Burnout Among Health Care Workers and Associated Risk Factors Amidst Covid-19 Pandemic In a Tertiary Health Care Setting.

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ABSTRACT

Background: Burnout is a work-related stress syndrome resulting from chronic exposure to stress. Its prevalence is higher in some healthcare workers (HCWs) than others and various factors have been linked. The COVID-19 pandemic was one of these.

Objectives: To determine the prevalence and pattern of burnout among HCWs, and its association with individual and organizational factors.

Methods: The study was a cross-sectional descriptive hospital-based one conducted at UITH, Kwara, Nigeria. Data was collected from 320 HCWs using self-administered questionnaires from June through August 2022 and a stratified random sampling technique was used. The prevalence of burnout was assessed using the Oldenburg Burnout Inventory. The collected data was sorted, coded and entered into the computer for analysis using the SPSS-21. Results were presented using frequency tables and charts. Chi-square was also used to assess the association between burnout and organizational as well as individual factors. The level of significance of this study was set at 5% (p <0.05).

Results: The prevalence of burnout in this study was 71% as 227 HCWs had burnout. Among those without burnout, 8% (26) were disengaged, 14% (45) were exhausted and 7% (22) had no burnout. The individual factors that had a statistically significant association with burnout were: the occupation of HCWs, specialty and cadre of doctors. Burnout was highest among doctors with the highest prevalence seen among junior residents (p-value 0.00). Based on speciality, the surgeons experience more burnout compared to others (p=0.00). Among the organizational factors, excessive workload, long working hours, poor remuneration and inadequate personnel had a significant association with burnout. Logistic regression revealed p value <0.05 in these factors.

Conclusions: The prevalence of burnout in this study was high. Factors associated with burnout need to be evaluated and modifiable ones controlled, to enhance the well-being of workers.

Keywords: Burnout, COVID-19, health care workers, Oldenburg burnout inventory

Introduction

Burnout is a psychological syndrome that may develop when employees are exposed to a stressful working environment, with high job demands and low resources occurring simultaneously, resulting in exhaustion and disengagement; two related but conceptually distinct domains that constitute the core elements of burnout.[1]

The healthcare industry owing to the interplay between emotionally intense interactions, workdays, workload and demanding pace is burnout-prone,[2] with the highest prevalence credited to physicians and nurses.[3,4] It has become globally recognized as a significant public health issue [5]. Burnout prevalence is increasing and also affects medical students, residents, and more than half of all practicing physicians. [6] More than that, burnout has reached epidemic levels, with a prevalence near or exceeding 50%, as documented in national studies of both physicians in training and practicing physicians. [7]

Rotenstein and colleagues, in their meta-analysis of studies on burnout among practicing physicians, estimated a pooled prevalence of 21.3% on overall burnout; they also calculate a pooled prevalence of

34.4% on emotional exhaustion (EE), 25.8% on depersonalization (D), and of 23.5% on personal accomplishment (PA) [8]. Emotional exhaustion refers to the feeling of being drained and overwhelmed by the demands of work while depersonalization involves developing a cynical or negative attitude towards work and the people involved in it. Reduced personal accomplishment refers to the feeling of decreased competence or achievement in one's work. [9] Among the few studies conducted in Africa, prevalence of 81% and 76% respectively were reported among physicians in South African rural district hospitals and urban hospitals respectively. [10,11] The few number of physicians in the rural district hospital compared to the urban with resultant increased workload may be responsible for this. In Enugu and Port Harcourt Nigeria, Nwosu et al and Ozumba et al found prevalence of 69.9% and 4.1% of burnout among health care workers respectively. [12,13] A possible reason for the difference in these studies could be the different tools used in assessing burnout. In Nigeria, Nwosu et al in a study carried out among physicians in five tertiary institutions revealed a prevalence of physician burnout of 75.5% [14] A study carried out among primary care physicians in Jos Nigeria, by Lar-Ndam et al, reported a prevalence of burnout of 34.8%. [15]

The most frequently known features responsible for burnout are classified as being either organizational or individual. [16] Organizational features are excessive workload, long working hours, or low perceived social support within the organization, and individual features refer to individual characteristics of adapting to challenging circumstances, such as inefficient coping strategies, occupation, years of practice, specialty, and cadre. [16] In a study in the US, burnout was more in the female physicians, (70% of female physicians and 61% of male physicians), possible reasons for this could be additional stress factors apart from work such as family commitments and child care. [17] A systematic review found that there are relatively high rates of burnout among medical students, residents in training, and physicians ranging from 7 to 80%, although the rates may vary according to discipline. [18] In 2017 Medscape Report, the highest percentages of burnout occurred among physicians practicing emergency medicine (59%), followed by obstetrics and gynaecology (56%) and family physicians, internists, and infectious disease physicians (all at 55%). [19] In Jos Nigeria, there was statistically significant difference in the proportion of doctors with high burnout in the State Specialist Hospital when compared to those working in the Teaching Hospital, and having an excellent or good

self-reported perceived health status was significantly associated with lower risk of developing high burnout. [15] Among nurses, inadequate nursing personnel, too frequent night duties, doctor/nurse conflict, high nursing hierarchy and poor wages were predictors of burnout in a study by Lasebikan et al in Oyo, Nigeria. [20] Factors due to the COVID 19 pandemic such as: rationing or cessation of routine services, redeployment of staff to unfamiliar clinical environments, shortage of personal protective equipment, extensive responsibilities, with medical resources and services placed at their maximum capacity due to unprecedented demands, have been associated with burnout in the health care setting. [21]

Left unattended, burnout can have undesirable consequences, including disruption to work, reduced productivity, decreased job satisfaction, decreased quality of patient care, disruption of personal relationships, and increased anxiety and depression. [22] There are inadequate studies documenting the relationship between burnout in health care workers and its association with certain factors (organizational and individual) in Nigeria. This inadequacy of studies is alarming as health care workers are usually in contact with patients on a daily basis in hospitals. Also, most studies in Africa were on physician burnout, this study has gone steps further to explore burnout among health care workers amidst the current problems facing the health sector in the country.

The objectives of this study are to determine the prevalence and pattern of burnout among HCW, and its association with individual and organizational factors.

Subjects and Methods:

It was a cross-sectional descriptive hospital-based study. The study was conducted at the University of Ilorin Teaching Hospital (UITH), Nigeria, a tertiary health care institution that provides health care to inhabitants of Ilorin, its environs and inhabitants from border towns and villages of surrounding states. The study population consisted of HCW (doctors, nurses, pharmacists and laboratory scientists) male and female at the health centre, during the studied period and who satisfied the inclusion criteria.

Inclusion Criteria

All health care workers who were available and gave consent, during the study period who were 18 years and above.

Exclusion criteria

Health care workers that were too sick to participate in the study, in order not to delay early assess to prompt care.

Sample size: A prevalence of burnout among health

care workers of 69% from the study by Nwosu et al at Keffi, Nigeria, was used.[12] The formula for determining minimum sample size for health studies used by Leslie Kish was used, which was:[23]

n = Z^2pq/d^2

n = minimum sample size

z = standard normal deviation or 95% confidence level (1.96)

p = estimated prevalence rate of burnout among HCW (69% or 0.69)[4]

q is the proportion of HCW that do not have burnout.

However since the study population is less than 10,000 (1930), the sample size is adjusted using this formula:[35]   nf = n/1 + (n/N)

The minimum sample size was 312.

Finally, 320 HCWs participated in the study.

Data was collected over a period of three months and analyzed over a one month period.

Sampling Technique

The stratified random sampling technique was used to recruit eligible participants. This was because the participants were non-homogeneous groups; hence sample size was proportionally allocated.

According to the hospital administrative department, total number of the study population: doctors, nurses, pharmacist and laboratory technicians was 1930 (862 doctors, 875 nurses, 81 pharmacists and 112 laboratory scientists). Hence:

Doctors $\frac{862}{1930}$ x 100 = 44.66

Nurses $\frac{875}{1930}$ x 100 = 45.34

Pharmacist $\frac{81}{1930}$ x 100 = 4.20

Laboratory scientists $\frac{112}{1930}$ x 100 = 5.80

To calculate the proportion for each groups:

Doctor $\frac{44.66}{100}$ x 320 = 142.91

Nurses $\frac{45.34}{100}$ x 320 = 145.09

Pharmacist $\frac{4.20}{100}$ x 320 = 13.10 = 13.44

Laboratory scientists $\frac{5.80}{100}$ x 320 = 18.56

Hence, 143 doctors, 145 nurses, 13 pharmacists and 19 laboratory scientists were recruited.

DATA COLLECTION AND INSTRUMENTS

Data were collected using the structured and semi-structured interviewer-administered questionnaires, this included socio-demographics, risk factors for burnout and burnout assessment using Oldenburg Burnout Inventory (OLBI). Perceived social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS). The OLBI is a reliable and valid measurement instrument for the assessment of burnout.[24] It has two subscales exhaustion and disengagement (from work).[25]

It has been used in Nigerian studies as well.[12,14] To identify the burnout groups, mean scores ≥2.25 on the exhaustion domain were regarded as having high exhaustion, while those who scored less than 2.25 were regarded as low. For the disengagement domain mean scores ≥2.1 were regarded as high while those who scored less than 2.1 was regarded as low. These cut-off scores are adapted from a previous study on burnout among Swedish healthcare workers conducted with the OLBI.[26] The mean score for each domain was obtained by dividing the total scores for the items in the domain by the number of items in the domain; which is eight (8) in each case. The following categories were obtained:

Burnout group: high exhaustion and high disengagement; Exhausted group: high exhaustion and low disengagement; Disengaged group: high disengagement and low exhaustion; Non-burnout group: low disengagement and low exhaustion.

Pre - test

The questionnaire was pre-tested in the general out-patient clinic of a state hospital, with 10% of the sample size and necessary adjustments were made.

DATA ANALYSIS:

The collected data was sorted, coded and entered into the computer for analysis using the Version 21 software packages of the Statistical Package for Social Sciences (SPSS-21). Results were presented using frequency tables and charts. Frequency distribution was generated to reveal percentages and proportions of the various variables. Chi square was also used to assess the association between burnout and the following: organizational and individual factors (occupation; years of practice of HCWs; cadre; and specialty of doctors). The level of significance of this study was set at 5% (p <0.05).

Results

Socio-demographic Characteristics of the Participants

A total of 320 HCWs participated in the study. Table 1, shows the socio-demographic characteristics of respondents. HCWs aged 31- 40 years constituted a greater percentage of the respondents 115(36%), while only 6(2%) were above or equal to 61 years of age with a mean age of 35.63 ± 9.8. The gender distribution revealed a preponderance of female respondents of 189 (59%) with a female to male ratio of 1.4:1.

Table 1: Socio-demographic characteristics of the Participants
N=320

VARIABLE	FREQUENCY(n)	PERCENTAGE (%)
Age Group		
<20	6	1.9
21-30	109	34.1
31-40	115	35.9
41-50	51	15.9
51-60	33	10.3
61 Above	6	1.9
Mean Age (SD)	35.63 ± 9.8	
Gender		
Male	131	40.9
Female	189	59.1
Smoking		
Current	6	1.9
Former	6	1.9
Never	308	96.2
Alcohol		
Current	10	3.1
Former	2	0.6
Never	308	96.3

Prevalence and pattern of Burnout among Respondents

The study revealed a prevalence of 71%, as 227 of the respondents had burnout. Among others, 8% (26) were disengaged, 14% (45) were exhausted and 7% (22) had no burnout.
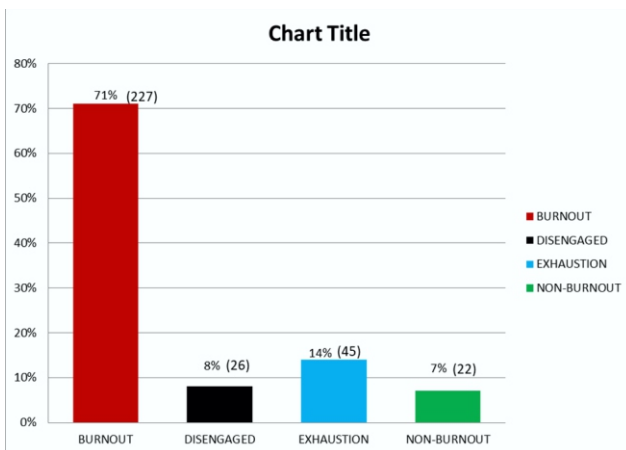

Figure 1: Prevalence and pattern of burnout among respondents.

Relationship between organizational factor and burnout

For organizational factors, excessive work load, long working hours, poor remuneration and inadequate personnel had significant association with burnout.

Table 2: Relationship between organisational factors and burnout

Organization factor	Df	X²	P value
Excessive Workload	1	6.311	0.01
Long Working Hours	1	13.086	0.00
Low Perceive Social Support	1	3.900	0.05
Doctor/Nurse And Other Conflict	1	4.320	0.38
Charting Paperwork	1	0.932	0.33
Poor Remuneration	1	4.531	0.03
Poor Infection Control	1	1.653	0.20
Newer Policies Due To Pandemic	1	0.630	0.43
Inadequate Personnel	1	6.065	0.01

Df: Degree of freedom

X²: Chi-square

Relationship between Individual Factors and burnout

Prevalence of burnout was highest among doctors and least among pharmacist. This association was statistically significant. Among doctors, burnout was highest among the surgeons, followed by family physicians and least among the doctors in radiology and dental department. Burnout was highest among the junior registrars and least among the consultants. The findings were statistically significant. Also, burnout was highest among hospital staff with less than 10 years of practice, this finding was not statistically significant.

Table 3: Relationship between Individual Factors and burnout

Individual Factors	Burnout Present	Burnout Absent	Df	X²	P value
Occupation (N=143)					
Doctor	109(76.2%)	34(23.8%)	3	6.671	0.01
Laboratory Scientist	14(73.7%)	5(26.3%)			
Nurse	98(67.6%)	47(32.4%)			
Pharmacist	6(46.2%)	7(53.8%)			
Specialty(N=143)					
Dental	3(50%)	3(50%)	11	11.776	0.00
Internal medicine	9(75%)	3 (25%)			
Laboratory medicine	3 (75%)	1(25%)			
Paediatrics	8(72.7%)	3 (27.3%)			
Ophthalmology	5 (62.5%)	3 (37.5%)			
Obstetrics and Gynaecology	10 (66.7%)	5(33.3%)			
Surgery	26(89.7%)	3(10.3%)			
Psychiatry	6(66.7%)	3 (33.3%)			
Public Health	10 (77%)	3 (23%)			
Radiology	2 (50%)	2 (50%)			
Family Medicine	20 (87%)	3 (13%)			
ENT	5(55.6%)	4 (44.4%)			
Cadres (N=143)					
Consultant	13 (54.2%)	11 (45.8%)	3	11.156	0.00
Junior Registrars	61(86%)	10 (14%)			
Senior Registrar	15(71.4%)	6 (28.6%)			
House officer/intern	18(66.7%)	9 (33.3%)			
Years of Practice N=320					
<10	111(72.1%)	43(27.9%)	3	0.534	0.46
11-20 years	72(71.3%)	29(28.7%)			
21-30	33(68.8%)	15(31.2%)			
>30	11(64.7%)	6(35.3%)			

Df: Degree of freedom

X^2: Chi-square

Logistic regression

This further showed that long working hours, inadequate personnel, cadre and specialty were significant predictors of burnout.

Table 4: Logistic regression on burnout and Significant variables

Variables	B	S.E	Wald	Df	Sig	Exp(B)
Excessive workload	0.493	0.480	1.055	1	0.30	1.637
Long working hours	0.704	0.358	3.870	1	0.04	1.022
Inadequate Personnel	0.807	0.327	6.091	1	0.01	2.241
Poor remuneration	0.537	0.485	1.226	1	0.26	1.711
Cadre	-2.747	0.811	11.467	1	0.01	0.064
Specialty	-2.066	1.022	4.084	1	0.04	0.127
Occupation	-1.287	1.015	1.606	1	0.20	0.276

B: Coefficient estimate

S: Standard Error

Wald: Measure of Significance

S: Significance

Exp(B): Odds Ratio

Discussion

This study revealed a prevalence of burnout of 71% among HCW. This is similar to a prevalence of 69.9% reported in Enugu and 75.7% in a study carried out among physicians in five tertiary institutions in Nigeria by Nwosu et al.[12,14] It is also close to prevalence of 81 and 76% reported among physicians in South African rural district hospitals and urban hospitals respectively.[10,11] Possible reasons for the high prevalence of burnout among HCWs in the index study include exodus of HCWs, as revealed by Onah et al,[27] with subsequent excessive workload on the available HCWs, poor technological advancement in a developing economy as regards necessary equipment for stress free work and the COVID 19 pandemic at the time of the study.

Our study also revealed that asides those with burnout, 8% (26) of the participants were disengaged, 14% (45) were exhausted and 7% (22) had no burnout. Salihu et al in a cross sectional study at UITH Ilorin among 176 resident doctors revealed that the prevalence of burnout was 21.6% for high emotional exhaustion (EE), 13.6% for high depersonalization (DP), and 30.7% for low personal accomplishment (PA).[28] A high proportion of the participants in the index study were in the category of participants with burnout, this could have accounted for the low proportion of participant in the remaining categories. The low sample size in the study by Salihu et al and homogeneous population (only residents) compared to the index study could be a reason for the difference in the findings compared to the index study.

Among the organizational factors, excessive workload, long working hours, poor remuneration and inadequate personnel had significant correlation with burnout. This is similar to findings by Salihu et al in UITH Ilorin where long working hours and presence of work-related stress were predictors of burnout among HCWs.[28] It is also similar to findings in a cross sectional study among 200 HCW by Taranu et al in Romania, Europe, which revealed that long working hours and sacrifice of personal time were predictors of burnout.[29] Findings in the index study also aligns with that of Lasebikan in Ibadan, Nigeria, where excessive workload (i.e. too frequent night duties) and poor wages were predictors of burnout.[20] Possible reasons for the work load and long working hours found in the above studies are: reduced number of workers due to exodus of health care professionals to advanced countries for better pay, better working condition and advancement in career among other reasons.

Factors due to COVID 19 pandemic such as newer policies due to the COVID 19 pandemic were not significant predictors of burnout in the index study. Possible reasons for this could be reduction in the implementation of these policies and reduction in the use of PPEs for COVID 19 at the time of this study as the incidence of cases had reduced significantly at the time, although COVID 19 was still declared a pandemic across the world.

For the individual factors, occupation of HCWs was a positive predictors of burnout as the highest prevalence of burnout was found among the doctors followed by the nurses and least among the pharmacist. This is similar to a study by Bassey et al in a comparative cross sectional study and findings by Ozumba et al in the Portharcourt, Nigeria.[13,30] With the doctors having the highest prevalence of burnout in the index study, relationship of their specialty and cadre with burnout was further assessed. According

to specialty, the surgeons had the highest burnout among doctors, followed by the family physicians and the least burnout prevalence was found among doctors in Radiology and dental departments. This is similar to the 2017 Medscape report, where the highest percentages of burnout occurred among physicians practicing emergency medicine, followed by surgeons in obstetrics and gynaecology and Family physicians.[19] Our findings is also similar to that by Golisch et al in a review which revealed that General surgeons and trainees are at high risk for burnout.[31] Reasons for the high burnout among surgeons and family physicians could be the long hours of call experienced by residents in surgery and high volume of patients at the Family medicine outpatient department. According to cadre, burnout was highest among the junior residents and least among the consultants. It is similar to findings in a systematic review and findings by Amaddeo et al at a tertiary hospital in North-East Italy, where relatively high rates of burnout were found among residents in training.[18,32] The need to combine the academic work of postgraduate training with clinical work may be responsible for the high burnout incidence among the junior residents.

Strengths in this study included the fact that objectives set out were reached using a well validated tool. It also adds to the body of knowledge and has gone steps ahead of previous studies to assess burnout among different health care workers and not only physicians. It also assessed risk factors for burnout among the HCWs amidst the current situation of the health sector in the country.

Conclusion: The study showed an alarmingly high prevalence of burnout among HCW. It revealed that burnout represents a great concern for healthcare staff and its impact is more burdensome for junior residents, surgeons and family physicians. This study underlines the need to carefully address the psychological well-being of HCW to prevent the devastating consequences of burnout. Also findings from this study shows the need for prompt review of factors of burnout as the study revealed that some of them are high predictors of burnout.

Countries in sub-Saharan Africa (SSA) may experience more public health emergencies (PHEs) in the near future. Burnout emanating from high work load, reduced number of HCW, inadequate technology, and other factors will make responses to these outbreaks slow and ineffective.

The key recommendation to clinical practice is to address the factors associated with burnout and to aggregate health, well-being and behavioral science expertise through long term researches with rigorous planning and reporting to drive the necessary cultural change and the improvement of public health systems. To policy makers, the workplace should be made convenient for workers, adequate equipment should be made available at health facilities, more health facilities should be provided to reduce patient overload and adequate number of workers should be employed to ease work overload. These will provide ways to address factors responsible for burnout, to improve the wellbeing of HCW and lead to subsequent efficiency in their work output.

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