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ORIGINAL RESEARCH

Prevalence and Sociodemographic Predictors of Occupational Stress Among Healthcare Workers at the Abubakar Tafawa Balewa University Teaching Hospital, Bauchi, Nigeria

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Abstract

Background: The prevalence of stress is generally high, affecting a significant number of healthcare professionals. Minimal work-related stress is required for effective healthcare services in a hospital setting.
Objective: To determine the prevalence and sociodemographic predictors of stress among healthcare workers in Abubakar Tafawa Balewa University Teaching Hospital, Bauchi, Nigeria.
Methods: A descriptive, cross-sectional research design was used to select a sample of healthcare professionals who met the inclusion criteria. A stratified random sampling technique was used to select samples of 260 doctors and nurses.
Result: The finding showed a Stress prevalence rate of 66%, and the linear regression analysis revealed a statistically significant association between stress and age (P-value=0.007), profession (P-value= 0.005), and year of working experience (P-value= 0.029). However, no statistically significant association was found with gender (P-value=0.54).
Conclusion: Prevalence of stress is high and is considered a threat to the health and well-being of humans in modern days. Based on the assessment, there is an association between age, profession, and years of working experience with stress. Healthcare professionals should have training opportunities on stress management at work. Health administrators should provide wellness programs for healthcare workers in order to reduce stress in the workplace.

Keyword: Healthcare workforce, Occupational stress, Stress determinants, Workplace-related stress.

Introduction

The concept of stress or stress in an organization needs no real introduction. Scientific definitions suggest that stress occurs when an individual assesses a situation as a threat to something of value to them, which exceeds the ability to cope. [1] In recent times, the World Health Organization has dubbed stress a "Health Epidemic of the 21st Century". In the United States of America, over 50 percent of individuals felt stressed in a hospital setting. [2] Stress has significant effects on individuals' attitudes, behaviour, and interpersonal relationships. [3] Stress is also not limited to individuals but affects the processes and quality of healthcare services rendered. [4]

To make things worse, a significant number of healthcare professionals migrate to Asia, Europe, and America. The healthcare workers deficit in sub-Saharan Africa reached over 2.4 million Doctors and Nurses. In Africa, there are 2 doctors and 11 midwives per 10,000 population when compared to 19 doctors and 49 nurses and midwives per 10,000 in America. [5] In Nigeria, there are 4 doctors and 16 nurses and midwives per 10,000 patients, which is far less than the World Health Organization's recommendation of 1 doctor and 16 nurses and midwives per 600 patients. The doctor–patient ratio in the country is far greater than the recommended number by the World Health Organization. [6]

Work-related stress is recognized globally as a major problem for workers' health and the health of an organization. [7] Western regions contain only 10 percent of the global disease burden, while the African region contributes more than 24 percent of the global disease burden. [8] Occupational stress in Africa is high, like in other parts of the world. [9 - 11] In Nigeria, the prevalence is high, with a significant impact on medical service delivery.

Epidemiological studies have also demonstrated associations between more specific stressors, and health outcomes. [12] The physical, environmental, and social causes of the stress state are termed stressors. [13] Age is a determinant of stress and determines how individuals respond to different types of stressors. [14] An individual's perception of a given situation as stressful or otherwise to a greater extent is influenced by age. [15] Education gives knowledge to people. The more educated a person is, the more prudent the individual becomes in making critical decisions.[16] Education also makes for proper understanding and analysis of a given situation. [17] An individual's educational level and occupational status are directly related to income, as income has an effect on physical and psychological health.[18]

The status of marriage also brings considerable satisfaction to both men and women. [19] The potential for work/family conflict and stress increases as most professional women struggle with the demands of balancing their work and family. [20] It has been suggested that overall satisfaction with life and the workplace is much higher among married women than unmarried women. [21] Psychologists say that a strong social support network leads to a better coping experience with stress.[22] It refers to a network that involves an individual's family, friends, and peers who can support the person psychologically and emotionally. Unlike the support group organized by the health professional, social support is not formalized; they are present on a regular basis, and the person can relate to their social network when they are not under significant stress. Social support comes in a variety of forms: Instrumental support (helping others directly by doing things or carrying out activities), emotional support (giving love, care and sympathy), informational support (providing information that can be used for coping) and appraisal support (feedback about personal functioning directed at enhancing esteem). [23]
The present study aimed to determine the prevalence and sociodemographic predictors of stress among healthcare professions.

Methods

Study setting

This was a hospital-based study conducted at Abubakar Tafawa Balewa University Teaching Hospital, Bauchi, Bauchi State, Nigeria.

Study design

A cross-sectional design was employed for the study. [17]

Ethical considerations

Ethical clearance was obtained from the Ethics and Research Committee of Abubakar Tafawa Balewa University Teaching Hospital, Bauchi, Bauchi State (ATBUTH/ADM/42/VOL.1). Written informed consent was also obtained from all the participants and confidentiality was maintained.

Participants

The subjects consisted of 256 medical doctors and 460 nurses, making a total of 716 healthcare professionals with 64.2% nurses and 35.8% doctors. The two groups represent a large section of hospital staff.

Inclusion criteria: (1) Healthcare workers who had worked for at least six months in the clinical area, and (2) healthcare workers who were on duty at the time of data collection.

Sample size

Since the actual population for the study was known, the sample size was determined from the sample population using the Taro Yamani formula:

$n = N/ [1+N (e)^2]$. [24] The minimum sample size was calculated as 257 and with 10% addition for non-response, the sample size became 283. This was distributed proportionately between nurses and doctors as 182 and 101 respectively.

Procedure and Instruments for data collection

Data collection spanned February to April 2023, and the following assessment tools were used:

a self-designed questionnaire for sociodemographic data such as age, gender, marital status, years of education, and profession was used. Another tool obtained information about the sources of occupational stress; this contained 19 items using four-item Likert scales, and were adopted with little modification of a previously used tool. [6]

The participants (101 doctors and 182 nurses) were divided into two strata according to their units and were randomly selected for the study. Participants were given questionnaires at their convenience, so as not to disrupt their individual duties. These continued until the sample size was reached.

Both face and content validity were ensured. The internal consistency was ensured by a pilot study of the instrument to healthcare workers at the State Specialist Hospital, Bauchi, which is another tertiary hospital and not part of the study centre but has similar characteristics to the study area. The reliability index arising from this method achieves a high degree of internal consistency of the instrument with a reliability coefficient of 0.75. This signifies considerable reliability.

Statistical data analysis

This statistical analysis was done with the help of the Statistical Package for Social Sciences (SPSS) version 21. Frequency and percentage were used for descriptive analysis, while linear regression analysis was employed in identifying the degree of association between work-related stress and sociodemographic characteristics of the respondents at the alpha level of 0.05. All data were set at a 95% CI and 0.05 degree of significance.

Results

Two hundred and eighty-two questionnaires were distributed and 260 (92.2%) were returned. Table I shows the sociodemographic characteristics of the respondents. Nearly half (44.6%) were within the age bracket of 24-35, and the majority were female (58.1%). About three-quarters were married (66.7%). The majority (63.5%) were nurses, and nearly two-thirds (63.8%) had been in service for less than

ten years. About forty-five percent had a degree, either BSc or MBBS.

Table I: Sociodemographic Characteristics (n = 260)

Variables	Frequency	Percentage
Age		
18 - 24 years	38	14.6
25 – 34 years	116	44.6
35 – 44 years	61	23.5
45 – 54 years	38	14.6
≥ 55 years	7	2.7
Gender		
Male	109	41.9
Female	151	58.1
Marital Status		
Single	70	26.9
Married	174	66.9
Divorced	4	1.5
Widowed	8	3.1
Separated	4	1.5
Profession		
Medical Doctors	95	36.5
Nurses	165	63.5
Work experience (years)		
<5	101	38.8
5 – 9	65	25.0
10 – 14	51	19.6
15 – 19	20	7.7
20 – 24	12	4.6
≥25	11	4.2
Educational qualification		
Diploma	56	21.5
HND	47	18.1
BNSc/MBBS	117	45.0
M.Sc.	31	11.9
Ph.D.	9	3.5

In Table II, the majority of the participants (88.0%) agreed that inadequate staffing levels were a source of stress, while 193 (74.2%) agreed that 'extremely long working hours' caused stress. About half of the participants agreed that 'absence of shift work' was a stressor, while another majority of the respondents, (204; 78.4%) agreed that handling a large number of patients caused stress. One hundred and ninety-six (75.3%) respondents experienced stress in taking care of difficult patients while working with incompetent support staff was identified as a source of stress by 140 (53.8%) respondents. Nearly two-thirds (59.9%) believed that lack of opportunity for growth and promotion in the workplace brought stress while 199 (76.5%) revealed that the non-conducive working environment, call rooms, and workstations highly stressed them. More than

three-quarters (76.2%) agreed that a lack of instruments for the job was a source of stress. About two-thirds, 166(63.8%), agreed that time pressure was a cause of stress while another 165 (63.5%) respondents agreed that long-standing hours are highly stressful. One hundred and sixty-three (63.0%) respondents agreed that the work-life relationship is a source of stress to them while 143 (54.9%) agreed that poor support from friends, family, and colleagues stressed them.

About half of the respondents (51.0%) agreed that inadequate motivation from superiors, friends, and family gave them stress while 147 (56.5%), were stressed by poor communication of information from their superior. One hundred and fifty-two (58.6%) confirmed that the fear of failing professional examinations gave them stress, while a two-third (172; 66.1%) agreed that job insecurity stressed healthcare workers. It was agreed by 176 (67.7%) respondents that harassment from patients and their relatives was a source of stress while about three-quarters (196; 75.5%) agreed that the presence of patients with infectious diseases to attend to was a cause of stress.

Prevalence of occupational stress

Sixty-six percent of the respondents experienced stress at work.

Hypothesis testing

Age and occupational stress

There was no significant relationship between age and stress as shown in Table III.

Table II: Sources of occupational stress among healthcare professionals (n = 260)

Variables	*Responses*			
	Strongly Agree (%)	*Agree (%)*	*Disagree (%)*	*Strongly Disagree (%)*
Inadequate staffing levels	110 (42.3)	119 (45.8)	23 (8.9)	8 (3.1)
Extremely long working hours	72 (27.6)	121 (46.6)	59 (22.7)	8 (2.9)
Absence of shift work	49 (19.0)	84 (32.3)	68 (26.3)	59 (22.7)
Handling a large number of patients	112 (43.2)	92 (35.2)	44 (16.9)	12 (4.7)
Caring for difficult patients	79 (30.4)	117 (45.1)	45 (17.4)	19 (7.3)
Working with incompetent support staff	36 (14.0)	104 (40.0)	84 (32.3)	36 (14.0)
Lack of opportunity for growth and promotion in my workplace	61 (23.5)	95 (36.5)	87 (33.5)	17 (6.5)
Non-conducive working environment, call rooms, and workstations	81 (31.2)	118 (45.3)	51 (19.5)	10 (3.9)
Absence of instruments for my job	83 (31.9)	115 (44.2)	51 (19.8)	11 (4.2)
Time pressure	64 (24.6)	102 (39.3)	78 (29.9)	16 (6.3)
Long-standing hours	69 (26.6)	96 (37.0)	70 (26.8)	25 (9.6)
Work-life relationship	58 (22.3)	105 (40.4)	69 (26.5)	28 (10.8)
Poor support from friends, family, and colleagues	43 (16.4)	100 (38.5)	86 (33.1)	31 (11.9)
Inadequate motivation from superiors, friends, and family	48 (18.5)	85 (32.7)	99 (38.1)	28 (10.7)
Poor communication of information	49 (18.8)	98 (37.8)	90 (34.6)	23 (8.9)
Fear of failing my professional examinations	56 (21.6)	96 (37.0)	83 (31.8)	25 (9.6)
High job insecurity	98 (37.8)	74 (28.4)	68 (26.3)	20 (7.6)
Harassment from patients and their relatives	77 (29.7)	99 (38.0)	66 (25.3)	18 (7.0)
Presence of infectious disease in patients	87(33.6)	109(41.9)	49(18.8)	15(5.7)

Table III: Relationship between age and occupational stress

Independent variable		*Coef.*	*Std. Error*	*t-value*	*p-value*
(Constant)		1.273	.269	4.726	.000
Age		-.144	.053	-2.722	.007
R-value					.236a
R-square					.056
Adjusted R2					.004
F-value					1.073
Dependent variable:	Occupational stress				

The linear regression analysis value of 0.236a showed a strong positive relationship at 23.6% between the dependent and independent variables, while the R-square value of 5.6% revealed the variation in occupational stress as explained in the model. The negative (-0.144) coefficient of the independent variable implied that age was negatively related to occupational stress by -14.4% with a p-value of 0.007, suggesting a significant relationship between age and stress

Gender and occupational stress

Table IV shows that there was no significant relationship between gender and stress among healthcare professionals. In Table IV, the linear regression between gender and occupational stress was statistically significant. The R-value of 0.248[a] implied a strong positive relationship at 24.8% between the dependent and independent variables. The R-square value revealed that 6.2% of the variation in occupational stress was explained in the model. But the coefficient of the independent variable was positive (0.053); it therefore implied that gender was positively related to occupational stress by 5.3% with a p-value of 0.541. Therefore, there was no significant relationship between gender and stress.

Table IV: Relationship between gender and occupational stress

Independent variable		*Coef.*	*Std. Error*	*t-value*	*p-value*
(Constant)		.980	.277	3.537	.000
Gender		.053	.086	.611	.0541
R-value					.248a
R-square					.062
Adjusted R2					.010
F-value					1.192
Dependent variable:	Occupational stress				

Type of profession and occupational stress

There is no significant relationship between type of profession and stress among healthcare professionals. The linear regression showed a statistically significant relationship between profession and occupational stress. In Table V, the regression analysis of 0.344 showed a strong positive relationship at 34.4% between the dependent and independent variables, while the R-square value revealed that 11.9% variation in occupational stress as explained in the model. In addition, the coefficient of the independent variable was negative (-0.609); implying that profession was negatively related to occupational stress among health care workers by -60.9% with a p-value of 0.005. It was concluded that there was a statistically significant relationship between profession and occupational stress.

Table V: relationship between profession and occupational stress

Independent variable	*Coef.*	*Std. Error*	*t-value*	*p-value*
(Constant)	4.968	.703	7.066	.000
Profession (Medical Doctors)	-.609	.218	-2.796	.005
R-value				.344[a]
R-square				.119
Adjusted R^2				.070
F-value				2.440
Dependent variable: Occupational stress				

Years of work experience and occupational stress

There was no significant relationship between stress and years of experience among healthcare Professionals. Table VI shows the R-value was 0.259[a] implying that there was a strong positive relationship at 25.9% between the dependent and independent variables. The R-square value revealed that 6.7% of the variation in occupational stress explained in the model. The coefficient of the independent variable was positive (0.139) implying that the years of working experience was related to occupational stress by 13.9% with a p-value of 0.029. Therefore, it was concluded that there was a significant relationship between years of working experience and occupational stress.

Table VI: Relationship between years of working and occupational stress

Independent variable	*Coef.*	*Std. Error*	*t-value*	*p-value*
(Constant)	.826	.259	3.187	.000
YEARS OF WORKING EXPERIENCE	.139	.063	2.196	.029
R-value				.259a
R-square				.067
Adjusted R2				.016
F-value				1.309
Dependent variable Occupational stress				

Discussion

This study assessed the prevalence of stress and sociodemographic predictors of stress among healthcare professionals in a Nigerian tertiary health facility. In the study, the overall prevalence rate of stress was 66%, which agrees with similar studies in Rivers State, Nigeria, 64.5% [6] and 67.5% in a government hospital, Afar region, Ethiopia.[10] However, it is higher than the 52.9% pooled prevalence in Ethiopia [9] and 30.5% in western Ghana. [17]. The difference in the high prevalence of stress in the study population may be due to sociodemographic and cultural characteristics of the respondents, the research instrument used, and the sample size of the study. The hospital is the highest referral centre in Bauchi state and also receives referrals from the neighbouring states like Jos, Jigawa, Gombe, and Yobe.

The linear regression analysis showed that there was a significant relationship between stress and age. This finding corroborated the findings on stress and burnout among 4066 healthcare workers in Ethiopia. [9] Odonkor and Adams, [17] also found that age was significantly associated with stress, more so, younger ages below 25 years were the most affected. It is also in agreement with other studies that reported a significant association between stress and age among healthcare workers in western Ghana [17] and in Dammam city, Saudi Arabia. [25] The finding on age is expected as stress does not spare the age or cadre of an individual. Moreover, the majority of the study population in the present study are young individuals who

have the energy to work at all times. Therefore, young age is regarded as a significant factor for stress in this study population.

In addition, no significant relationship was recorded between gender and stress among this cohort of healthcare workers**.** This corroborates the earlier finding among healthcare workers in western Ghana. [17] However, it disagrees with the findings among healthcare workers working in a public hospital in Arsi zone, Oromia, in Regional Ethiopia.[26] This difference may be due to sociocultural factors, sample tool, and difference in the study population. Gender may not be a significant predictor of stress because of sex-related dissimilarity in the study population.

There was also a significant relationship between stress and profession, especially among doctors. This finding agreed with the findings in a study conducted on the assessment of workplace stress among health care workers in the western region of Ghana.[17] The respondents comprised of physicians, nurses/midwives, and the study showed a significant relationship between stress and their profession. In addition, there was a significant association between the years of work experience and stress in the present study. The finding agrees with Godifay *et al.,* who reported an association between stress and years of work experience among healthcare workers in Ethiopia. It also agrees with a study on stress among healthcare workers in the National Guard Health Affairs, Eastern Region, Saudi Arabia.[27] However, this finding is incongruent with other studies that reported no association between stress and years of work experience. [18] This variation might be due to the difference in sample tools and sample population. Moreover, healthcare workers who have been in practice for 15-20 years are likely to be unit heads and more engaged with administrative duties. They are therefore being overburdened with leadership responsibilities, aside their normal daily clinical activities, could be a source of stress.

Limitation

Access to the hospital environment has been difficult due to the exorbitant cost of public transport and the co-existing distortion of routines by security agents. The study also excluded other hospital units such as the laboratory, medical records, dental centre, radiology, and physiotherapy. Role ambiguity and financial burden were also not assessed in the study as potential stressors.

Conclusion

The prevalence of stress was generally high in the cohort of healthcare workers in northern Nigeria. The major predictors of stress in the population included age, profession, and years of work experience, unlike gender. It may be recommended that information flow and communication between the various unit heads and the workers should be smooth and seamless. **H**ealthcare workers should have the opportunities for training, workshops, and seminars on work-related stress. Senior healthcare professionals, especially those who have been in service for a period of ten years and above, should be prioritized in the stress awareness program. The hospital management should be encouraged to introduce wellness programs in order to reduce stress among healthcare workers.

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Authors Contributions: GHA and KJI conceived and designed the study. GHA and GUA analysed and interpreted the data. GHA, GUA and MIY drafted the manuscript. MIY and GUA revised the draft for sound intellectual content. All the authors approved the final version of the manuscript.

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