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Assessment of Stress and Burnout among Postgraduate Medical Students

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ABSTRACT

Introduction: Medical education and healthcare are inherently stressful and demanding. Optimal level of stress enhances learning while excess of stress can lead to health problems. If untreated can lead to multiple disorders like sleeping disturbances, insomnia and further may lead to burnout.

Objectives: To assess the level of stress among postgraduates and to know risk factors leading to burnout.

Methodology: Cross sectional study was conducted among 120 postgraduates in a medical college. Data was collected using predesigned questionnaire. Perceived stress scale-14 was used to assess stress and Maslach Burnout Inventory was used to assess burnout.

Results: Mean age of the study participants was 27.39±2.84 years. 53.33% were males and 46.67% females. Prevalence of stress was 91.67%. Among them, 37.50% had mild stress and 22.50% had severe stress. Prevalence of burnout was 45.0%. Stress levels were higher among 93.75% males, 94.73% second year, 92.11% clinical postgraduates and all married postgraduates ($p>0.05$). Burnout was significantly more among third year postgraduates compared to others ($p=0.016$). 51.56% males, 54.55% clinical and 60.71% married postgraduates had burnout ($p>0.05$).

Conclusions: PSS-14 and MBI-SS can be used as screening tools for early diagnosis and preventive measures like counselling can be initiated at the earliest to all.

Key-words: Burnout, MBI-SS, Medical, Postgraduate, PSS-14, Stress.

INTRODUCTION

Stress is perceived when discrepancy exists between the demand of a situation and the amount of resources available[1] and it also indicates the consequence of the failure of an organism human or animal to respond appropriately to emotional or physical threats whether are either actual or being imagined.[2]

A minimum level of stress is required to lead a productive and creative life, but on the other hand non-stop stress can act as a killer in terms of performance[3] and if this continues as per World Health Organization estimate stress-related disorders will be one of the leading causes of disability by the Year 2020.[3]

Today, medical education is highly challenging and often places heavy demands on the mental resources of its students, stretching their psychological distress and making them vulnerable to high levels of negative affective states.[4,5] High levels of stress accounting from 27% to 73% has been reported among medical students.[2]

High levels of stress will have a negative impact on cognitive functioning and comprehension of medi-

cal students, thus may have an impact not only the personal distress of the individual doctor but it might affect patient care.[6,7,8]

Excessive workload combined with high levels of educational demands, lack of leisure time, limited contact with family and friends, delayed income also contribute to stress. Stress is not only seen among undergraduates, continues during post-graduation and into the physician's practical life.[9]

Burnout is a response, which may be inappropriate, to chronic emotional and interpersonal stressors in the workplace and also the term may be applied to individuals who engage in activities that are psychologically similar to work, such as students. It is a syndrome of emotional exhaustion, cynicism and low professional efficacy that may develop when there is significant stress without adequate support and resources in the face of work overload.[10] Burnout and emotional exhaustion may be important among postgraduates, who interact and treat patients, because a postgraduate is a student who acquires required knowledge and necessary clinical skills, treat patients as a doctor and also teaches undergraduates. So one has to fulfil all these multiple roles, which also contributes to immense stress and burnout.

Thus stress has become a significant public health problem[11] with high prevalence and its recurrent nature profound disrupts patient lives.[12]

Thus this study was undertaken to assess the level of stress among post graduate medical students and to know the risk factors contributing to stress and burnout.

METHODOLOGY

Cross sectional study was conducted from July 2015 to September 2015 in a post graduate institute (medical college), which is a tertiary care hospital in Dharwad, Karnataka where all medical and super specialities services are available which are catering to a wider population and nearby areas. The study was carried out among postgraduate medical students using Cohen's Perceived stress scale-14 (PSS-14) to assess the perceived stress and emotional exhaustion domain of Maslach burnout inventory-student survey (MBI-SS) to assess burnout was used. A convenient sample of 120 postgraduate medical students who gave written voluntary consent were included for the study by using pre designed and pre tested proforma consisted of details such as age, gender, marital status, PSS-14 and MBI-SS . This study was approved by Institutional Ethics Committee of the medical college.

PSS-14 Scoring:[3] It comprises of 14 questions with responses varying from zero (0) to four (4) for each item and ranging from zero (0) = never, one (1) = almost never, two (2) = sometimes, three (3) = fairly often and four (4) = very often (five point likert scale) respectively on the basis of their occurrence during one month prior to the survey. PSS-14 scores are obtained by the scores on four positive items, for example 0=4, 1=3, 2=2, 3=1, 4=0 and then summing across all 14 items. Items 4, 5, 6, 7 and 10 are the positively stated items. The PSS-14 has a possible range of scores from 0 to 56.[3] Scores were divided into no stress (<14), mild stress (15-28), moderate stress (29-42) and severe stress (43-56). For further comparisons no stress was considered as stress absent and sum of mild, moderate and severe stress were considered as stress present.

MBI-SS Scoring:[9,13] It has three components, emotional exhaustion (refers to feeling of being depleted of one's emotional resources, representing the basic individual stress component of the syndrome) is assessed using five items, cynicism (refers to negative, cynical or excessively detached responses to other people to work, representing the interpersonal component of burnout) four items and academic performance (refers to feeling of decline in one's own competency and to a lowered sense of efficacy, representing the self-evaluation component of burnout) six items (reverse scored). All items were scored on a seven point likert scale. A high score in the first two components and a low score in the third component indicates burnout.[13] We considered only emotional exhaustion sub scale as it appears to be a more valid measure and provides a quantified measure of burnout.[9] A score of <17 was considered to be burnout absent and >17 was considered as burnout present.

Statistical analysis: Data was entered in Epidata data entry client v3.1 and analysed in SPSS v20.0. Descriptive statistics like frequencies, percentages, mean and standard deviation were applied and chi square test (χ^2) was applied to determine association between two categorical variables. Odds ratio with 95% confidence interval was calculated using Mantel- Haenszel (MH) method. Statistical significance was set at 5% ($p<0.05$).

RESULTS

A total of 120 postgraduate medical students participated in the study. Mean age of study participants was 27.39±2.84 years. Demographic characteristics of study participants are shown in table 1.

Of the 120 study participants, 53.33% of study participants were males and 46.67% females. 29.16% were studying in first year of their post-graduation, 31.66% second year and 39.18% were in third year. 63.33% were from pre-clinical and para-clinical departments and 36.67% were from

clinical departments. 23.34% of the study participants were married and 76.66% were unmarried. [Table 1]

When stress and burnout were assessed 37.50% had mild stress, 31.67% moderate stress and only 22.50% severe stress. 45.00% had burnout in comparison with 91.67% who had varying levels of stress. [Table 2]

It was found that 89.29% females and 93.75% males had stress in comparison to 10.71% females and 6.25% males who did not had stress. This association was not statistically significant [χ^2=0.779, df=1, p=0.377] and as compared males were almost two times more prone to stress compared to females [OR=1.8 (0.481-6.735)].

Stress level was highest among 94.73% second year postgraduate students, followed by 93.62% third year and 85.71% first year post graduates and this association was not statistically significant [χ^2= 2.326, df= 2, p=0.312, OR=1.619 (0.738-3.552)].

92.11% of postgraduate students from clinical departments and 90.91% from pre-clinical and para-clinical postgraduate students had stress. This association was not statistically significant [χ^2=0.052, df=1, p=0.819, OR=1.166 (0.310-4.382)].

Table 1: Demographic characteristics of study participants (n=120)

Characteristics	Number (%)
Sex	
Male	64 (53.33)
Female	56 (46.67)
Year of study	
First	35 (29.16)
Second	38 (31.66)
Third	47 (39.18)
Department	
Pre-clinical -para-clinical	76 (63.33)
Clinical	44 (36.67)
Marital status	
Unmarried	92 (76.66)
Married	28 (23.34)

Table 2: Levels of Stress and burnout among study participants (n=120)

Variable	Number (%)
Stress (PSS-14 scores)[3]	
No (<14)	10 (8.33)
Mild (15-28)	45 (37.50)
Moderate (29-42)	38 (31.67)
Severe (43-56)	27 (22.50)
Burnout (MBI-SS scores)[9,13]	
Absent(≤16)	66 (55.00)
Present (≥17)	54 (45.00)

Table 3: Comparison of stress with demographic characteristics among the study participants (n=120)

Characteristics	Present (n=110) (%)	Absent (n=10) (%)	P value	OR (95% CI)
Sex				
Male	60 (93.75)	4 (6.25)	0.377	1.8 (0.481-6.735)
Female	50 (89.29)	6 (10.71)		
Year of study				
First	30 (85.71)	5 (14.29)	0.312	1.619 (0.738-3.552)
Second	36 (94.73)	2 (5.27)		
Third	44 (93.62)	3 (6.38)		
Department				
Clinical	70 (92.11)	6 (7.89)	0.819	1.166 (0.310-4.382)
Pre-clinical - Para-clinical	40 (90.91)	4 (9.09)		
Marital status				
Unmarried	82 (89.13)	10 (10.87)	0.068	0.1378 (0.008- 2.428)
Married	28 (100)	0 (0)		

Table 4: Comparison of burnout with demographics among the study participants (n=120)

Characteristics	Present (n=54) (%)	Absent (n=66) (%)	P value	OR (95%CI)
Sex				
Male	33 (51.56)	31 (48.44)	0.122	1.774 (0.854- 3.681)
Female	21 (37.5)	35 (62.5)		
Year of Study				
First	9 (25.71)	26 (74.29)	0.016	1.867 (1.207-2.890)
Second	18 (47.37)	20 (52.63)		
Third	27 (57.45)	20 (42.55)		
Department				
Clinical	30 (39.47)	46 (60.53)	0.11	0.543 (0.256-1.151)
Pre-clinical - Para-clinical	24 (54.55)	20 (45.45)		
Marital Status				
Unmarried	37 (40.22)	55 (59.78)	0.56	0.435 (0.183-1.034)
Married	17 (60.71)	11 (39.29)		

100.00% of married and 89.13% of unmarried postgraduates had stress and this association was not statistically significant [χ^2= 3.320, df=1, p=0.068, OR=0.138 (0.008-2.428). [Table 3]

Among the postgraduates, 51.6% males and 37.50% females had burnout in comparison with 48.44% males and 62.50% females who did not have burnout. This association was not statistically significant. [χ^2= 2.386, df=1, p=0.122, OR= 1.774 (0.854-3.681)]

It was also found that 57.45% third year students were suffering from burnout compared to 74.29% first year who were not suffering from burnout. This association was statistically significant. [χ^2=8.288, df= 2, p=0.016, OR=1.867(1.207-2.890)]

60.71% of the married study participants had stress in comparison to 59.78% unmarried who were not suffering from any kind of stress. This association was not statistically significant. [χ^2= 3.644, df=1, p=0.56, OR=0.4353 (0.1832- 1.0342)]. [Table 4]

DISCUSSION

In our study a total of 120 postgraduate students participated. Prevalence of stress was found to be 91.67%. Among them 37.50% had mild stress, 31.67% moderate stress, 22.50% severe stress. 45.00% had burnout and 55.00% who did not have burnout.

Our study findings is similar to a study done by Sharma et al., where stress prevalence was found to be 86%.[7] 54% of them had mild stress, 22% moderate stress, 10% severe stress and 14% did not have any stress.

In contrast to the findings of other studies done by Shete et al., stress prevalence was 52%, among them 30% had mild stress, 20% moderate stress and only 2% had severe stress[4]. In a study by Malviya et al., prevalence of stress was 58.6% [14] and a study done by Yusoff et al., stress prevalence was found to be 36.4%.[15] The differences in findings may be because as it was conducted in a tertitary care hospital, which is a teaching cum service oriented hospital situated in between the twin cities catering a larger and wider population. In another study done by Shetty A et al., burnout prevalence was 21%.[17] Fahrenkopf et al., study showed a prevalence of burnout to be 74%.[18] Findings of the studies are varied as they are done in different working environment.

In our study 89.29% of females and 93.75% males had stress. Findings are similar to a study done by Malviya et al., 45.8% of males and 33.3% of females had stress[14] and a study done by Manpreet et al., males had higher stress levels compared to females.[19]

In our study stress level was highest 94.73% among second year postgraduate students, followed by 93.62% among third year and only 85.71% among first year post graduates.

In a study by Sharma et al., final year postgraduate students had more stress when compared to other two years.[7] In another study done by Malviya et al., 69.4% of first year, 52% second year and 42.9% third year postgraduates had stress. The stress levels are higher among our postgraduates reason may be because of more patient load in our hospital as it is situated in between twin cities, catering to a wider population. Even when postgraduate enters second and third year he has to cope up with both patient care as well as academic activities, which increases as the year progresses and are at the peak level in the third year.

In our study 92.11% of postgraduate students from clinical departments and 90.91% from pre-clinical and para-clinical postgraduate students had stress, but was not statistically significant. In a study done by Sharma et al., clinical students were more stressed than non-clinical students.[7] In another study by Shete et al., it was found that there was a significant difference between stress levels among clinical and non-clinical postgraduates.[4] The findings are similar to other studies because most of the postgraduates from clinical departments are exposed to patient healthcare, emergencies round the clock as well as they are indirectly over burdened by other academic activities in the college, where as pre and para-clinical departments are involved more in academic activities than patient care.

In our study 100.00% of married and 89.13% of unmarried study participants had stress. In a study done by Manpreet et al., married postgraduates had more stress compared to unmarried. The findings are similar as married postgraduates have the responsibilities of both patient care and family.

In our study 51.6% of males and 37.50% of females had burnout. 57.45% of third year, 47.37% second year and 25.71% of third year postgraduates had burnout. In a similar study by Shetty et al., females had more burnout than males, first year postgraduates had more burnout than, third year followed by second year postgraduate students.[17] In another study by Dyrbye et al., prevalence of burnout (emotional exhaustion) was 60.3% and males had higher burnout levels.[20] In another study by Galdino et al prevalence of burnout (emotional exhaustion) was 69.8%.[21] The findings are similar to our study.

CONCLUSION

Prevalence of stress was 91.67% and burnout was 45.0%, which is very high and increases at academic level, indirectly affecting patient care and healthcare delivery system. Thus PSS-14 and MBI-SS can be recommended and utilized as a screening tool among medical graduates, which can detect even mild to moderate changes at an early stage, so that preventive measures can be started at the earliest. Counselling sessions should be conducted to all postgraduates at the entry level and on periodical basis as well as during the exit of the college on completion of the course, irrespective of the departments and should be continued thereafter during their professional life. Occupational health departments, which are commonly seen in developed countries to screen such type of morbidities, which sometimes turn to become life threatening over prolonged period of exposure. These departments can be established in our Indian setup as per the regulations of labour law, so that healthcare personnel can be screened at the earliest to avoid untoward events in their productive life.

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