

Comparison of Various Factors Responsible Post-Graduate Residents with and without Occupational Stress Working at Tertiary Care Hospital

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ABSTRACT

Objective: To compare various factors responsible post-graduate residents with and without occupational stress working at Tertiary Care Hospital.

Study Design: Comparative Cross-sectional study.

Place and Duration of Study: Bolan Medical Complex Hospital, Quetta Pakistan, from Jan to Sep 2022.

Methodology: All post graduate residents working at Bolan Medical Complex Hospital Quetta were included in the study. They were evaluated for presence of stress by using the Perceived Stress Scale. Relationship of relevant socio-demographic factors was assessed with presence of significant occupational stress among post graduate residents of various specialties working at Bolan Medical Complex Hospital.

Results: A total of 90 postgraduate residents enrolled in CPSP training program working at Bolan Medical Complex hospital were enrolled for this study. Mean age of the residents was 31.24 ± 2.14 years. Out of 90, 36(40.0%) residents were male while 54(60.0%) residents were female. A total of 43(47.8%) showed significant occupational stress while 47(52.2%) did not show significant stress. Two groups were made for the sake of comparison. Group-I without significant stress and group II with significant stress. Female gender, having more than 2 night calls per week and no day off after the call were the factors found statistically significantly more in group of residents having occupational stress when compared to group of residents without occupational stress (p -value <0.05).

Conclusion: Occupational stress was found in a large number of post graduate resident working at Bolan Medical Complex hospital. Female residents and residents doing more night calls per week and that too without post call day off were found more at risk of having occupational stress.

Keywords: Mental health; Occupational stress; Residency.

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INTRODUCTION

Medical education is an evolving field in current times across the globe.¹ Medical education can be of various types but usually it is divided into undergraduate and post graduate educations. Undergraduate education is mostly done in vertical style while postgraduate medical training is on job training combination of study and hands on experience as a doctor managing patients of his specialty.² Pakistan has been running post graduate training programs in huge of specialties and even loving both in terms of quality and quantity of programs.³

Life of a post graduate resident is usually different from doctors working in other professional roles. Situation become more complex in resource

limited settings like most of the public and private hospitals of our country.⁴ Post graduate residents have to fight on multiple grounds simultaneously to achieve adequate training, pass exams, earn livelihood and maintain work-life balance.⁵ This difficult life scenario for four to five years may prone them to number of physical and mental health problems.⁶

A lot of work is being done or is under process regarding wellbeing of trainee doctors, both physical and mental. A studies published in 2022 regarding Brazilian doctors summarized that multiple individual and work related factors were responsible for mental health problems among resident doctors. Rate of depression and other mental health problems was significantly high in their target population.⁷ McNulty *et al.*, targeted another group of health professionals i.e. graduate nurses and revealed that mindfulness was an effective tool to prevent burnout and stress related problems in nurses. They advocated addition of

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mindfulness in curriculum of nurses for their wellbeing during professional training.⁸ A mixed method study from Indonesia published in 2022 analysed the burnout and quality of life among the medical residents. It was concluded that around half of the study participants either had emotional exhaustion or severe depersonalization or feeling of low personal accomplishment. Surgical residents were more prone to have any of these problems.⁹

Pakistan is growing and evolving in terms of post graduate medical education. A lot of new centres are getting approval for residency programs in various specialities. A recent local paper evaluated the mental health problems in residents of various specialities during COVID 19 pandemic.¹⁰ We need a baseline data for occupational stress of post graduate trainees and factors associated with presence of stress in order to devise local curriculum and guidelines which facilitate the trainees to work efficiently but not at cost of their own health. We therefore planned this study with the rationale to look for presence of occupational stress and assess the factors responsible for occupational stress in post-graduate residents working at Bolan Medical Complex Quetta.

METHODOLOGY

This comparative cross-sectional study was planned and conducted at Bolan Medical Complex hospital Quetta, Pakistan between January to September 2022. Sample size was calculated by using the WHO sample size calculator by using two groups. Group I had resident without occupational stress as 6.1% and group II had significant stress as 34.1%,¹¹ and level of significance as 10%. Non probability consecutive sampling was used to gather the sample. Both groups had sample size estimated of 33 patients

Inclusion Criteria: All the doctors (all ages, both genders, any year of residency) working as post graduate resident trainees in Bolan medical complex hospital Quetta, enrolled in active residency program for any specialty with college of physicians and surgeons Pakistan were enrolled in the study.¹²

Exclusion Criteria: Residents who were not enrolled in full time training program or those who were in first three months of their training were excluded. Trainees who had any chronic physical or psychiatric illness prior to getting enrolled in program or those female residents who were pregnant were also not included in the study.

Ethical approval was taken from the ethical committee of Bolan Medical Complex Hospital Quetta via letter no 0020/BUMHS/22. Two study groups were residents with and without significant occupational stress. Residents who agreed for participation in the study after written informed consent were interviewed with the help of structured questionnaire. They were evaluated for presence of occupation stress by using the perceived stress scale.¹³ This scale is a ten-point scale which measures the stress an individual is getting from whatever is happening in his daily life in last 4 weeks. Score ranges from 0-40, where score less than 13 shows no to low levels of stress while more than 13 shows significant stress which further can be categorized as moderate or severe but we used cut of score of 13 for this study and residents were classed as having significant stress if they scored more than 13.¹³ Gender, year of residency, number of night duties in a week and allocation of post call day off,¹⁴ (practised in some department and not all) were the factors associated with presence of significant occupational stress among the study participants.

Statistical analysis was done by Statistical Package for the social sciences (SPSS) version 23:00. Frequency and percentage were calculated for the qualitative variables whereas mean and standard deviation was calculated for the quantitative variables. Chi-square test was used to look for the association of gender, year of residency, number of night duties in a week and allocation of post call day off with occupational stress among the post graduate residents. The p-value less than or equal to 0.05 was considered significant.

RESULTS

A total of 90 postgraduate residents enrolled in CPSP training program working at Bolan Medical Complex hospital were enrolled for this study. Mean age of the residents was 31.24±2.14 years. Table-I summarized general characteristics of post graduate trainees recruited in this study. Out of 90, 36(40.0%) residents were male while 54(60.0%) residents were female. A total of 43(47.8%) showed significant occupational stress while 47(52.2%) did not show significant stress. Table-II showed the specialty wise distribution which states that medical specialty was commonest 24(26.7%) followed by surgery 14(16.7%).

Table-III summarized the results of statistical analysis. For the purpose of comparison study participants were divided into two groups. One group

had no significant occupational stress while other group had significant occupational stress. It was revealed that female gender, having more than 2 night calls per week and no day off after the call were the factors found statistically significantly more in group of residents with presence of significant occupational stress when compared to those who did not have significant occupational stress (p -value<0.05).

Table-I: Characteristics of Study Participants (n=90)

Study Parameters	Values
Age of residents (years)	
Mean±SD	31.24 ±2.14 years
Gender	
Male	36(40.0%)
Female	54(60.0%)
Year of residency	
1st year	25(27.8%)
2nd year	20(22.2%)
3rd year	21(23.3%)
4th year	22(24.4%)
5th year	02(2.2%)
Presence of occupational stress	
No	47(52.2%)
Yes	43(47.8%)

Table-II: Specialty wise Distribution of Postgraduate Residents (n=90)

Specialty	n(%)
General medicine	24(26.7%)
General surgery	15(16.7%)
Gynecology and obstetrics	14(15.5%)
Pediatrics	10(11.1%)
Anesthesia	09(10%)
ENT	03(3.3%)
Radiology	06(6.7%)
Pathology	05(5.6%)
Dermatology	04(4.4%)

Table-III: Association of various Factors with Presence of Occupational Stress in Post Graduate Residents (n=90)

Factors studied	No Significant Occupational Stress (n=47)	Significant Occupational Stress (n=43)	p-Value
Gender			
Male	28 (59.5%)	08(18.6%)	<0.001
Female	19(40.5%)	35(81.4%)	
Number of night calls/week			
2 or less	43(91.4%)	29(63.1%)	0.004
More than 2	04(8.6%)	14(36.9%)	
Post call day off			
No	27(57.4%)	36(83.7%)	0.06
Yes	20(42.6%)	07(16.3%)	
Year of residency			
1-2 years	25(53.2%)	20(46.5%)	0.527
3-4 years	22(46.8%)	23(53.5%)	

DISCUSSION

Burn out and occupational stress have been area of interest for researchers to assure sound mental health and quality of life and work among individuals

performing different tasks. Doctors especially post graduate trainees live a tough life and face burden of various activities during training. Hence, they may be prone towards various mental health problems. Occupational stress is usually the seed for tree of variety of mental health problems in these individuals.⁸ COVID-19 in last two years had posed an additional stress among the health care professionals. A lot of training and academic activities including exit exams have been postponed and delayed and added to the stressors of young doctors.¹⁵ We planned this study at Bolan Medical Complex Hospital Quetta to look for presence of occupational stress and assess the factors responsible for occupational stress in post-graduate residents working in various specialties.

A nationwide study conducted in Japan in 2022 revealed that 37.3% of postgraduate residents showed signs of depression, 21.6% were having significant burn out, and 39.2% showed signs of significant occupational stress. Working long hours was associated with psychiatric morbidity in their study participants.¹³ Our results were not very different and around 47% of the residents showed significant occupational stress and those who did more night calls and without a day off post call, were more at risk being stressed. A study from USA targeted orthopaedic surgery residents for presence of depression, burnout and substance use and it was concluded that more than half had burn out, around 13% had clinical depression while 61% used alcohol to hazardous level and 7% used recreational drugs.¹⁶ Our study was slightly different as we targeted residents of all the specialties and studied only occupational stress but results were alarming and supported the results that this group of population is highly prone to mental health problems an stress related issues.

COVID 19 pandemic affected all health professionals including postgraduate residents. ENT residents were targeted and studied for various mental health problems in a study conducted in France. It was concluded that increased workload during the pandemic affected sleep and mental health of residents adversely.¹⁷ We studied residents for occupational stress from January to September 2022 and found out that occupational stress was found in a large number of post graduate resident working at Bolan Medical Complex hospital. Female residents and residents doing more night calls per week and that too without post call day off were found more at risk of having occupational stress.

Burnout, distress, and depression were studied in postgraduate residents of anaesthesia departments of various hospitals of USA. It was found that more than half of the residents showed burn out, 32% were distressed and 12% had depression.¹⁸ Work-life balance, strength of social support and workload were the factors found associated with burnout and distress among their study participants. Female gender, more night calls and absence of post call day off were associated with occupational stress in our study participants.

LIMITATIONS OF STUDY

Use of self-reporting questionnaire is one of the limitations for this study as doctors may under or overrate symptoms on self-reporting psychometric tool. Multiple factors could lead to stress and in this study residents of one hospital of one province of Pakistan were targeted which may not represent the exact situation of occupational stress in post graduate trainees of Pakistan. Studies involving residents from various public and private sector hospitals may give a better magnitude of this problem among young doctors of our country.

CONCLUSION

Occupational stress was found in a large number of post graduate resident working Bolan Medical Complex hospital. Female residents and residents doing more night calls per week and that too without post call day off were found more at risk of having occupational stress.

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Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

MA & SZ: Data acquisition, data analysis, critical review, approval of the final version to be published.

RA & AK: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

SQ & MY: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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