Emotional intelligence, perceived stress and burnout among resident doctors: An assessment of the relationship

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ABSTRACT

Background. Burnout is an increasing problem among the medical fraternity, especially resident doctors. We assessed the relationship between burnout, emotional intelligence and perceived stress in an attempt to explore a probable solution.

Methods. Residents in the departments of medicine (n=29) and surgery (n=27) were assessed with a specially designed proforma consisting of participant's profile sheet, Shirom–Melamed Burnout Measure (SMBM), Trait Emotional Intelligence Questionnaire and Perceived Stress Scale (PSS). Correlation and mediational analysis were used to analyse the data.

Results. The findings showed a positive correlation of burnout with perceived stress and a negative correlation with trait emotional intelligence (EI). Perceived stress also showed a negative correlation with trait EI. Mediation analysis showed that perceived stress mediates the effect of trait EI on burnout.

Conclusion. Enhancing EI through training may be an important intervention for targeting burnout.

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INTRODUCTION

In the recent past, there has been a rise in stress-induced disorders among doctors. Quarrels between resident doctors and patients' attendants are also reported frequently. The oft-stated reason for such incidents is excessive workload and stress. Apart from personality and temperament, several other factors can lead to impulsive behaviour and aggression. Among these factors the most important is burnout which may lead to a deficit in performance and poor impulse control. Burnout has been described as a syndrome in which emotional depletion and maladaptive detachment develop in response to prolonged occupational stress.[1] Burnout is also said to be an affective state with three components: emotional exhaustion, physical fatigue and cognitive weariness.[2] The western literature is replete with discussions on burnout among residents.[3–5] Resident physicians have major responsibilities at their workplace but with little autonomy. It has been suggested that this creates an environment for residents to develop burnout.[1] A review on the subject found burnout levels to be high among

residents and to be associated with depression and problematic patient care.[1]

Other studies have suggested a perception of stress to be an important factor.[6,7] It is probable that a person's perception of stress and her/his capacity to deal with a stressful situation may affect burnout. The inherent ability of a person to relate with and understand others, while adapting and coping with the surroundings to successfully deal with environmental demands is called emotional intelligence (EI). It is an important factor in mental health as well as effective practice.[8,9] A systematic review found that higher EI contributed positively to a doctor–patient relationship, increased empathy, communication skills, stress management, organizational commitment and teamwork.[10] Hence, emotional exhaustion as a component of burnout supports the concept that EI influences burnout. We studied the relationship between burnout, perceived stress and EI among resident doctors.

METHODS

A cross-sectional study was conducted among resident doctors of the departments of medicine and surgery working at our institution. Some residents of these departments declined to participate in the study and those with a history of psychiatric illness, substance abuse or any other significant medical or surgical illness were excluded. Since there is marked variation in work pattern, workload and demands between different specialties, we assessed residents of only two departments to obtain a more homogeneous sample.

The study was approved by the institutional ethics committee and after obtaining informed consent, resident doctors were assessed using a specially designed proforma consisting of the following:

1. *Participant's profile sheet.* This included sociodemographic data along with information regarding the department, year of residency, average working hours during the past month, number of beds under the resident's care, number of night duties during the past month and past week, current living arrangement, history of use of psychotropic agents, recent significant negative life event or stress.
2. *Shirom–Melamed Burnout Measure (SMBM).*[11] This has 14 items and the responses were obtained on a 7-point scale ranging from 1 (almost never) to 7 (almost always). It consists of three subscales, each representing one of the factors, and also a total burnout scale representing all three factors. The three subscales are physical fatigue factor (six items), cognitive weariness factor (five items), and emotional exhaustion factor (three items).
3. *Trait Emotional Intelligence Questionnaire Short Form (TEIQue-SF).*[12] This 30-item questionnaire is designed to

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measure global trait emotional intelligence (trait EI). It is based on the long form of the TEIQue. Items are responded to on a 7-point Likert scale. A global trait EI score is calculated by summing up the item scores and dividing the total number of items. It can also yield a score for four factors of trait EI, i.e. well-being, self-control, emotionality and sociability.

4. *Perceived Stress Scale (PSS).*[13] It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to tap how unpredictable, uncontrollable and overloaded respondents find their lives. The scale also includes a number of direct queries about current levels of experienced stress. The questions in the PSS ask about feelings and thoughts during the past month. In each case, respondents are asked how often they felt in a certain way.

Statistical analysis was done with the help of SPSS 17 and Pearson correlation was used to examine correlation among the variables. Mediation analysis was done with the help of SPSS Macro (Indirect) for Mediation.[14] As recommended for small samples, we used non-parametric bootstrapping to test the mediational model.[15]

RESULTS

Of the 45 residents in medicine and 42 in surgery, 29 (64.5%) and 27 (64.3%), respectively participated in the study. Their mean (SD) age was 27.8 (2.37) years. Most residents were not married (39, 69.4%) and came from an urban background (40, 71%). Almost half of them had been brought up in nuclear families (26, 46%), though 21 (~37%) belonged to joint families and 9 (16%) to extended nuclear families. The majority were living alone (47, 84%) and had no government job experience before starting their postgraduation (45, 80%). Less than half the participants were residents of first year (25, 44.6%), 17 (30%) were of second year and 14 (25%) were of third year.

We calculated reliabilities of the Likert scales used in the study for our sample, Cronbach alpha ($\bar{\alpha}$) showed adequate reliability (SMBM 0.89, TEIQue-SF 0.76, PSS 0.7).

To ascertain any difference among the residents of the two specialties, we compared the two subgroups with chi-square and *t*-test. There was no significant difference between the medicine and surgery residents in various sociodemographic variables and scores on all measures of assessment (p>0.05; Tables I and II).

On analysing the variables we found that burnout correlated positively with perceived stress, while the correlation with EI was negative. Perceived stress also showed significant negative correlation with EI (Table III).

We examined partial correlation between burnout and working hours (mean [SD] 13.68 [3.53]) and number of night duties (10.4 [8.9]). The correlation of burnout with working hours was weak, but correlation with physical fatigue factor was close to significance. Similarly, the number of night duties also showed a significant positive correlation with physical fatigue factor alone (Table IV).

Based on the correlations observed, we hypothesized that perceived stress mediates the effect of trait EI on burnout (Fig. 1). A mediation analysis (Table V) showed that mediation is significant, since the 99% bias corrected and accelerated confidence intervals for the indirect effect do not include zero. It also shows that while the total effect of trait EI on burnout is significant, the direct effect is not (p>0.05).

DISCUSSION

Burnout among the medical fraternity is an area of concern especially because of the shortage of manpower. The issue needs to be addressed to ensure quality of healthcare services. Studies have found that residents with burnout report significantly more errors in patient care.[16,17] Pompili *et al.* found that burnout is significantly associated with hopelessness and suicide risk among

TABLE I. Comparison between residents of the individual department

Variable	Medicine	Surgery	p value
Mean (SD) age (years)	27.86 (2.5)	27.59 (2.4)	–
Marital status			
Married	8	9	0.64
Unmarried	21	18	
Family type (of rearing)			
Nuclear	13	13	0.61
Extended nuclear	6	3	
Joint	10	11	
Residence			
Rural	11	5	0.11
Urban	18	22	
Current living arrangement			
Alone	25	22	0.63
With family	4	5	
Year of residency			
First	12	13	0.42
Second	11	6	
Third	6	8	
Job experience			
Yes	8	3	0.14
No	21	23	

TABLE II. Comparison of variables between subgroups as per department

Variable	Department	Mean (SD)	p value
Perceived stress scale	Medicine	18.28 (5.47)	0.399
	Surgery	17.22 (3.52)	
TEIQue	Medicine	146.72 (19.67)	0.290
	Surgery	141.52 (16.47)	
SMBM	Medicine	40.25 (13.47)	0.340
	Surgery	37.00 (11.20)	

TEIQue Trait emotional intelligence   SMBM total burnout

TABLE III. Correlation between burnout, emotional intelligence and perceived stress

Variable		Shirom–Melamed burnout measure				Perceived stress scale
		Total score	Physical fatigue	Cognitive weariness	Emotional exhaustion	
Perceived	*r*	0.539	0.320	–0.523	0.317	—
stress scale	*p*	<0.001	0.013	<0.001	0.018	—
TEIQue	*r*	–0.286	–0.054	0.356	–0.260	0.586
	p	0.034	0.69	0.008	0.056	<0.001
Well-being	*r*	–0.185	–0.093	–0.224	–0.80	0.303
	p	0.18	0.5	0.1	0.56	0.023
Self-control	*r*	–0.258	–0.129	0.196	–0.311	0.245
	p	0.058	0.35	0.15	0.021	0.069
Emotionality	*r*	–0.249	–0.060	–0.293	–0.231	0.491
	p	0.067	0.67	0.03	0.089	<0.001
Sociability	*r*	–0.098	0.072	–0.211	–0.086	0.418
	p	0.48	0.60	0.12	0.53	0.001

TEIQue Trait emotional intelligence   r Pearson correlation

A. c path: Total effect of trait emotional intelligence on burnout
B. a path: direct effect of trait emotional intelligence on perceived stress
   b path: direct effect of perceived stress on burnout
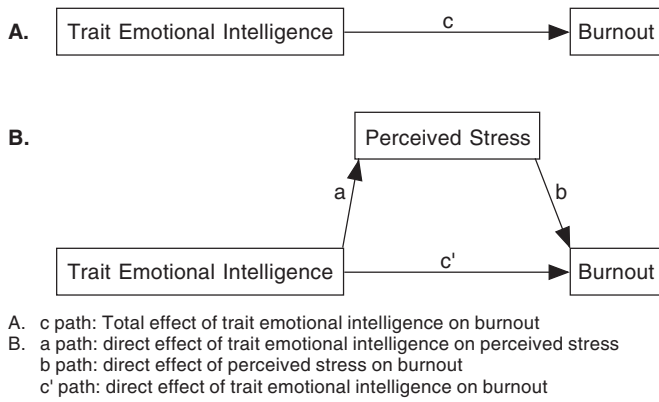   c' path: direct effect of trait emotional intelligence on burnout

Fig 1. Hypothesized model of mediation

TABLE IV. Correlation of burnout with working hours and number of night duties (n=45)*

Control variable	Burnout		Night duties		Average working hours/day
			Per month	Per week	
TEIQue and	SMBM	r	0.277	0.259	0.127
Perceived		p	0.059	0.078	0.390
stress scale	SMBM-P	r	0.395	0.270	0.422
		p	0.006	0.003	0.060
	SMBM-C	r	–0.006	–0.016	0.002
		p	0.966	0.910	0.990
	SMBM-E	r	0.245	0.171	–0.021
		p	0.096	0.250	0.890

* 11 residents were not assigned night duties, hence only 45 were studied
SMBM total burnout   SMBM-P physical fatigue factor   SMBM-C cognitive weariness factor   SMBM-E emotional exhaustion factor   TEIQue Trait emotional intelligence   r Pearson correlation

TABLE V. Output of mediational analysis

Dependent variable	Burnout			
Independent variable	Trait Emotional Intelligence (TEI)			
Proposed mediator variable	Perceived stress (PSS)			
	Coeff	SE	t	p
Independent variable to mediators (a paths)				
PSS	–0.1488	0.0284	–5.2468	<0.001
Direct effects of mediators on dependent variable (b paths)				
PSS	1.502	0.383	3.923	<0.001
Total effect of independent variable on dependent variable (c path)				
TEI	–0.194	0.089	–2.175	0.034
Direct effect of independent variable on dependent variable (c' path)				
TEI	0.029	0.097	0.304	0.762
Model summary for dependent variable model				
R-sq	Adj R-sq	F	df1	df2	p
0.292	0.264	10.706	2.000	52.000	<0.001

Bootstrap results for indirect effects

Indirect effects of independent variable on dependent variable through proposed mediators (ab paths)

	Data	Boot	Bias	SE
Total	–0.224	–0.221	0.002	0.085
PSS	–0.224	–0.221	0.002	0.085

Bias corrected confidence intervals

	Lower	Upper
Total	–0.496	–0.0267
PSS	–0.496	–0.0267

Level of confidence for Confidence Intervals: 99
Number of bootstrap resample: 5000

medical doctors.[18] These findings indicate the importance of detecting and dealing with burnout.

We found a weak correlation of burnout with workload (work hours and night duties); only physical fatigue factor correlated significantly with workload. However, studies from the West have shown a significant association of workload with burnout.[3,5] Junior doctors working >40 hours a week, night work and roster instability have been found to be independently associated with reporting fatigue-related clinical errors and sleepiness while driving.[19] In contrast to these observations, some recent studies have emphasized that perceived working conditions are more important than workload in explaining the variation in burnout.[6,7] Gelfand *et al.* failed to find a significant decline in doctor's level of burnout following a reduction in hours of work.[20] Similarly, Shirom *et al.* found that workload did not have a direct effect on burnout but mediated its effect through perceived stress. They suggested that perception of stress should be the focus of interventions designed to reduce the levels of burnout among physicians.[7] In tune with the above studies, our results indicate that though burnout among resident doctors is associated with their workload, other factors may be more important.

We found a significant negative correlation between burnout and trait EI and a positive correlation with perceived stress indicating that burnout is probably influenced by perception of stress and EI. Since trait EI is assumed to be stable, it is likely that EI is influencing burnout and perception of stress than the opposite. Similar findings have been reported in some recent studies.[21,22] Weng *et al.* reported that higher self-rated EI was significantly associated with less burnout (p<0.001) and higher job satisfaction (p<0.001), and patient satisfaction (p<0.01) correlated with less burnout.[22] This implies the importance of EI in burnout and patient satisfaction. A study from India found that 70% residents had poor EI and EI correlated significantly with clinical anger.[23]

Another study has shown that EI is positively associated with lower perceived stress in dental undergraduates[24] and a brief intervention to raise awareness of EI has also been reported.[25] Birks *et al.* found that EI moderates stress. However, its effect seems to be slightly less pronounced at times of higher levels of stress.[26] There is growing evidence that a physician's EI is associated with a patient's trust and the patient–physician relationship.[27]

In our study, mediation analysis showed that perceived stress mediated the effect of trait EI on burnout. It has also been shown that EI is negatively related to perceived work stress and emotional exhaustion, and that work stress fully mediates the relationship between EI and emotional exhaustion.[28]

Our findings have important implications. Perception of stress emerges as an important concept in the management of burnout. The workload of resident doctors has a role in burnout and interventions to limit working hours, proper scheduling of work and a resting break between duties could be part of the solution. However, these interventions may be difficult to execute with deficient manpower in developing countries such as India. In such circumstances, the association of EI with burnout provides an area of intervention. Can EI be enhanced by training? A study that investigated the possibility of enhancing trait EI with brief EI training[29] found a significant increase in emotion identification and emotion management abilities in the training group. These changes persisted even after 6 months. The authors suggested that some emotional abilities and habits may be improved, even using a relatively short training. EI abilities have been proposed to be

included in curricula as a measure of professionalism.[30] A recent review[31] examined the impact of structured educational interventions on the EI of medical students. It found that the use of simulated patients is beneficial in improving EI when introduced in interventions later in undergraduate medical education and when the interventions were delivered over a short time-span. Emphasizing the importance of qualities such as empathetic communication style should be made explicit during teaching. Since EI provides a burnout buffering effect, residency training programmes may consider incorporating workshops in EI, communication skills and emotional management.

Our study has limitations such as a small sample size, selection bias and reporting bias (as majority of the scales are self-rated). We had residents from only two departments, so our results cannot be generalized to other departments. Our findings do not necessarily show a cause and effect relationship. Further studies should be done with a larger sample size, at multiple centres and across different specialties to substantiate our findings. Studies should also investigate how educational interventions can affect EI, performance and burnout in the Indian work scenario.

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