



Occupational Stress: Prevalence, Sources and Coping Mechanisms Among Medical Doctors in a Tertiary Institution

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ABSTRACT

Background: Work-related stress rate have been reportedly higher among doctors as compared to the general working population. Stress in doctors can result in numerous negative consequences for doctors, their families and the patients they care for, therefore early detection and appropriate management may have positive outcomes for all.

Objectives: This study was carried out to assess the prevalence, sources and coping strategies of occupational stress among medical doctors in a tertiary health facility in Benin City, Edo State.

Methods: The study utilized a descriptive cross-sectional design carried out among 238 medical doctors selected using a two-stage sampling technique. General Health Questionnaire (GHQ-12)) was adopted to assess the prevalence of stress. Data was analyzed using IBM SPSS version 20. Level of significance was taken as $p \leq 0.05$.

Results: The prevalence of occupational stress was 50.7%. The main occupational stressors mentioned by respondents were workload 216 (94.3%), sleep deprivation 205 (89.5%) and inadequacy of resources 204 (89.1%). Most of the respondents reported using the following - occupational coping strategies frequently: prioritizing and solving problems accordingly 187 (81.7%), reorganizing my work 179 (78.2%) and planning 177 (77.3%) amongst others.

Conclusion: The prevalence of work-related stress among respondents was found to be relatively high. The study also identified various stressors and coping strategies utilized by respondents. This high stress levels may endanger the health of doctors and impair the quality of care they provide. Hospital management and doctors need to take active measures to reduce their stress.

Key words: Coping strategy, Doctor, Occupational stress, Prevalence, Source

INTRODUCTION

Occupational stress is defined as the harmful physical and emotional responses that occur when the requirement of the job do not

match the capabilities, resources, or needs of the worker.¹ Individuals in general are exposed to a variety of stress aside from their work environment, ranging from financial





burdens, relationship problems, the death of loved ones and challenges that bring tension from their home lives.² These other sources of stress in addition to occupational stress worsens their stress level and impacts negatively on their work performance.²

Stress is known to exist in all professions but higher levels have been observed among healthcare workers.³⁻⁵ Medical practitioners experience high levels of stress during their working lives and this varies depending on the type of specialty and career cadre.⁶⁻¹⁰ Potential sources of work related stress may be intrinsic to job role, role within organization, career development, work relationships and organizational climate or structure.^{11,12} Among physicians the common factors associated with stress are long hours, excessive workload, dealing with death and dying, interpersonal conflicts with other staff, patient expectations and threat of malpractice litigation.¹³ A study among medical practitioners revealed the following as major sources of occupational stress: lack of social support (65%), no time for leisure (60%), overwork (51.3%), and financial constraints (50%).¹⁴ These stressors can lead to negative health outcome like physical and mental health issues, burnout syndrome, high turnover, job strain and poor performance.^{11,12}

Stabilizing factors are developed by individuals in adapting to stressors. These factors enable individuals function optimally and they are called coping strategies.¹⁵ In dealing with these stressors; ethnic, cultural and socio-economic characteristics have a role to play in the coping behavior expressed by an individual.¹⁶ Various studies have highlighted the following as coping strategies

adopted by healthcare workers to deal with occupational stress: sleep/rest, relaxation, acceptance, inspiration from religious belief and humor.^{14,17}

Job stress and coping strategies among medical doctors is of uttermost concern to administrators in health care setting. Therefore, this study sought to determine the prevalence, sources of occupational stress and to identify occupational stress coping strategies among medical doctors in a tertiary health facility. Findings from this study will help administrators adopt appropriate organizational changes and stress management interventions that will improve working conditions thereby promoting the health of physicians and quality of service rendered to patients and clients.

METHODOLOGY

A descriptive cross-sectional study was conducted among 238 medical doctors in the University of Benin Teaching Hospital (UBTH) Benin City, Edo State from April 2016 to August 2016. UBTH has a bed space capacity of 700 beds. It has the following clinical departments: Internal Medicine, Community Medicine, Paediatrics, Surgery, Obstetrics and Gynaecology, Anaesthesia, Mental health, Child health, Pathology, Orthopedic and Plastic surgery. The hospital has 561 doctors and 803 nurses in its employment. The study population included all doctors in the clinical departments at University of Benin Teaching Hospital. Inclusion criteria were all doctors in the above clinical departments of the hospital, who were present at the time of study and consented to participate in the study. The minimum sample size for the study was



calculated using Cochran's formula¹⁸ using $p = 84.7\%$ ³⁵ (Proportion of stress pattern and its coping strategies among physicians in a Teaching Hospital in Lagos, Nigeria)¹⁹ and the minimum calculated sample size obtained, allowing for 20% non-response rate was 238. A two- staged sampling technique was utilized in the selection of respondents. Stage 1: Involved the selection of 8 departments from the total number of clinical departments using a simple random sampling technique (balloting). Stage 2: Selection of respondents from the selected clinical departments using a stratified sampling technique. Each professional cadre (junior residents, senior residents and consultants) were regarded as a stratum. The total number of medical doctors in each professional cadre (stratum) in the selected departments was obtained from the hospital management. The total number of respondents in each stratum was calculated using the sampling fraction. The number of respondents per stratum in each department was then calculated as follows;

Number of respondent

$$= \frac{\text{no of respondent in each stratum}}{\text{total number of doctors in all departments}} \times$$

no of doctors in each department

With the number of doctors in each cadre per department known, a systematic sampling technique was then used in each stratum in selected departments to arrive at the required number of respondents.

Ethical approval to conduct the study was obtained from Research Ethics Committee

(REC) of the College of Medicine, University of Benin. Verbal informed consent was also obtained from participants.

Data was collected using a structured self-administered questionnaire. The questionnaire consisted of four (4) sections: socio-demographic characteristics, prevalence, sources and coping strategies towards occupational stress.

Prevalence of occupational stress was assessed using a modified version of the General Health Questionnaire GHQ-12.²⁰ GHQ-12 is a well-validated screening tool for identifying short-term changes in mental health (depression, anxiety, social dysfunction and somatic symptoms). GHQ scores can be used as an indicator of psychological morbidity (score > 3 indicates possible psychiatric 'case'). This instrument does not give a diagnosis but positive scores is an indication of psychological stress. However, it has been used by several studies in our setting to estimate psychological stress.

Questions on sources and coping strategies of occupational stress were generated from previous studies.^{14,19}

Data was analyzed using IBM SPSS version 21.0. A cut-off of GHQ-12 score of 3 was used to indicate possibility of stress (GHQ+). A score of 0 was given for 'Yes' response and 1 for 'No' response for the first six questions while 0 was given for 'No' response and 1 was given for 'Yes' response for the last six questions. Scores were summed up;



maximum score was 12 while minimum score was 0. Respondents with GHQ score equal or greater than 3 were considered as stressed while those with GHQ score less than 3 were considered as not stressed. Scores were converted to percentage and categorized as follows: Present: $\leq 25\%$; Absent: $> 26\%$. Univariate and bivariate analysis were done. Tests of association were done using Chi squared test, Fisher's exact test and odds ratio. A p-value less than 0.05 was considered statistically significant.

RESULTS

A total of 238 respondents participated in the survey, however only 229 questionnaires were retrieved giving a 96% response rate. One hundred and fifty-four (67.3%) of the respondents were within the age group of 36 – 45 years. The mean age (SD) of the respondents was $37.86 \pm (7.35)$ years. One hundred and sixty-seven (72.9%) of the respondents were males while 62 (27.1%) were females. One hundred and eighty (78.6%) of the respondents were married and only 1(0.4%) of respondents was widowed. Ninety-three (40.6%) of the respondents were senior residents, 73 (31.9%) were junior residents while 63 (27.5%) were Consultants. One hundred and forty-three (62.4%) of the respondents had worked for a range of 1-10 years while one hundred and forty-seven (64.2%) had worked for more than or equal to 56 hours per week. Sixty-two (27.1%) of the respondents were in surgery, followed by Obstetrics and Gynecology 30 (13.1%) and least respondents were in Mental Health 11 (4.8%) (Table 1).

Table 1. Socio-demographic characteristics of respondents

Socio-demographic characteristics	Frequency (n = 229)	Percent
Age group (Years)		
26-35	11	4.8
36-45	154	67.3
46-55	41	17.9
56-65	23	10.0
Sex		
Male	167	72.9
Female	62	27.1
Year of Practice (Years)		
1-10	142	62.0
11-20	59	25.8
21-30	25	10.9
31-40	3	1.3
Designation		
Junior resident	73	31.9
Senior resident	93	40.6
Consultant	63	27.5
Working Hour per week (Hours)		
< 40	8	3.5
40-55	74	32.3
≥ 56	147	64.2
Clinical department		

Mean age (SD): $37.86 \pm (7.35)$ years.

Respondents who worked for less than or equal to 55 hours per week were 0.6 times less likely to be stressed compared to respondents who worked for greater than or



equal to 56 hours per week. ($p = 0.040$) (Table 2).

Table 2. Socio demographic determinants of occupational stress among respondents

Variable	Presence of occupational stress		OR (95% CI)	P value
	Yes freq (%)	No freq (%)		
Age (years)				
< 35	4 (36.4)	7 (63.6)	0.54 (0.14 – 1.93)	0.371
≥ 35*	112 (51.4)	106 (48.6)		
Sex				
Male	84 (50.3)	83 (49.7)	0.95 (0.53 – 1.71)	0.883
Female*	32 (51.6)	30 (48.4)		
Marital status				
Single	23 (47.9)	25 (52.1)	0.99 (0.52 – 1.88)	1.000
Married and divorced*	93 (51.4)	88 (48.6)		
Designation				
Junior & Senior resident	88 (53.0)	78 (47.0)	1.41 (0.78 – 2.54)	0.300
Consultant*	28 (44.4)	35 (55.6)		
Years of practice				
1 – 20	101 (50.2)	100 (49.8)	0.88 (0.39 – 1.95)	0.841
21 – 40*	15 (53.6)	13 (46.4)		
Clinical department				
Medicine	86 (51.5)	81 (48.5)	1.13 (0.63 – 2.04)	0.766
Surgery*	30 (48.4)	32 (51.6)		
Working hours per week				
≤ 55	34 (41.5)	48 (58.5)	0.56 (0.32 – 0.97)	0.040
≥ 56*	82 (55.8)	65 (44.2)		
Total	116 (50.7)	113 (49.3)		

OR: Odds ratio, CI: Confidence Interval for B, *Reference category



Two hundred and sixteen (94.3%) of the respondents reported workload as their source of occupational stress while 205 (89.5%) attributed it to sleep deprivation. Inadequacy of resources, home demand and dealing with dying and death were mentioned by 204 (89.1%), 187 (81.7%) and 166 (72.5%) of the respondents respectively as stressors.

Most of the respondents reported using the following occupational coping strategies frequently: prioritizing and solving problems accordingly 187 (81.7%), reorganizing my work 179 (78.2%) planning ahead 177 (77.3%), seeking support and advice 172 (75.1%), effectively managing time 161 (70.3%) among others as shown in Table 3.

Table 3. Occupational stress management among respondents

Occupational stress management	Frequently Freq (%)	Seldomly Freq (%)	Never Freq (%)
Prioritize and solve problem accordingly	187 (81.7)	32 (14.0)	10 (4.3)
Re-organization of work	179 (78.2)	41 (17.9)	9 (3.9)
Plan ahead	177 (77.3)	37 (16.1)	15 (6.6)
Seek support and advice	172 (75.1)	36 (16.6)	19 (8.3)
Effectively manage time	161 (70.3)	43 (18.8)	25 (10.9)
Use of rules and regulations	161 (70.3)	41 (17.9)	27 (11.8)
Delegation of work and responsibility	155 (67.7)	50 (21.8)	24 (10.5)
Deal with the situation objectively without emotion	150 (65.5)	49 (21.4)	30 (13.1)
Concentration on specific problem	149 (65.1)	55 (24.0)	25 (10.9)
Share situation with colleagues and understanding friends	144 (62.9)	63 (27.5)	72 (9.6)
Concealment of stress	128 (55.9)	65 (28.4)	36 (15.7)
Resort to hobbies	123 (53.7)	64 (27.9)	42 (18.4)
Keep oneself busy	121 (52.8)	73 (31.9)	35 (15.3)



DISCUSSION

Occupational stress is detrimental to the health of individuals and may impair the quality of services provided by these individuals. This study highlighted a relatively high level of occupational stress among doctors with various stressors and coping mechanisms utilized to aid adaptation to their work environment.

In this study, overall prevalence stress rate among respondents was 50.7%. This was comparable to findings in a study in four hospitals in South Africa where overall prevalence rate of stress among resident doctors was found to be 50.7% using GHQ-12.²¹ The high level of stress observed among lower cadre residents may be due to the fact that the new recruits bear the burden of all the ward work including investigations of patients. They deal with critical patients in the wards and emergency room. This might cause psychological dysfunction.

Male respondents were more stressed than female respondents. This was in keeping with findings in a study conducted in Ilorin where male respondents 42 (95.5%) were observed to be more stressed than their female counterparts 27 (93.1%).²² This might be as a result of the fact that males more likely engage in private practices aimed at generating extra income for the family in addition to the regular work. More than half of the married respondents were stressed while less than half of the single respondents were stressed. This was in contrast to finding in a study conducted in Lagos where a higher proportion 41 (48.2%) of the single

respondents were observed to be stressed as compared to the married respondents 50 (38.5%).¹⁹ This might be due to the fact that married respondents are overwhelmed with a double burden of household and workplace activities. The level of stress reduced with increasing professional status although not statistically significant. This was in concordance with finding from a study conducted in Lagos, Nigeria where stress among respondents ranged from 17 (45.9%) among consultants to 21 (52.5%) among house officers. This may be attributed to the fact that the residents have numerous daily task ranging from clerking of patients, sample collection, administration of intravenous drugs, fluid and blood products transfusion while being supervised by the consultants. This might result in inability to cope due to excessive work. Respondents who have been in the practice for year range 1-10 years were most stressed though there was no significant association between years of practice and presence of stress. This was in line with findings in a study conducted in Lagos where there was no statistically significant difference between years of practice and presence of stress.¹⁹ This might be as a result of critical responsibilities that go with different cadres in terms of investigations, work up of patients for surgical interventions, post operations monitoring and administrations of drugs to patients both days and nights are given to new recruits. This might result in overloads on the part of junior residents, less on senior residents and eventually cause organizational inefficiency. There was no significant association between long hours of



work and level of stress. This was in contrast to finding in a study in four hospitals in South Africa where association between long hours of work and stress level was statistically significant and was also found that doctors in private practice who work more hours per week are more likely to be stressed than those who work fewer hours.²¹ Respondents from surgery department were the most stressed, followed by Obstetrics and gynecology and least stressed was Family medicine. This was in tandem with finding in a study conducted in South West, Nigeria in 2014 where the most reported stressful area of specialization was Radiotherapy 8 (66.7%), followed by Surgery 15 (60%) and the least was 7 (31.8%) for pediatrics.¹⁹ This might be as a result of working conditions, long hours spent in the operating theatre and the number of emergencies seen in addition to regular activities carried out by other specialties. This might result in impaired health and staff burn out. Respondents who worked for less than or equal to 55 hours per week were less likely to be stressed as compared to those who worked for greater or equal to 56 hours. It was different from findings in a study conducted in Dubai in 2015 where respondents who work for less than or equal to 40 hours per week were 2.2 times more likely to be stressed compared to respondents who work for greater than 40 hours per week.²³

Workload, inadequacy of resources, home demand and dealing with dying and death were reported as common sources of occupational stress. This was in agreement with findings in a study carried in a Teaching

Hospital, Lusaka, Zambia in 2007 where workload, resources to do job were identified as most common stressors.²⁴ Another study in Cross river state revealed the following as sources of stress: emergency situations 48 (24.2%), ad-hoc duties 7 (3.5%), lack of equipment or if available are obsolete 61 (30.8%), staff attitude to fellow staff 59 (29.8%), attitude of patients, poor salaries, power failure and death of patients 23 (11.6%).²⁵ In a study conducted at Federal Medical Centre, Owo, 2008, observed sources of occupational stress were lack of social support (65.0%), no time for leisure (60.0%), overwork (51.3%), and financial constraints (50.0%).¹⁴ These stressors may result in physical and mental fatigue of respondents leading to reduced concentration thereby hampering service delivery.

The most frequently employed coping strategies among respondents in this study included re-organization, seeking support and advice, planning ahead, prioritization of problem and solving it accordingly, use of rules and regulations. Studies conducted in South West, Lagos, Cross river and Lusaka, Zambia highlighted similar coping strategies.^{19, 24, 25} Coping strategies that have been proven to be effective should be encouraged in the workplace.

Study limitations: The cross-sectional nature of the study limits the identification of casual effects. Also, the use of only one tertiary institution may limit the generalization of the findings to other settings in the study locale. In addition, the use of self-reported data may also limit the



objectivity of the study results. Despite these limitations, the study provides evidence-based data for planning, developing policies and interventions geared at improving the work environment of doctors in the health sector.

CONCLUSION

The prevalence of occupational stress was relatively high. Workload and inadequacy of resources were the commonest sources of stress highlighted. Majority of the respondents believed they were able to cope with the stress. Coping strategies such as re-organization of work, seeking support and advice from colleagues, prioritization and planning ahead were reported. Workers should be given workloads within their capabilities and adhere to regulations as regarding number of work hours per staff. Finally, Management should ensure periodic evaluation of stress interventions, and organize workshops on how to reduce stress and adopting effective coping strategies.

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