Effect of Workplace Stress on the Perceived Health of Resident Doctors Nigeria

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Research

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Abstract

The objective of this study was to assess workplace stress among the resident doctors, examine their perceived health status, and determine the effect of workplace stress on their perceived health status.

The study was a cross-sectional study conducted among resident doctors at University College Hospital (UCH), Ibadan Nigeria across all the specialties over a three-month period, from 1st March to 31st May, 2019. Two hundred and thirty-two eligible and consenting resident doctors were selected by stratified random sampling and data was collected using interviewer administered questionnaire. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 23.

Results showed the 144 (62.1%) of the resident doctors experienced workplace stress and 108 (46.6%) resident doctors perceived their health as poor. Workplace stress, years in residency program, designation, and work hours on least busy day at work were all significantly associated with perceived health status of the resident doctors, however, only workplace could independently predict poor perceived health status of the resident doctors.

It is therefore important to prevent and mange workplace stress in order to improve the perceived status of resident doctors.

Introduction

Residency training program is a very stressful period in medical profession.[1] The level of stress among resident doctors has been found to be high in several studies conducted both locally and internationally.[2,3,4,5] Resident doctors experience high level of stress at work largely because the medical profession is inherently stressful due to, long working hours, conflicting demands, difficult patients ethical dilemmas, among other challenges.[2,6] The residency training program is associated with frequent exposure to diseases, dying and death of patients, thereby producing a great deal of anxiety and self-doubt.[7] Consequently, the residency training can be extremely stressful and may contribute to feelings of burnout, and distress.[7]

The World Health Organisation (WHO) defines work-related stress, also known as workplace stress or job stress, as “the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities, which challenges their ability to cope”.[8] The International Labour Organization (ILO) also defines stress as the harmful physical and emotional response caused by an imbalance between the perceived demands and the perceived resources and abilities of individuals to cope with those demands.[9]

The prevalence of workplace stress among resident doctors in the literature ranges between 18% and 54.7%.[2,3,4,10] Although female doctors are more susceptible to higher stress than male doctors it is

noteworthy that women and men respond to and manage stress in different ways.[11,9] They attempt to manage stress and perceive their ability to do so in distinctly different ways.[9]

Resident doctors' health and well-being and that of other medical doctors have recently become the focus of international concern as they are important 'citizens' of the healthcare system, therefore, their wellness is crucial to its function.[12] The medical workplace is a complex environment where medical doctors respond differently; some are contented and inspired to work while some may experience burnout and feel stressed at work.[6] Residency training-induced stress can endanger the health of a resident doctor's which then negatively affects productivity, efficiency, quality of patient care and physician preservation.[2,12]

Perceived health is defined as the perception of a person's health in general, either by the persons themselves or, in the case of proxy response, by the person responding.[13] Perceived health status reflects people's overall perception of their health, including both physical and psychological dimensions,[14] while health means not only the absence of disease or injury but also the presence of physical, mental and social wellbeing.[15]

Perceived health status, quality of life (QoL), and health-related quality of life (HRQoL) are often used interchangeably.[16] The WHO, quality of life as "individuals' perceptions of their positions in life within the context of their culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns".[16] Quality of life is also "the product of the interplay between social, health, economic, and environmental conditions, which affect human and social development".[16] Self perceived health is a powerful indicator of health status and it is significantly influenced by stress which could be workplace stress.[17,18] Idubor et al. in 2015 also reported a relationship between the levels of stress experienced and health status.[19]

Low socioeconomic status, physical disability and poor access to good healthcare services have been noted to be associated with poor perceived health status among resident doctors.[20,21] Poor sleep quality and sleep duration, either being too short or too long, are also related to a poor health status in all ages

There is a relationship between job stress and various physical and psychological diseases.[22] Job stress influence health of an employee negatively in many ways like physical, psychological, emotional and behavioural.[22] Most doctors work long hours and even work night shifts and both can have negative health outcomes.[22] When a person is having trouble dealing with the stress, the individual may experience physical, psychosocial, cognitive and behavioural problem.[22]

Job stress and lack of enabling work environment can culminate in ill-health of resident doctors.[22] It is therefore worthwhile to study the perceived stress among resident doctors and how this affects their physical health perception, because they are a unique group of doctors responsible for the care of

patients.[23] There is paucity of articles on workplace stress among resident doctors and how they perceived their health, hence this study focused on the these two aspects and they are associated.

Objectives of the study

1. To assess workplace stress among the resident doctors.
2. To examine the perceived health status of the resident doctors.
3. To determine the effect of workplace stress on the perceived health of the resident doctors.

Methods

Study Area: - The University College Hospital (UCH), Ibadan was established in 1957 and located in the south-western part of Nigeria. It is as an eight hundred and fifty bed teaching hospital and had 460 resident doctors in the six medical and eight surgical specialties of the hospital as at the time of data collection. The medical specialties include Family Medicine, Internal Medicine, Pediatrics, Psychiatry, Laboratory Medicine, and Community Medicine while the surgical specialties include Surgery, Anesthesia, Otorhinolaryngology, Ophthalmology, Radiotherapy, Obstetrics and Gynaecology, Radiology, and Dentistry. The hospital serves as a major referral centre in the south-western part of Nigeria for patients who need specialized care.

Study Population: - The study population included the resident doctors working at UCH, Ibadan, in all the specialties. The total number of resident doctors at UCH Ibadan as at the time of data collection from 1st March to 31st May, 2019 was 460.

Study Design: - This study was a descriptive cross-sectional study among the resident doctors of UCH, Ibadan.

Sample size: - This was calculated by using the Leslie Kish formula for cross-sectional studies,[24] using the prevalence of 54.7% for workplace stress reported among resident doctors of Lagos University Teaching Hospital by Oridota et al. in 2014.[2] The minimum sample size was 209 and total calculated sample size of 232 was utilized after adjusting for 10% non-response rate.

Sampling Technique: - Stratified random sampling technique was used to select samples from the population and proportional allocation was done for each department. The participants in each department were selected randomly through computer-generated random numbers. Numbers were serially assigned to names on the list of resident doctors as obtained from the Human Resources Department of UCH, Ibadan and these numbers were randomly selected by the computer. The resident doctors whose names are attached to the corresponding random generated numbers were approached for participation in the study after consent was obtained.

Inclusion Criteria: - Resident doctors that were at least one year in residency program so as to ensure he/she was familiar with the dynamics of day-to-day activities and that the perceived stress was not due

to other factors not related to residency training.

Exclusion Criteria:

1. Pregnant resident doctors because pregnancy may affect the perception of the resident doctors' workplace stress.
2. Resident doctors with acute illness, or not available as at the time of data collection.

Measures: - Data were collected using the interviewer-guided self-administered questionnaire which contained the socio-demographic details, Work-Related Quality of Life (WRQoL) scale for measurement of workplace stress, and Short Form-36 version 2 (SF-36v2) for measurement of perceived health.

The WRQoL is reliable and has a Cronbach's Alpha score of 0.94. It is available in the public domain for use by researchers. All responses in the six subscales were recorded on a five point Likert scale and scored as: 1 = strongly disagree; 2 = disagree; 3 = undecided; 4 = agree; 5 = strongly agree[25] except for items 7, 9 and 19 that were reverse-scored, giving a total score of 115.[25] Overall scores between 1 and 71 indicated lower quality of working life, hence presence of workplace stress, 72–84 indicated average quality of working life and ≥ 85 indicated higher quality of working life.[25] In this study, respondents with scores < 72 (lower quality of working life) were classified as having workplace stress while those with scores ≥ 72 were classified as not having workplace stress.[25]

The original SF-36 has been validated with high Cronbach's alpha scores of over 0.78.[26,27] The QualityMetric Health Outcomes Scoring Software 5.0 for SF-36v2 was used to score each respondent, after permission for use was obtained from OptumInsight Life Sciences, Inc. The scores are calibrated so that 50 is the average score or norm[28] and an overall score that is above or below 50 can be considered above or below the population average health status.[29] This means that resident doctors who scored 50 and above perceived their health as better than others while those who scored below 50 perceived their health as worse than others.

Data Analysis: - Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 20 (IBM Corporation, 2011).

Written consent was obtained from all participants, and Ethical approval for the study was sought and obtained from the Institute for Advanced Medical Research and Training UI/UCH Ethics Committee, Ibadan.

Results

Two hundred and thirty-two eligible resident doctors were recruited for the study between March and May, 2019.

The socio-demographic and work characteristics of the 232 resident doctors who participated in the study are depicted in Table 1. One hundred and forty-eight resident doctors (63.8%) were males and the male to female ratio was about 1.8:1. The modal age group of the resident doctors was 31–40 years. Two hundred and ten (90.5%) respondents practiced Christianity and 166 (71.6%) were of Yoruba ethnicity. One hundred and eighty-nine (81.5%) were married. Senior registrars were more and constituted 75.9% of the respondents and the highest number of the respondents, 32 (13.8%) was from the Department of Surgery. In addition, one hundred and forty-seven resident doctors (63.4%) worked for more than 12hrs in a day on their busiest day while 12 (5.2%) worked for > 12hrs on the quietest day at work.

Table 1
Socio-demographic and work Characteristics of Resident Doctors

Socio-demographic characteristics	Frequency (N = 232)	Percentage (%)
Gender	148	63.8
Male	84	36.2
Female		
Age group (years)	11	4.7
≤ 30	208	89.7
31–40	13	5.6
> 40		
Religion	210	90.5
Christianity	21	9.1
Islam	1	0.4
Others		
Ethnic group	166	71.6
Yoruba	33	14.2
Igbo	7	3.0
Hausa	26	11.2
Others		
Marital status	42	18.1
Single	189	81.5
Married	1	0.4
Separated/Divorced/Widowed		
Designation	56	24.1
Registrar	176	75.9
Senior Registrar		

Socio-demographic characteristics	Frequency (N = 232)	Percentage (%)
Department	18	7.8
Medical specialties (n = 107)	18	7.8
Community Medicine	24	10.3
Family Medicine	21	9.0
Internal Medicine	16	6.9
Laboratory Medicine	10	4.3
Paediatrics	16	6.9
Psychiatry	25	10.8
Surgical specialties (n = 125)	16	6.9
Anaesthesia	12	5.2
Dentistry	5	2.2
Obstetrics and Gynaecology	16	6.9
Ophthalmology	3	1.3
Otorhinolaryngology	32	13.8
Radiology		
Radiotherapy		
Surgery		
Hours of work on busiest day of the week	20	8.6
≤ 8	65	28.0
> 9–12	147	63.4
> 12		
Hours of work on least busy day of the week	97	41.8
≤ 8	94	40.5
> 9–12	41	17.7
> 12		

A total of 144 (62.1%) resident doctors experienced workplace stress as depicted in Fig. 1 while 108 (46.6%) resident doctors perceived their health as poor. Chi square analysis showed that there was a significant association between workplace stress and the perceived health of the resident doctors as shown in Table 2. Further analysis with logistic regression revealed that workplace stress could

independently predict poor perceived health of resident doctors (X^2 = 17.895, p < 0.01) as shown in Table 3. Those who had workplace stress were 3.7 times more likely to have poor perceived health. Furthermore, number of years in residency program, designation, and work hours on least busy day were also significantly associated with perceived health status of the resident doctors but they could not independently predict poor perceived health among the resident doctors as shown in Tables 2 and 3.

Table 2
Associations between the characteristics of the resident doctors, and perceived health.

	Perceived Health Status		Chi Square (p-value)
	Good (%)	**Poor (%)**	
Workplace Stress	66 (75.0)	22 (25.0)	26.467 (**0.01**)*
Absent	58 (40.3)	86 (59.7)	
Present			
Gender	83 (56.1)	65 (43.9)	1.139 (0.29)
Male	41 (48.8)	43 (51.2)	
Female			
Age Group (Years)	5 (45.5)	6 (54.5)	1.611 (0.45)
≤ 30	110 (52.9)	98 (47.1)	
31–40	9 (69.2)	4 (30.8)	
≥ 41			
Ethnic group	88 (53.0)	78 (47.0)	2.387 (0.50)
Yoruba	15 (45.5)	18 (54.5)	
Igbo	4 (57.1)	3 (42.9)	
Hausa	17	9 (34.6)	
Others			
Marital Status	19 (45.2)	23 (54.8)	2.198 (0.33)
Single	104 (55.0)	85 (45.0)	
Married	1 (100.0)	0 (0.0)	
Divorced			
Religion	115 (54.8)	95 (45.2)	2.241 (0.10)
Christianity	9 (42.9)	12 (57.1)	
Islam	0 (0.0)	1 (100.0)	
Others			

*Significant at $p < 0.05$

	Perceived Health Status		Chi Square (p-value)
	Good (%)	Poor (%)	
Years in Residency (Years)	28 (39.4)	43 (60.6)	8.073 (**0.01**)*
2nd – 4th	96 (59.6)	65 (40.4)	
≥ 5th			
Designation	22 (39.3)	34 (60.7)	5.951 (**0.02**)*
Registrar	102 (58.0)	74 (42.0)	
Senior registrar			
Type of Specialty	59 (55.1)	48 (44.9)	0.228 (0.63)
Medical Specialty	65 (52.0)	60 (48.0)	
Surgical Specialty			
Work hours on busiest day at work (hours)	13 (65.0)	7 (35.0)	1.174 (0.28)
≤ 8	111 (52.4)	101 (47.6)	
> 8			
Least busy day at work	86 (60.6)	56 (39.4)	7.448 (**0.01**)*
≤ 8	38 (42.2)	52 (57.8)	
> 8			
*Significant at p < 0.05			

Table 3
Predictors of poor perceived health status

	Odds ratio	95% CI	P value
Workplace Stress	3.7	2.0–6.8	**0.01***
Years in residency program	0.6	0.2–1.6	0.28
Designation	1.1	0.3–3.5	0.89
Work hours on least busy day at work	1.7	0.9–3.0	0.08
*Significant at p < 0.05			

Discussion

Adeolu et al. in 2016 reported 32% prevalence rate of workplace stress among junior doctors of UCH, Ibadan which included the resident doctors, medical officers and house officers while Owolabi et al. in

2012 reported 26.2% prevalence rate of workplace stress among health workers of a mission hospital in Ogbomoso, Nigeria.[3,10] Both studies were cross-sectional studies similar to this study but total sampling method was used in those studies as compared to stratified random sampling method used in this present study. In South Africa, a workplace stress prevalence rate of 78% was reported among the medical doctors while in Mumbai, a prevalence rate of 37.3% was reported among resident doctors.[30,4] Furthermore, a workplace stress prevalence of 66.5% was reported among the physicians in China while 66.2% of doctors and nurses reported workplace as stressful in Ahmedabad, India.[31,32] In another study by Dave et al. in 2018, a workplace prevalence of 24.24% was reported among resident doctors at another medical institute in Ahmedabad, India. The prevalence rates of workplace stress in these studies ranged from 26.2–66.5%, and the prevalence found in this study was within the range. This variability in the prevalence rates of workplace stress in the above studies can be attributed to different samples sizes, different measurement instruments, and methodological approaches in the studies. The prevalence of workplace stress in this study among the resident doctors of UCH, Ibadan was 62.1%. This is slightly higher than the 54.7% reported in a cross-sectional study conducted among consultants, resident doctors and house officers by Oridota et al. in 2014 at the Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos.[2] This difference in prevalence rates might be because of the inclusion of other group of doctors (consultants and house officers) in the study by Oridota et al.[2]

One hundred and eight (46.6%) of the resident doctors perceived their health as poor. A much lower prevalence of poor perceived health status (21%) was reported by Miron et al. in a cross-sectional study conducted among Israeli physicians in 2019.[12] There is scanty literature on the prevalence rate of perceived health status of resident doctors but Chen et al. in 2013, in a systematic review, noted that the doctors' general physical health has been reported to be worse than that of the general population in China.[5]

In addition, from the results noted, there was a significant association between workplace stress and perceived health status of the resident doctors. This is in agreement with what has been known in the literature that workplace stress negatively affects the health of an individual.[22,5,12]

Conclusion

The aim of the study was to determine the effect of workplace stress on the perceived health of the resident doctors at UCH Ibadan. The study shows that the prevalence of workplace stress was 62.1% while the prevalence of poor perceived health was 46.6%. The study results also established that workplace stress had significant effect on the perceived health of the resident doctors at UCH Ibadan.

Limitations of the Study

This study is also limited by its cross-sectional nature which hindered the establishment of causality between Workplace Stress and the Perceived Health Status. In addition, some other factors outside the

workplace may have influenced the perception of workplace stress and their perceived health status among the resident doctors in this study.

Recommendation

Considering the high prevalence rate of workplace stress among the resident doctors, it is recommended that workplace stress be addressed among resident doctors who are essential medical workforce in various healthcare institutions. This would help to improve their perceived health status, and healthcare services being rendered to patients.

It is also recommended that a multicenter assessment of the perceived health status of resident doctors be carried out across the Nigeria and Africa in order to increase its knowledge and compare the perceived health status, with the aim to improve the health status of the resident doctors.

Declarations

Acknowledgement

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Conflict of Interest

There is no financial or personal relationship that may have inappropriately influenced the writing this article.

Authors Contribution

All authors contributed to the design and implementation of the research, the analysis of the results, and the writing of the manuscript.

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Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions.

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Figures

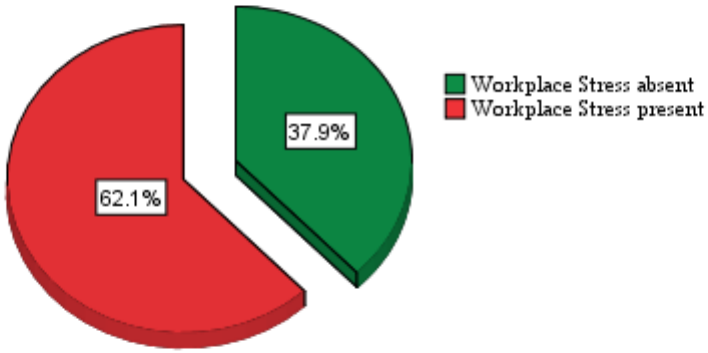

Figure 1

Prevalence of Workplace Stress among Resident Doctors

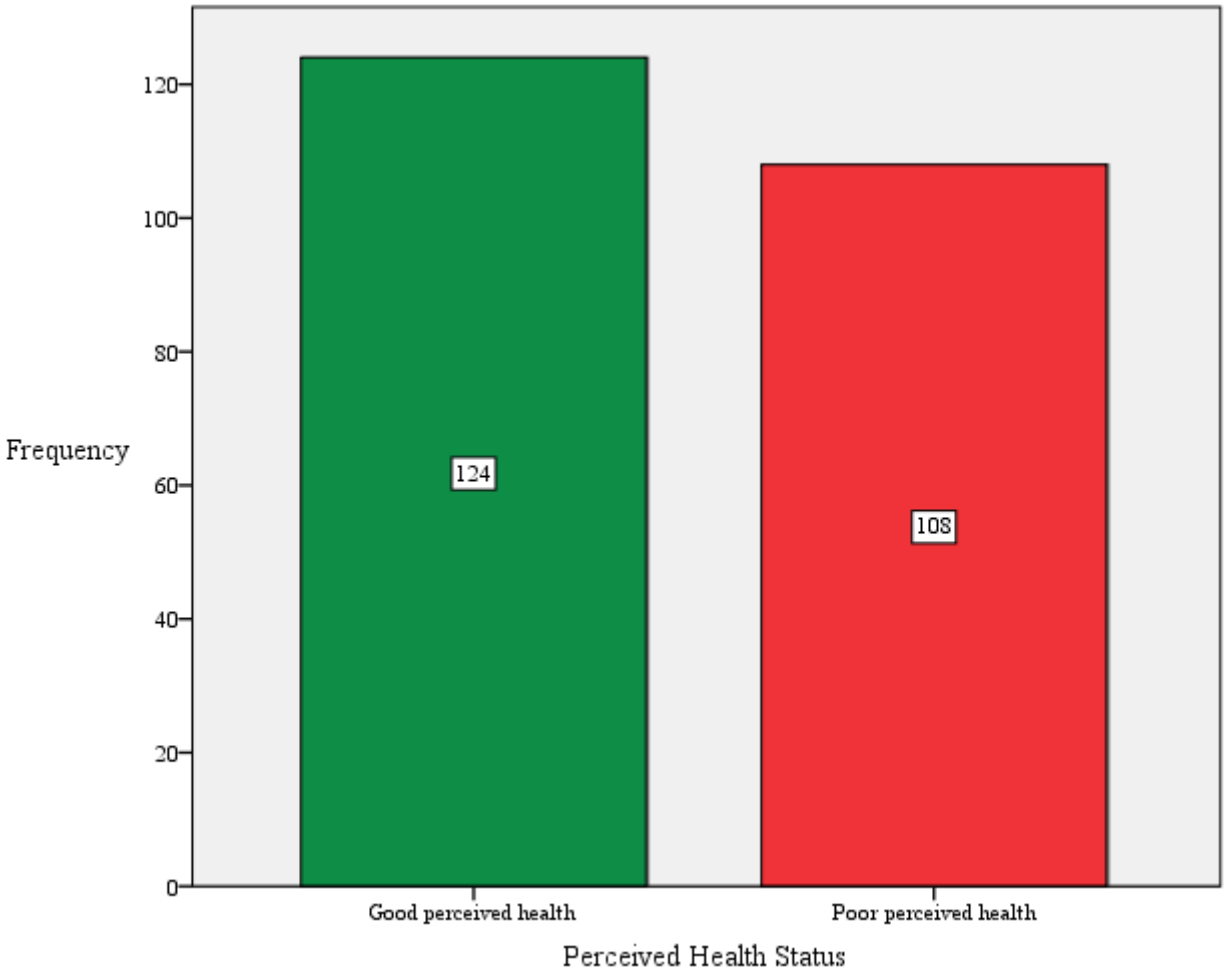

Figure 2

Perceived health of Resident Doctors