived stress of PGY-1 residents was 17.07 ± 7.55 and 19.52 ± 6.60, respectively, at baseline and follow-up. The baseline value of perceived stress was 18 (33.33%), 29 (53.77%), and 7 (12.96%) representing mild, moderate, and severe categories, respectively. The follow-up evaluation showed the value of 13 (24.07%), 33 (61.11%), and 8 (14.81%) for level of perceived stress in categories of mild, moderate, and stress, respectively, [t(4) = 8.032, p = 0.090].

Table 1: Sociodemographic profile of PGY-1 (n = 54)

		n (%)
Age (years, mean ± SD)	Whole sample	25.65 ± 3.96
	Male	26.56 ± 6.74
	Female	25.26 ± 1.87
Sex	Male	16 (29.6)
	Female	38 (70.4)
Department	Preclinical	10 (18.5)
	Clinical medical	26 (48.1)
	Clinical surgical	18 (33.3)
Living arrangement	Hostalite	39 (72.2)
	Localite	15 (27.8)
Marital status	Married	05 (9.3)
	Unmarried	49 (90.7)
Having child	Yes	01 (1.9)
	No	53 (98.1)
Psychiatric illness	At past	03 (5.6)
	At present	0 (0)
Medical illness	At past	02 (3.7)
	At present	01 (1.9)
Branch of first choice	Yes	28 (51.9)
	No	26 (48.1)

When we compared the mean of the sample, there was a significant increase in the levels of perceived stress and the three parameters of burnout in all the participants at follow-up (Tables 2 and 3).

Among those who were working in the branch of the first choice, the level of perceived stress [t(27) = -2.111, p = 0.044] and work-related burnout [t(27) = -3.656; p = 0.001] was significantly increased, but personal burnout and patient-related burnout did not change significantly. In males, a significant increase was observed in work-related burnout [t(15) = -2.448, p = 0.025] while the other three parameters were not significantly changed in male resident doctors. In females, all three levels of burnout were statistically significantly increased [t(37) = -4.259, p = 0.000; t(37) = -4.599, p = 0.000; t(37) = -3.377, p = 0.002] while a change in the level of stress was not statistically significant.

Among those participants working in the branch, which is not of their first choice, all three parameters of burnout were increased [t(25) = -2.628, p = 0.014; t(25) = 0.379, p = 0.001; t(25) = -2.025, p = 0.050] and statically significant, but the level of perceived stress was not statistically significantly increased.

No significant change in the level of stress and all parameters of burnout were observed among participants from preclinical departments. In clinical medical department, change in level of perceived stress and all parameters of burnout was significant [t(25) = -4.414, p = 0.000; t(25) = -4.152, p = 0.000; t(25) = -2.590, p = 0.016; t(25) = -2.226, p = 0.035]. In participants working in the clinical surgical department, a significant increase in the level of perceived stress [t(17) = -2.171, p = 0.044] and work-related burnout [t(17) = -3.435, p = 0.003] was observed, but an increase in personal burnout and patient-related burnout was not significant.

MAGNITUDE OF CHANGE OF COPING METHODS

No statistically significant change was found from baseline to follow-up in the entire sample in ways of coping skills with stress.

The multiple regression model with all predictor variables was statistically significant (F = 3.537, p < 0.001) and accounted for 40.1% of the variance in the PGY-1 resident. (R² = 0.559; adjusted R² = 0.401) (additional Table 1). Focus on and venting of emotions were significant factors influencing burnout. An increase of one in the venting of emotion scores corresponded to point increase in the burnout score (p < 0.015, 95% CI = 0.57, 4.95).

Correlation of Burnout with GHQ, Stress, and Coping Strategy

Table 4 demonstrates that all the dimensions of burnout positively correlated with GHQ, stress, and less useful coping strategy. We

Table 2: Change in level of stress and burnout in sample (n = 54)

	Mean (SD) baseline	Mean (SD) follow-up	Mean difference of pair	Paired sample t-test, p value
GHQ total	3.78 (4.69)	5.54 (6.09)	-1.76	-2.167; 0.035*
Personal burnout	38.50 (16.31)	47.53 (21.98)	-9.03	-3.160; 0.003**
Work-related burnout	27.84 (23.32)	41.86 (24.95)	-14.02	-5.254; 0.000**
Patient-related burnout	21.60 (19.99)	29.24 (22.07)	-7.64	-2.719; 0.009**
Burnout total	87.95 (52.26)	118.64 (59.09)	-30.69	-4.375; 0.000*
Perceived level of stress	17.07 (7.55)	19.52 (6.60)	-2.44	-2.512; 0.015*
Problem-solving	50.72 (7.76)	50.81 (8.74)	-0.926	-0.083; 0.934
Emotional	49.20 (8.87)	50.19 (5.82)	-1.556	-1.322; 0.192
Less useful	24.13 (5.82)	26.20 (7.22)	-2.074	-2.532; 0.014*
Humor	7.00 (2.65)	7.48 (2.42)	-0.481	-1.179; 0.244

** p < 0.01 level (two-tailed); p < 0.05 (two-tailed) df = 53



Table 3: Change in level of stress and burnout according to gender in whole sample ($n = 54$)

Domain	Mean at baseline	Mean at follow-up	Mean difference	Paired sample t-test; p value
Male participants ($n = 16$)				
Personal burnout	41.41	40.89	0.520	0.090; 0.930
Work-related burnout	31.03	43.08	-12.054	-2.488; 0.025*
Patient-related burnout	32.55	31.77	0.781	0.162; 0.873
Perceived level of stress	17.75	20.31	-2.563	-1.684; 0.113
Female participants ($n = 38$)				
Personal burnout	37.28	50.33	-13.049	-4.259; 0.000**
Work-related burnout	26.50	41.35	-14.850	-4.599; 0.000**
Patient-related burnout	17.00	28.18	-11.184	-3.377; 0.002**
Perceived level of stress	16.79	19.18	-2.395	-1.935; 0.061
Participants working in branch of first choice				
Personal burnout	36.76	43.30	-6.548	-1.790; 0.085
Work-related burnout	22.19	35.97	-13.776	-3.656; 0.001**
Patient-related burnout	22.47	28.27	-5.804	-1.762; 0.089
Perceived level of stress	16.32	18.68	-2.357	-2.111; 0.044*
Participants not working in branch of first choice ($n = 28$)				
Personal burnout	40.38	52.08	-11.699	-2.628; 0.014*
Work-related burnout	33.93	48.21	-14.286	-3.709; 0.001**
Patient-related burnout	20.67	30.29	-9.615	-2.058; 0.050*
Perceived level of stress	17.88	20.42	-2.538	-1.540; 0.136
Change in stress and burnout in preclinical branch ($n = 26$)				
Personal burnout	28.75	25.42	3.333	0.519; 0.616
Work-related burnout	13.21	17.86	-4.643	-0.929; 0.377
Student-related burnout	15.00	18.75	-3.750	-0.612; 0.556
Perceived level of stress	15.70	15.50	0.200	0.065; 0.949
Change in stress and burnout in clinical medical branch ($n = 26$)				
Personal burnout	39.10	52.40	-13.302	-4.414; 0.000**
Work-related burnout	28.71	43.13	-14.423	-4.152; 0.000**
Patient-related burnout	22.60	32.05	-9.455	-2.590; 0.016*
Perceived level of stress	17.31	19.96	-2.654	-2.226; 0.035*
Change in stress and burnout in clinical surgical branch ($n = 28$)				
Personal burnout	43.06	52.78	-9.723	-1.570; 0.135
Work-related burnout	34.72	53.37	-18.651	-3.435; 0.003**
Patient-related burnout	23.84	31.02	-7.176	-1.237; 0.233
Perceived level of stress	17.50	21.11	-3.611	-2.171; 0.044*

** $p < 0.01$ level (two-tailed); $p < 0.05$ (two-tailed) for male, $df = 15$; for female, $df = 37$

found that problem-solving coping strategy was correlated with Personal burnout ($r = 0.353, p = 0.000$) and work-related burnout ($r = 0.287, p = 0.000$). Emotion coping strategy was correlated with patient-related burnout ($r = 0.288, p = 0.034$).

Predictors to Burnout

The results of hierarchical multiple regression analyses are shown in Table 5. In Model 1, gender had no predicting power. In Model 2, gender and GHQ accounted for 55.1% of variance in burnout. GHQ had significant predicting power ($\beta = 0.725, p < 0.001$) and explained 56.8% of variance. In Model 3, the predictors explained 61.2% of variance and PSS accounted for 63.4%. PSS was significant predictors ($\beta = 0.430, p > 0.01$). The final model demonstrated the set of predictors explained 60.3% of variance while coping strategies accounted for 65.3% of variance. Overall, after controlling factors, GHQ and PSS indicated increasing tendency of burnout.

DISCUSSION

The present study found that PGY-1 resident students had an increase in the level of perceived stress, level of personal burnout, work-related burnout, and patient-related burnout from baseline to 6-month follow-up ($p > 0.05$).

In male resident doctors, only work-related burnout increased significantly with the duration of residency, while in females, a significant increase in the level of personal, work-related, and patient-related burnout was observed. In those residents who were working in a branch of their choice, a statistically significant increase in work-related burnout and perceived level of stress was observed whereas no significant increase was found for personal burnout and patient-related burnout. In a cross-sectional study carried out in Colombo, Sri Lanka, the mean score of personal burnout was 48.6, which is close to the result in our study (47.53); work-related burnout was 42.9, which is close to our study (41.87),

Table 4: Intercorrelation between GHQ, burnout, and coping style at baseline (T1) and follow-up (T2), n = 54

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Baseline	1																		
GHQ total	1																		
Burnout	0.688**	1																	
Personal burnout	0.715**	0.801**	1																
Work-related burnout	0.528**	0.483**	0.641**	1															
Patient-related burnout	0.804**	0.743**	0.682**	0.544**	1														
Perceived stress	-0.169	-0.102	-0.117	-0.081	-0.060	1													
Coping	0.024	0.124	.094	.083	0.125	0.792**	1												
Problem focus coping	0.027	0.034	0.060	0.132	0.044	0.272	0.454**	1											
Emotion focus coping	0.058	0.251	0.162	-0.080	0.090	0.643	0.069	-0.024	1										
Less useful	0.411**	0.498**	0.564**	0.376**	0.410**	-0.019	0.221	0.070	0.019	1									
Humor	0.220	0.430**	0.387**	0.160	0.223	-0.046	0.129	0.076	0.251	0.718**	1								
Follow-up (6 months)																			
Burnout	0.444**	0.617**	0.672**	0.455**	0.425**	-0.165	0.082	0.095	0.248	0.746**	0.808**	1							
Work-related burnout	0.179	0.291*	0.303*	0.522*	0.328*	-0.029	-0.015	0.098	0.016	0.430**	0.438**	0.534**	1						
Patient-related burnout	0.455**	0.564**	0.499**	0.313*	0.496**	-0.229	-0.015	0.073	0.192	0.735**	0.729**	0.754**	0.475**	1					
Perceived stress	0.008	-0.039	0.017	0.206	0.130	0.507**	0.422**	0.428**	-0.156	0.020	-0.085	0.016	0.209	-0.020	1				
Coping	0.095	0.079	0.117	0.282*	0.250	0.483**	0.484**	0.374**	-0.167	0.157	0.091	0.141	0.263	0.037	0.860**	1			
Problem focus coping	0.029	0.144	0.125	0.252	0.126	0.251	0.290*	0.593**	-0.122	0.213	0.221	0.241	0.382**	0.232	0.567**	0.643**	1		
Emotion focus coping	0.234	0.105	0.208	0.135	0.118	-0.047	-0.063	0.168	0.301*	0.068	0.146	0.158	0.132	0.154	0.203	0.220	0.359**	1	
Less useful																			
Humor																			

**p < 0.01 level (two-tailed); *p < 0.05 (two-tailed)

Table 5: Cross-sectional and prospective hierarchical multiple regression analyses predicting burnout (n = 54)

	Cross-sectional analyses		Prospective analyses	
	β	t value; p value	β	t value; p value
Gender	-0.213	-1.576; 0.121	0.032	0.232; 0.817
GHQ total	0.725	7.860; 0.000**	0.340	2.575; 0.013*
PSS	0.430	2.986; 0.004**	0.327	1.492; 0.142
Problem-solving	-0.178	-1.176; 0.246	-0.259	-1.132; 0.264
Emotional focus	0.170	1.047; 0.301	0.199	0.809; 0.423
Less useful	0.043	0.431; 0.609	0.074	0.492; 0.625
Humor	0.082	0.933; 0.356	0.171	1.282; 0.206
Cross-sectional model summary ^e	R	R ²	Adjusted R ²	SE of the estimate
Model 1 ^a	0.213	0.046	0.027	51.34
Model 2 ^b	0.754	0.568	0.551	34.00
Model 3 ^c	0.796	0.634	0.612	32.56
Model 4 ^d	0.810	0.656	0.603	32.91
Durbin-Watson: 1.930				
Prospective model summary ^e	R	R ²	Adjusted R ²	SE of the estimate
Model 1 ^a	0.032	0.001	-0.018	59.63
Model 2 ^b	0.341	0.116	0.081	56.64
Model 3 ^c	0.392	0.154	0.103	55.97
Model 4 ^d	0.460	0.212	0.092	56.31
Durbin-Watson: 1.611				

^aPredictors: (constant), gender, ^bPredictors: (constant) gender, GHQ, ^cPredictors: (constant) gender, GHQ, PSS, ^dPredictors: (constant) gender, GHQ, PSS, problem-solving, ^eDependent variable: burnout; GHQ, General Health Questionnaire; PSS, Perceived Stress Scale; **p <0.01 level (two-tailed); *p <0.05 (two-tailed)

but the result for client-related burnout was low (31.8) in contrast to our study (41.87).²⁵

Mean perceived stress measured by PSS-10 was 17.07 and 19.52, respectively, at baseline and follow-up, which is very close to prevalence of stress that was found by Datar et al. in postgraduate medical students from Pune, Maharashtra.²⁶

In those who were working in a branch that had not been their first choice, all three parameters of burnout were statistically increased while perceived stress showed no significant change in follow-up. For participants working in preclinical branches, the perceived level of stress and personal burnout was reduced while work-related burnout and student-related burnout were increased, but any change observed in parameters of stress and burnout was not statistically significant for this preclinical group.

In participants from clinical medical departments, a statistically significant increase in the level of perceived stress and all three parameters of burnout was observed.

In participants from the clinical surgical department, a statistically significant increase in perceived stress and work-related burnout without any statistically significant rise in personal burnout and patient-related burnout was observed.

There was no statistically significant change in the coping mechanism used by participants at baseline or follow-up, in the whole sample or either gender. In contrast, a previous study by Moffat et al. has reported substance use as a way of coping in males, while in our study, all participants denied for use of any substance,²⁷ in contrast to other study showing a high prevalence of substance use among resident doctors in India.²⁸

The level of distress measured on GHQ is similar to that of other studies conducted by Vankar et al., which had found stress level to

be 37%,⁵ and Kasi et al., which found psychological distress in 55.1% participants (GHQ >3).²⁹

Even with an increasing level of stress, increasing level of burnout, and increasing level of psychological distress, no change was observed in methods of coping used by participants. This observation indicates a need to find out what keeps them going through with their residency despite the rise in stress and burnout.

Overall, several participants who were distressed on GHQ did not change significantly at the baseline and the follow-up. At baseline, one-third of participants were distressed as per GHQ, but that number increased to half the participants at follow-up. This increase in number was not statistically significant, but the fact that after 6 months of first-year residency almost half of the participants were having psychological distress needs attention. An increase in many participants having burnout in parameters of personal, work-related, and patient-related burnout from baseline to follow-up was statistically significant. At baseline, almost one-fifth of the participants were experiencing personal burnout that increased to half of the participants experiencing burnout at follow-up. Similarly, for patient-related burnout, there was a rise from around one-tenth at baseline to half of the participants at follow-up.

Strengths

This is a follow-up study, which gives a better longitudinal perspective as compared to other cross-sectional studies. Five-month long exposure to stressful situations of residency has been considered in our study. All instruments used are standardized and validated. All three aspects, such as stress, burnout, and coping strategies, have been examined which have been used separately or in combination with previous studies.

Limitations

First, it is a single-center study with a small sample size. Second, possibility of underreporting of distress by sample population due to fear of discrimination by their colleagues on being discovered as distressed. Third, small sample size and residents from all departments did not participate in the study. Fourth, only first year were included so the same parameters cannot be assessed for second and third years. Fifth, nature of stressors/professional factors associated with stress/burnout was not studied.

In conclusion, the present study revealed high levels of stress are predictor of burnout which increases with the duration of the residency program. These findings support the need for organizational interventions to cope with burnout in postgraduate resident doctor.

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