Original Article

STRESS IN POSTGRADUATE TRAINEE DOCTORS OF PUBLIC AND PRIVATE UNIVERSITIES OF KARACHI

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ABSTRACT

Objective: To evaluate and compare stress level of Postgraduate trainee doctors in public and private sector Medical Universities.

Methodology: A comparative cross sectional study was conducted at Dow University of Health Sciences and Agha Khan University Hospital Karachi among Postgraduate Medical trainee who are doing FCPS, MCPS, and DCPS from Jan. 2008 – Dec. 2008. A total of 207 doctors were selected by non-probability convenience sampling technique. Main outcome was major stress level of Medical trainees or resident.

Result: Out of the total 207 trainee doctors 62.3% were found to be under stress. Proportion of females with stress was 66.3%. Most of the married PGs 67.2% had high stress level. A large proportion almost 69.7% of doctors who were in stress belongeds to low income group. This study did not find any statistical significance of stress with respect to different demographic and socioeconomic variable that were age, gender, monthly income, specialty and university.

Conclusion: The stress level of Postgraduate trainees in both the universities was found to be high. The stress was found to be high among female trainees but no risk factor showed significant association with stress. Every effort should be made to help the future healers in understanding the symptoms of stress and ways to deal with it effectively and safely.

KEY WORDS: Stress, Postgraduate trainee, Public and Private Sector University.

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INTRODUCTION

Stress, anxiety, worry, aggression have all increased significantly in recent years. Individual throughout the world are reacting physically and mentally to constant stress. The clinical manifestations of stress are seen in doctor's offices every day. A United Nations Report labeled stress. "The 20th Century Disease." World Health Organization called it a "World wide epidemic." Neurological and psychiatric conditions could increase their share of the total global disease burden by almost 50%, from 10.5% to almost 15%. This is definitely the greatest proportionate increase even more than that for cardiovascular diseases.[1]

Medical education is inherently stressful and demanding with various stressors which may cause impaired judgment, reduced concentration, and loss of self-esteem, increased anxiety and depression (Mouret GM). Stress has been defined as a process, which causes or precipitate individual to believe that they are unable to cope with the situation facing them. It is associated with the feeling of anxiety tension, frustration and anger that result from the recognition that they are failing to cope and the situation is getting out of their control.[2]

Stress results when there is a discrepancy between the environmental demands and the resources of the person's biological, psychological or social systems causing homeostatic disruption, in response to stimuli. There are many different kinds of stressful stimuli and include mental, physiological, anatomical or physical reactions.[3]

Stress is seen in almost all professional domains but it can have a great impact in medical professionals and their society. The main hurdle for doctors is to be able to handle stress and function under it. They have to provide medical care to their patients while ensuring that they do not cause unintentional harm. It is a fine line to walk upon.

Physicians definitely suffer from high levels of psychological disturbance along with high level of perceived stress.[4] There is certainly some good evidence that there is increased prevalence of mental health problem, particularly stress in doctors compared with the general population with psychological morbidity ranging from 19% to 47%, compared with a rate of round 18% for the general population.[5]

After all doctors like patients, are humans and do have similar limitations and frailties. Substance abuse can complicate psychological disturbances among doctors. It is not surprising that doctors have a relatively higher suicide rate than the general population.[6] Previous studies have showed that "distressed doctors and trainee doctors" are likely to suffer from impairment in areas of "clinical judgment and technical skills "that can lead to negligence.[7] Occasionally, the first few years of medical education can unmask difficulties with mood and depression.[8-9]

Stress however is a normal part of residency training and if kept within certain level can lead to desirable attributes such as tolerance of ambiguity, self confidence, and maturity. Stress may also stimulate the acquisition of knowledge and skills, attitudes and behaviors. When the level of stress exceeds a critical level, it cans shift into manifestation of distress resulting in psychological morbidity, impairment and burnout.[10]

In terms of organizations, effects of stress include decreased productivity, poor morale, increased staff conflict, absenteeism, increased overwork, and overtime. Stressed individuals are also more likely to demonstrate poor judgement and are at risk to 'cut corners' and engage in more hazardous practices.[11] Increase in stress tends to lowering down the moral and thus results in decline in performance. This is the stage when the person shows burnout reactions.[12]

This study was intended to find out the level of stress among post graduate medical students by using 'professional life stress scale." Another objective was to determine the difference in stress level of post graduate students of public and private sector Medical Universities.

METHODOLOGY

This study defined level of stress as fear or anxiety that is determined by administering the 'professional life stress scale'. We used professional life stress scale questionnaire to measure the 'level of stresses'.[13]

The research settings of the study were Dow University of Health Sciences Karachi (DUHS) in public sector and Agha Khan University Karachi (AKU) in private sector. Four major faculties from each university were selected which included: General surgery; General medicine, Gynaecology & obstetric, and Pediatric department. Residents who were registered with the PGME for training in FCPS & DCPS and who consented to participate in the study were selected. We excluded Fellows, medical officer, consultants and house officers. A Total of two hundred and seven post graduate students were

included in this study (115 from DUHS and 92 from AKUH) through non probability convenient sampling. Study duration was one year (Jan 2008 - Dec 2008). Minor changes were made following pre-testing of questionnaire in 20 residents.

*Data Handling Procedure:*Before starting the study permission from the Ethical Review Board (ERB) of Dow University of Health Science, Karachi was taken. This includes ensuring that participants would be fully informed about the intention of research project and the implication of the results. Formal approval from the PGME and the head of each respective department was also sought. The Principal Investigator went to all four departments where resident work and distributed self administered questionnaire among the resident. A period of one week was given to all resident to fill the forms and was reminded to return the form by weekend. Reminders were given to those who did not return the questionnaire on telephone and personal visits by Principal Investigator (PI).

A statistical package for social science (SPSS-13) was used to analyze data. Relevant descriptive statistics frequency and percentage were computed for categorical variables: Sex, marital status, Income status and level of stress for groups. Mean and standard deviation were computed for age and level of stress for group i.e. post-graduate students of Dow University of Health Science and Aga Khan Medical University. Independent sample t-test or Mann-Whitney test was used to compare mean level of stress between groups, with 0.05 level of significance. Chi-square test was used to compare the proportion difference in qualitative variables between groups, with 0.05 level of significance.

RESULTS

A total of 250 Performa were distributed to the postgraduate trainee Doctors at DUHS and AKU Hospitals. There was an equal response from major specialty group. We got response from 207 doctors (DUHS-115 & AKU-92) with a response rate of 82%. In this study, mean age of the doctors was 28.5 years with standard deviation (SD) of 3.124. Female trainees were 51.9% while 68% doctors were single. Doctors having their monthly income equal or less than 15000 rupees were 37.8%, 27% doctors had income between sixteen to thirty thousand rupees and 34.5% doctors having their monthly income of thirty one thousand rupees and above. Distribution of socio demographic characteristics of two universities is given in Table-I.

A large proportion of trainees were under moderate to severe stress at both institutions. At Dow University of Health Science, 57% of doctors were found in moderate stress and 8% were in severe stress. Hence, a total of 65% of doctors were found in stress while in Aga Khan University 48% of doctors were in moderate stress, 10% were in severe stress and the total of 58% were found in stress. Among 207 participants, 129 were found in moderate to severe stress (62.3%). In this sample the distribution

Table-I: Socio demographic characteristics of postgraduate trainees in public and private Universities (n=207)

Characteristics of the respondents	*Private University (N= 92) Frequency (%)*	*Public University (N= 115) Frequency (%)*
Age (mean) *	29.14 (SD 3.3)	27.77 (SD 2.6)
Gender (female)	60 (52.6)	47 (51.1)
Marital status (single)	74 (66.7)	62 (69.7)
Monthly income (mean) **	33920.14 (SD 21707.3)	32959.18 (SD 62110.7)
Number of children (mean) ***	1.85 (SD 1.1)	1.36 (SD 0.6)
Gynecology/obstetrics	17 (18.5)	36 (31.3)
Medicine	26 (28.3)	27 (23.5)
Pediatrics	25 (27.2)	25 (21.7)
Surgery	24 (26.1)	27 (23.5)

Missing values in some cells: * n = 201, ** n = 119, *** n = 40

of stress with respect to gender is depicted by the fact that 66.3% females are under stress. Proportion of married doctors under stress was 67.2% as compared to 50% among single doctors.

Proportion of stress among PGs with lower incomes (15000 to 30000/month) was 69.7%. Gynecology (69.8%) and Medicine (62.2%) are more stressful as compared to pediatrics (59.2) and surgery (56.9). This study compared stressed and stress free postgraduate trainees with respect to socio-demographic factors and medical specialty group (Table-II). Most of the bi-variable analysis given in Table-I is done through cross tabulation with calculation of chi square value, odds ratio (where appropriate) and respective p values. Mean age in the two groups were compared using independent sample t test. (Table-II)

Stress score according to professional life stress scale in two Universities were not significantly different (mean score University 1 -19.06 and University 2-18.10, P value 0.386).

This study did not find any significant association of age, gender, socioeconomic status and clinical specialty group with stress level. We also did not find any significant association of stress with public and private university status.

DISCUSSION

This study showed large proportion of trainees are in stress 62.3%. Two different local studies conducted in 2002 & 2003 in Karachi found stress level of postgraduate trainee 48% and 60% respectively.[14-15] Another study conducted in Riyadh at King Fahad National hospital found the stress morbidity to be as high as 59%.[16] Hence the results of these two studies support the result of present study and showed that frequency of stress is increasing.

Table-II: Comparison of the stressed and non-stressed postgraduate trainees

Characteristics of the respondents	*No Stressed Frequency (%) N = 78*	*Stressed Frequency (%) N= 129*	*Odds ratio*	*P. value*
University				
Public	40 (51)	75 (58)	0.76	0.21
Private	38 (49)	54 (42)		
Gender				
Male	42 (54)	57 (45)	1.45	0.12
Female	36 (46)	71 (55)		
Marital status				
Single	54 (72)	82 (66)	1.34	0.22
Married	21 (28)	43 (34)		
Department				
Obstetric Gynecology	16 (20)	37 (29)		
Medicine	20 (26)	33 (26)	1.19*	0.57
Pediatrics	20 (26)	30 (23)		
Surgery	22 (28)	29 (22)		
Age group				
26 to 30 years	49 (66)	94 (75)	0.64	0.11
< 26 or >30 years	26	32		
Age (Mean age in years)	28.47 (SD 2.9)	28.56 (SD 3.3)	Ω	0.83

* Mantel Haenszel crude odds ratio, Ω odds ratio not calculated, SD standard deviation;
All % ages are column % ages: some of the cell has missing values.

This study also showed that in public sector university (DUHS) 62.5% postgraduate trainee doctors were in stress as compared to private sector university (AKUH) where 58.3% postgraduate doctors were in stress but there were no significant difference among two universities. A study done at Quaid-e-Azam University of Islamabad supports this result. They concluded that work stressors including time and patients pressures, multiple roles engagements are almost the same moreover public sector professional prefer more challenging task as compared to private medical professionals.[17]

As far as the gender and marital status are concerned female 66.3% and married PGs were more in stress 67.2%. The reasons might be that female and married PGs are more over worked, having more responsibility as compared to male and unmarried PGs. Female medical trainees experience more stress from conflict between career and home than male trainees. A study done in Karachi regarding stress in women physician showed that, 34% of women physician reported high level of stress. It further concluded that stress in female physician leads to more time of work, intake of anti depressant smoking and they are less likely to enjoy their practice.[18]

As far as specialty is concerned, Gynecology (69.8%) and Medicine (62.2%) are more stressful as compared to Pediatrics (59.2%) and Surgery (56.9%). Gynecology has high number of working hours, time demand, deal with a lot of emergencies and critical patients may be the reason for stress.

Another research done in the Department of Psychiatry Hamdard College of Medicine and Dentistry showed that 55% of doctors were under great stress because of academic and economic challenges. Multiple factors play a role in stress development in doctors like dealing with patients and their relatives, time management, family and other social factors.[19]

A special report by John S. J. Big "Post Graduate Training in Pakistan" observation and recommendation is very important which highlighted the problem of post graduate trainee Doctors. This report is a source of finding reason and causes of stress in trainee doctors and the ways to prevent them. The findings of the report are "Many such trainees had night jobs in private hospitals with the result of being too tired for their hospital work, and failing examinations. Surgical trainees work more than 80 hours a week. In some of the hospitals, there were few nurses and much of the care of patients revolves upon trainees. The report further suggested that trainees complained of supervisors of having no time for such things, supervisor having their private work after 2 pm, the only time we have to talk to them; Stress is very common among the post graduate medical trainee and it is appropriate to have some counseling service rather than denial and discouragement currently practiced by seniors and teachers. Times are changing, the increasing pressures and competition has given rise to suicidal tendencies among the population in general. The results of this study are not generalizable to other hospitals as this was a cross-sectional study, and relationship of stress to factors like age, gender, marital status, social status were not found to be significant. We recommend a prospective cohort study and a bigger sample size should be used to study this association.

CONCLUSION

The stress level of Postgraduate trainees in both the universities was found to be high. The stress was found to be high among female trainees but no risk factor showed significant association with stress. Every effort should be made to help the future healers in understanding the symptoms of stress and ways to deal with it effectively and safely. Moreover there is a need to take steps towards reducing stress factors among physicians.

Authors Contribution:

YM conceived, designed and did statistical analysis & editing of manuscript .

AJ result writing and interpretation of data. AH, SA, ZM data collection and manuscript writing.

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