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Stress among Post Graduate Trainee Doctors of a Tertiary Care Hospital - How Resilience does affect them?

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Abstract

Background: Stress is a condition appraised by persons as exceeding their resources and resilience is the ability to bounce back and perhaps even grow in the face of adverse life experiences. High stress levels are common among physicians. As a Post graduate trainee doctor (PGT) there are additional pressures of studies and thesis work.

Objective: To assess extent of stress and resilience among PGT doctors of a tertiary care hospital and Medical College.

Materials and Methods: It was a cross sectional time bound study of one year among 170 PGT doctors of various clinical departments. 126 PGTs were included as sample population after informed consent. After recording socio demographic variables with semi-structured proforma, Kessler psychological distress scale questionnaire (K10 scale), Wagnild and Young's Resilience Scale (WYR scale/ RS) were administered to each participant to assess stress and resilience respectively, which were finally analyzed with SPSS 20.

Results and Discussion: 33.3% PGTs were stressed-out and 30.9% PGTs had low resilience, having a negative correlation. Maximum stress was found among PGTs of Anesthesia department and highest Resilience was seen among Radio diagnosis PGTs. Stress was higher among female than male. Stress was highest among married PGT and resilience was highest among PGT who were in a relationship. Stress was highest among 3rd -year PGTs and resilience was highest among 2^{nd-} year PGTs.

Conclusion: One third of PGTs were stressed and with low resilience. Females and those of Anesthesia department were more vulnerable. Being in relationship, but yet to be married enhance the resilience.

Keywords: Stress, Post Graduate Trainee Doctors, Resilience

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Introduction

Stress is a particular relationship between the person and the environment that is appraised by the person as exceeding their resources and endangering their wellbeing. [1] As a Post graduate trainee doctor (PGT) there are pressures of authorities regarding duties, studies and thesis work. Job dissatisfaction, parental expectations, worries of the future, interference of family life, constant interruption of leisure time, overburdened patient load, and risk of acquiring various nosocomial infections put them under lot of stress. [2-3] Chronic stress can affect mental and physical health. It may lead to musculoskeletal disorders, high blood pressure; disturbed metabolism associated with the risk for type 2 diabetes mellitus and cardiovascular problem [4].

Resilience refers to the capacity of a dynamic system to adapt successfully to disturbances that threatens the viability, function, development of the system. So higher resilience helps in better coping to adverse situations, combating against stresses [5] and finally ensures psychological wellbeing. [6] So enhancement of resilience may be an important target of treatment in anxiety, depression, and stress reactions. Resilience can be looked upon as a trait which can be developed through life experiences and various educational programs.[7] Loving and supportive environment, attentive and responsible parenting, positive relationships with other adults and peers, avoiding repeated exposure to uncontrollable stress and trauma, and preventing children in early entry to adulthood may bring higher resilience in children when they grow up into an adult. They become optimistic, playful, positive thinker, self-confident, and humorous. They acquire better risk facing ability, strong social skill, high coping, higher cognitive functioning and stronger ability for emotional regulation in stressful conditions [8-10].

Many studies have been done to measure stress, coping, psychological resilience among doctors, nurses and other health care personnel in different countries. [11-17] But there are many additional factors of stress among PGT doctors. Few Indian studies have been done on perceived stress among resident doctors, but the extent of resilience was not looked into. [18-21] So, the present study was conceptualized to assess the extent of stress and resilience among PGTs. Various socio demographic determinants were looked into as modifying factors of stress and resilience among PGTs.

Materials and Methods

Study setting and Participants

The participants of this study were recruited from Burdwan Medical College and Hospital, West Bengal. It was a time bound cross-sectional study of 1 year and was approved by the Institute Ethics Committee. PGT doctors of various clinical subjects whoever gave valid and informed consent were included.170 PGTs were posted in various clinical departments at that time. All of them had been approached. Those, who were available in their respective department in the stipulated time period of data collection, willing to participate and gave valid, informed consent were taken up as sample. Thus126 PGTs were included as sample population. Three study tools were administered to each participant. Appropriate statistical software (SPSS 20) was used to analyze the results.

The study tools were as follows

Semi structured socio-demographic proforma -

A specially designed semi structured socio demographic proforma was formulated using 11 parameter such as Age, Background, Training-specialty, Religion, Address, Language, Income, Relationship, Gender, Family and Year of Post Graduate Training.

Kessler Psychological Distress Scale (K10)[22] - It is used to measure stress or psychological distress which has been felt over last 1 month. It has 10 items and each item has 5 responses. Then each response is converted to 5-point Likert scale. Score-ranges from 10-50. Score<20well (without any stress), Score 20-24 mild mental disorder (Mild stress), Score 25-29 moderate mental disorder (Moderate stress), Score 30 and above severe mental disorder (severe stress).

Wagnild and Young's Resilience Scale (RS) [23]: This scale has 25 items. Respondent were asked to state the degree to which they agreed or disagreed with each item. All items are scored on a 7-point scale

from 1, disagree to7, agree. Possible score ranges from 25 to 175 with higher scores reflecting higher resilience.

Total score has been divided as 6 levels [24]

1. Very low score 25-100
2. Low score 101-115
3. Moderately low 116-130
4. Moderate 131-145
5. Moderately high 146-160
6. Very high 161-175

Statistical Analysis

Descriptive analyses were computed in terms of mean and standard deviation for continuous variables and frequency with percentage for ordinal and nominal variables. Student's unpaired t test was performed to find comparison and level of significance between two variables and ANOVA was performed to find comparison and level of significance between more than two variables with continuous data. Chi square test was performed to find comparison and level of significance between two or more than two variables, when the data is categorical. Correlations between the variables were assessed using Pearson's test. Pearson's correlation coefficient of +1 indicate perfect positive correlation (both values rise together) whereas correlation coefficient -1 indicate perfect negative correlation (When one value rises, the other value decreases). All tests were 2 tailed and p value less than 0.05 was considered statistically significant (95% confidence interval).

Results

126 Post graduate trainees from various clinical departments at hospital took participation in the study. Mean age of this study population was 28.73 years.

Table 1. Extent of stress and resilience among PGT

Variable		Frequency (N=126) (%)
Kessler psychological Distress scale(K10)	Well (<20)	84 (66.7%)
	Mild (20-24)	30 (23.8%)
	Moderate (25-29)	9 (7.1%)
	Severe (30 or above)	3 (2.4%)
Wagnild Young Resilience Scale	Very low (25-100)	5 (4.0%)
	Low (101-115)	10 (7.9%)
	Moderately low (116-130)	24 (19.0%)
	Moderate (131-145)	63 (50.0%)
	Moderately high (146-160)	22 (17.5%)
	Very high (161-175)	2 (1.6%)

Table 1 shows 66.7% PGT had no stress. Rest 33.3% had mild(23.8%), moderate(7.1%), severe(2.4%) stress. Mean score of stress according to Kessler psychological distress scale (K10) was 18.63±4.41 (SD= 4.41). It also shows Mean score of resilience is 133.46±15.03 (SD=15.03). 30.9% showed low resilience and 19.1% showed high resilience, 50% having moderate resilience.

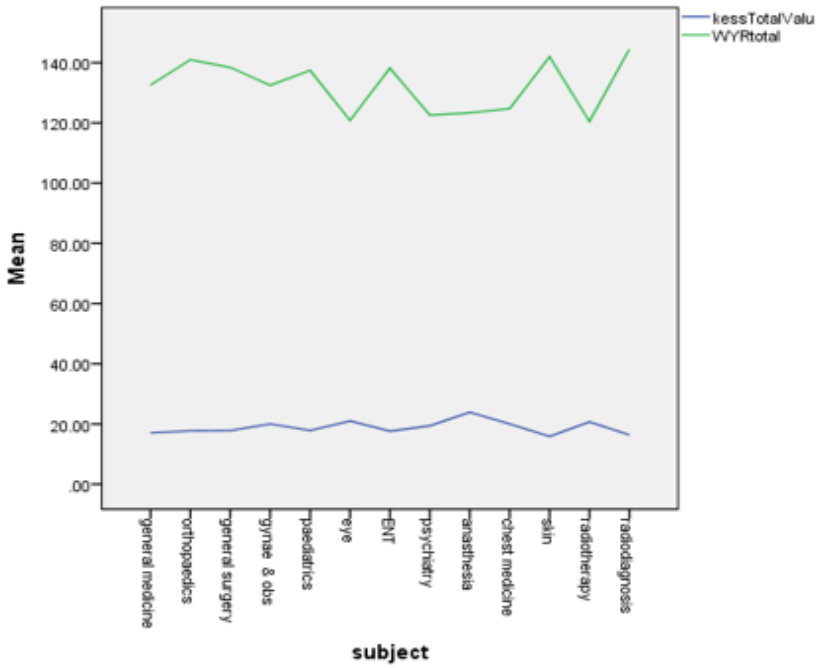

Figure 1 Extent of stress and resilience among PGTs of different clinical departments

Figure 1 shows various amount of stress and resilience were associated with different clinical subjects. Maximum stress was found among PGTs of Anesthesia, followed by Radiotherapy and Eye Department. Highest Resilience was seen among Radio diagnosis PGT, followed by Skin and Orthopedics Department. Stress was negatively correlated with Resilience for all the PGTs and the result was statistically significant.

Comparison of stress and resilience among various socio demographic variables were done using unpaired T test and ANOVA test. Only significant results are shown in table 2 and table 3

Table 2 Stress with gender, year of residency, relationship status

Variable		Stress (Kessler total value) Mean±SD	F(df)	P (Significance)
Gender	Male (N=84)	17.88±3.84	-2.76 (124)	**0.007** *
	Female (N=42)	20.12±5.10		
Year of residency	1st year (N=41)	18.02±4.05	7.88 (2)	.001*
	2nd year (N=43)	17.21±3.46		
	3rd year (N=42)	20.67±4.93		
Relationship status	Married (N=46)	20.00±4.06	6.09 (2)	.003*
	In a releationship (N=57)	17.19±3.97		
	Single (N=23)	19.43±5.18		

Table 2 shows stress is significantly higher among female population than male (t= -2.76, p = .007). stress was significantly highest among 3rd year Post Graduate Trainee (PGT), followed by 1st year, and then 2nd year student. (F=7.88, p= .001). Stress was significantly highest among married, followed by single and lowest among PGTs who were in a relationship. (F=6.09,p=.003).

Table 3 Resilience with gender, year of residency, relationship status

Variable		Resilience (Wagnild Young Resilience Scale Total)	F(df)	P (Significance)
Year of residency	1st year (N=41)	132.39±11.74	3.98 (2)	.021*
	2nd year (N=43)	138.33±14.48		
	3rd year (N=42)	129.52±17.26		
Relationship status	Married (N=46)	129.00±14.85	4.46 (2)	.014*
	In a relationship (N=57)	137.56±13.25		
	Single (N=23)	132.22±17.29		

Table 3 shows resilience was significantly highest among 2nd year PGT, followed by 1st year and then 3rd year PGT. (F=3.98, p= .021). Resilience was significantly highest among PGTs who are in a relationship, followed by single and then married (p=.014).

Among socio-demographic variables, age positively correlated with stress and negatively with resilience, but in neither case correlation reached significant level.

Discussion

In this study among 170 PGT of clinical subjects, 126 were assigned in the study (participation rate 74.12%). In a previous study at Nepal to assess stress and coping strategies among undergraduate medical students, overall response rate was 75.8% (407 out of 525 students).[11] In another previous study 1239 nurses were approached to measures resilience for the study and only 744 responded (overall response rate 60.05%).[15]

In this study only PGT Doctors from various clinical subjects (13 Department) were included. In a previous study at Delhi, PGT doctors from clinical subjects (19 departments) were included to measure stress among resident doctors.[18] In another study of Mumbai PGT doctors from all the departments of the hospital i.e. clinical and college i.e. pre and Para-clinical (18 departments) were included in the study to measure stress among resident doctors.[19]

Mean age of PGT doctors in this study was 28.73± 3.83 year, Mean age of PGT doctors at Delhi was found 27.5±2.3 yr. [18] In this study 66.7% male and 33.3% female PGT took participation. Sahasrabuddhe AG et al found that 62% residents doctors were male, 37% were female.[19] A study found 57% male and 43% female among Canadian surgical residents. [13] Another study found 62.7% male, 37.3% female among medical students of Pakistan.[14] In this study 32.5% 1st year PGT, 34.1% 2nd year PGT, 33.3% 3rd year PGT took participation. In a previous study residents were evenly distributed in the three years of post-graduation, 34.07% residents were from first year, 32.60% from second year and 33.33% from third year. [19]

In this study, 66.7% PGT had no stress. Rest 33.3% had stress. Sahasrabuddhe AG et al found 37.3% doctors stressed [19] and Radman et al. found 46.3% medical students (under graduate) were stressed.[12] A study in Delhi found 32.8% resident doctors were stressed, 17.7% having mild stress, 12.2% having moderate stress, 2.9% having severe stress.[18] In our study 23.8% had mild stress, 7.1% had moderate stress, 2.4% had severe stress. In this study mean stress score was found 18.63±4.41 by K10 scale. In a previous study among medical students mean stress score was 19.61±6.76 by K10 scale. [12]

In this study mean score of resilience was found 133.46±15.03. Most of the PGT showed moderate resilience (50%) in the study, followed by low resilience (30.9%) and then followed by high resilience (19.1%). Losoi H et al. [24] found mean score of resilience 133.8±17.4 and Sull et all.[16] found mean score of resilience among health care worker in UK is 135.5±19.7. Mealer et al. found 22% ICU nurses were highly resilient.[15] These corroborated with the current study's finding. In this study male students were more resilient than female but the result were not statistically significant. Contrary to our finding a

study in Saudi Arabia found female dental students were more resilient than male. [17]

In this study maximum stress was found in Anesthesia Dept, followed by Radiotherapy, and Eye dept. This higher degree of stress within Anesthesia PGTs was perceived due to their frequent dealing of unexpected surgical emergencies and critical patients in CCU/HDU, frequent night duties leading to sleep deprivation, lack of recognition by patients. In a previous study in Mumbai it was found that Paediatrics, Gynaecology, Orthopaedics, Pathology department had high stress score. [19]

The present study shows stress was significantly higher among female population than male and this finding was corroborated with many other past finding.[14,23] This was perceived due to more recognition and preferential biasness of patients towards male doctors and females had to prove their potential in every aspect in a male prevalent fraternity. In an another study by Amr et al.[26] male and female medical students were similar on level of perceived stress, number of stressors, A study conducted by Das et al.[20] had concluded that gender as a factor does not influence the level of stress .

In this study stress was highest among 3rd yr PGT, followed by 1st year PGT and then 2nd yr. Third year PGTs had pressure of final thesis submission and pressure of studies due to their upcoming examinations. Saini NK et al. found highest stress among 1st yr , followed by 2nd yr and then 3rd yr PGT.[18] Sahashrabuddhe et al. also found highest stress among 1st yr PGT.[19] This can be explained by different course curriculum and different pressure of work distribution among PGT at different places.

In this study stress was highest among married PGT, followed by single and lowest among PGTs who were in a relationship. This was found due to a balancing problem between work and family. Few married PGTs were forced to stay away from their partners after their marriage. This brought unhappiness in their life. Sahasrabuddhe AG et al found no association between marital status and stress. [19] Stress levels were more in married residents than as compared to unmarried in a study by Gobbur et al. [21] In another study in India by Guruprakash et al.[27] did not show any significant association between marital status and stress level among post graduate medical students.

In our study stress was negatively correlated with resilience, that means resilience acts as a protective factor to combat stress. Similar to our findings Kiziela A et al. also found that workload distress is inversely dependent on resilience.[28]

In this study, though not statistically significant, stress increases with age while resilience decreases. This can be explained as the aged PGTs felt additional pressure of family burden than the younger PGTs during the same residency period. This finding however did not match with one previous Malaysia study, where higher stress level was found among younger age group of medical students.[12]

Conclusion

In this study 33.3% PGT were stressed-out of them 23.8% mild, 7.1% moderate, 2.4% having severe stress. Moderate resilience was found among 50% PGT, low resilience was found among 30.9% PGT and 19.1% PGT had high resilience. Maximum stress was found among PGTs of Anesthesia, followed by Radiotherapy and Eye Department. Highest Resilience was seen among Radio diagnosis PGT, followed by Skin and Orthopedics Department. Stress was higher among female than male. Stress was highest among married PGT and resilience was highest among PGT who were in a relationship. Stress was highest among 3rd yr PGTs and resilience was highest among 2nd yr PGT. Stress was negatively co related with resilience.

Limitation:

Para clinical, nonclinical disciplines were not included. There were various other factors modifying stress, resilience, which were not included. Differential impact of the individual determinants was not assessed.

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