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Burnout among healthcare workers in a tertiary hospital in northern Nigeria

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Abstract

The demands of patient care predispose healthcare workers to burnout, which can impair service quality. This study assessed the prevalence, pattern, and associated factors of burnout among healthcare workers. A cross-sectional, hospital-based study was conducted among 228 healthcare workers recruited from 20 clinical departments of Aminu Kano Teaching Hospital, Kano, using stratified sampling. Data on socio-demographics, lifestyle, and burnout were collected. Burnout was measured with the Maslach Burnout Inventory (MBI). Associations with selected factors were tested using Chi-square, with significance set at $p \leq 0.05$. Of 228 recruited, 224 completed the study. Respondents' mean age was 37.05 (Standard Deviation, SD±8.24) years, with 53.6% males. Burnout prevalence was 23.2%, with 14.2% showing high Emotional Exhaustion (EE), 33.9% high Depersonalization (DP), and 56.7% low Personal Accomplishment (PA). Laboratory scientists (p=0.018) and workers earning <₦30,000 ($53) monthly (p=0.007) had significantly lower PA. Physical inactivity (p=0.011) was associated with higher EE. Burnout was common among healthcare workers. Addressing welfare and lifestyle modification (*e.g.*, exercise) may help reduce risk.

Key words: burnout, healthcare workers, tertiary hospital, Northern Nigeria.

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Introduction

Burnout was first described in 1974 by Herbert Freudenberger as a set of emotional and physical symptoms caused by excessive work demands.[1] It is an end product or a result of unmanaged chronic work stress, rather than a symptom of work stress.[2] Burnout is now a worldwide phenomenon characterized by a syndrome of Emotional Exhaustion (EE), Depersonalization (DP) and reduced Personal Accomplishment (PA) that can occur as a negative consequence of chronic work stress.[2] Individuals experiencing burnout frequently exhibit three common symptoms: physical symptoms such as fatigue, headache, insomnia, hypertension, weight gain or loss; psychological symptoms such as loss of concern and feelings of anger; and behavioral symptoms such as low job performance or satisfaction, decreased communication and increased absenteeism.[3] Burnout occurs more frequently among those who work in civil services, otherwise called "people work," such as police work, social work, teaching and most especially health care work.[4]

Healthcare workers are individuals who provide preventive, curative, promotional, or rehabilitative healthcare services to individuals, families, or communities.[5] They could be in medicine, nursing, or allied health.[5] Due to the inherent demands and stress of patient care, healthcare personnel are at a significant risk of developing burnout syndrome.[4,5] The frequent and high-level emotional engagement demonstrated by healthcare workers while caring for their patients might lead to compassion fatigue and subsequent burnout.[6] This could be worse in developing countries, due to a working environment with inadequate resources, insufficient finance, and a shortage of employees.[7] On the other hand, yellow journalism on medical errors as well as an environment with unforgiving of mistakes pose a great stress and frustration to healthcare providers in the developed countries.[8]

Burnout can lead to a range of mental illnesses and dysfunctions, including depression, anxiety, sleeping problems, and anxiety, as well as broken relationships, alcohol and drug addictions, marital dysfunction, and, most importantly, suicide.[8]

The overall prevalence of burnout and its three-dimensional components among healthcare professionals vary between countries. European General Practice Research Network (EGPRN) Burnout Study Group found that, while 12% of participants suffered from burnout in all three dimensions, 43% scored high for emotional exhaustion, 35% for depersonalization and 32% for low personal accomplishment.[9] A systemic review of burnout among healthcare providers in Arab countries revealed a wide range prevalence of 20-80% for emotional exhaustion, 9.2-80% for depersonalization and 13.3-85.8% for low personal accomplishment.[6] Aguwa *et al.* in 2014 reported a prevalence of 20.6% for burnout among health workers in Southeastern Nigeria.[10] The dearth of health care professionals, poor remunerations and condition of services could contribute to the high rate of burnout in the developing countries.[10]

Several studies have demonstrated various components of burnout among healthcare professionals in developed countries. However, not much has been done in a poor resource, multi-ethnic and culturally laden country like Nigeria. There is no study of a similar nature carried out in Northern Nigeria; thus, this study will serve as a source of information and basis for further studies on this subject matter.

Materials and Methods

This descriptive cross-sectional study was conducted in Aminu Kano Teaching Hospital (AKTH), Kano, over eight weeks period: from 16th August 2021 to 11th October 2021. The study population consists of all the healthcare workers employed by the Hospital Management as of August 2021. These include the doctors, nurses, pharmacists/technicians, laboratory scientist/technicians, physiotherapists, clinical assistants, health records officers/technicians and attendants. There were 1,847 clinical staff working in AKTH as at the time of this study.[11] Healthcare workers already diagnosed with a psychiatric problem or receiving treatment were excluded from the study, as this might mask the burnout symptoms in them; thereby affecting the accuracy of information received.

Sample size estimation

The sample size was estimated using the formula[12] $n=Z\alpha^2pq/d^2$ where; n = minimum sample size, $Z\alpha$ = standard normal deviate corresponding to a 5% level of significance (1.96), p=(20.6%, proportion of health workers with burnout in a hospital in Southeastern Nigeria by Aguwa *et al*. in 2014).[10]

q = 1-p (79.4%), the proportion of health workers without burnout
d = level of precision which was set as 5%

Hence, the minimum sample was 251. Since there were 1,847 clinical staff in the hospital, this formula[12] ns=n/+(n/N) was used to adjust the sample size to 228 (for population <10,000 with anticipated 91.8% response rate based on similar study).[5]

Sampling method

A stratified random sampling technique was used to recruit 228 healthcare workers (doctors, nurses, pharmacist, physiotherapist, laboratory scientists, technicians, clinical assistants and attendants) from the 20 clinical departments in the hospital.

Data collection

After obtaining written informed consent, each participant was administered a pretested serially coded self-administered questionnaire. The questionnaire had two parts: the first section comprised the socio-demographic characteristics including age, gender, marital status, ethnicity, religion, educational level, occupation and lifestyle. The second section comprised of the Maslach Burnout Inventory (MBI) which is a 22-item self-report inventory designed to measure the characteristics of burnout. It is a validated tool in Nigeria and has been shown to have good reliability, validity, and brevity, as well as ease of administration.[13] MBI has a dual column response format. The frequency column has a 6 points Likert-type format, and the intensity column is 7 points. Direct scoring was used for the items of the Emotional Exhaustion (EE) and Depersonalization (DP) subscales by adding together the values of the ratings shaded, while reverse scoring was used for the items of the Personal Accomplishment (PA) subscale by adding together the reversed values of the shaded ratings. The burnout element scores were interpreted as follows: EE is considered high when ≥30, moderate when 18□29, and low when ≤17. DP is high when ≥12, moderate when 6□11, and low when ≤5. PA is high when ≤33, moderate when 34□39 and low when ≥40.[14] A high score in the EE and DP with a low score in PA indicates burnout.[14]

The height and weight were measured using stadiometer and weighing scale manufactured by Hospitex® (Italy), and the measurements were made to the nearest 0.1cm and 0.1Kg respectively. The body mass index (BMI) of each subject was calculated with the formula [weight (Kg)/height (m^2)], and classified according to the WHO classification of obesity.[15] Blood Pressure (BP) was with an appropriately sized cuff mercury sphygmomanometer of the Accosson® brand and a Litmann® stethoscope and elevated blood pressure was taken as an average equal to or greater than 140/90 mmHg.

Ethical considerations

The ethical approval (NHREC/28/01/2020/AKTH/EC/2910) was obtained from the Research Ethical Committee of AKTH, Kano.

Statistical analysis

Data was collated, coded and analysed by the IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp. Absolute numbers and simple percentages were used to describe categorical variables such as age groups, occupation and burnout elements. Similarly, quantitative variables (such as age and BMI) were described using measures of central tendency (mean) and measures of dispersion (range, standard deviation) as appropriate. The chi-square test and Fisher's exact test, when required, were used to assess the significance of associations between categorical variables. A p-value of ≤0.05 was considered statistically significant.

Results

A total number of 228 questionnaires were administered but 224 were completed and returned, giving a response rate of 98.2%. The respondents' age ranged from 18 to 57 years with a mean age of 37.05 (Standard Deviation, SD±8.24) years. As shown in Table 1, a majority (69.6%) of the respondents belonged to the age group 20-40 years, were predominantly males (53.6%), Muslims (85.3%), married (69.8%) in a monogamous setting (72.3%), and with tertiary level of education (97.8%). Doctors (25.4%) and nurses (49.1%) constituted the majority hence, greater number of them (68.8%) earned above ₦ 90,000 (158 USD) per month. A significant proportion (73.2%) had spent a minimum of 5 years in service and an average of 15 minutes (71.7%) getting to work daily. The majority were non-smokers (96.5%), did not ingest alcohol (98.8%), were physically inactive (70.1%) and overweight and/or obese (64.3%).

The prevalence of burnout among healthcare workers in this study was 23.2%; with 14.2% having high Emotional Exhaustion (EE) and 33.9% having high Depersonalization (DP) but 56.7% having low Personal Accomplishment (PA) (Table 2). The prevalence of burnout was found to be highest among the laboratory scientists (42.9%), followed by nurses (26.4%), pharmacists (25%), and doctors (24.6%) (Figure 1).

There was no significant association between overall burnout and socio-demographic characteristics of the healthcare workers.

Healthcare workers earning below ₦ 30,000 (53 USD) per month had the highest level (55.6%) of low PA, with a statistically significant association (p=0.007). Similarly, there was a significant association (p=0.011) between burnout in the area of EE and exercise such that physically inactive healthcare workers had higher EE (27.6%) than physically active healthcare workers (12.5%) (Tables 3 and 4).

Although there was no significant association between overall burnout and particular health profession, the laboratory scientists (74.1%), followed by nurses (63.6%), pharmacists (56.3%) and doctors (54.4%) had the highest percentage of low PA, and this was found to be statistically significant (p=0.018) (Table 5).

Discussion

Healthcare workers are frequently exposed to high levels of stress and are particularly vulnerable to burnout, which has greater consequences for healthcare providers, patients, and the healthcare system.[16] This study examined the prevalence, components and factors associated with burnout among healthcare workers in a Northern Nigerian Tertiary hospital. The overall prevalence of burnout in this study was 23.2%, which was similar to the lower value (23.6%) of the range reported in a systemic review by Ogunsuji *et al*., among Nigerian doctors.[17] Systematic reviews combine evidence from multiple studies conducted across diverse settings and time periods, often producing pooled or conservative prevalence estimates.[17,18] This aggregation may partly account for the similarity observed with our single-centre estimate, despite differences in professional composition. Additionally, the comparable prevalence may reflect common workplace stressors affecting healthcare professionals in Nigeria, such as high workload, staffing shortages, limited resources, and systemic challenges, across both doctors and other healthcare workers.[18] Our finding is also comparable to 20.6% reported in a similar setting in Aba, Southeastern Nigeria,[10] and 20% reported in a three-wave longitudinal study among Dutch general practitioners (GPs).[19] However, the prevalence of burnout in this study was significantly higher than 11.7% reported among doctors in Yemen.[4] Although, both Yemen and Nigeria shared similar socio-economic characteristics of developing countries, the difference could be because this study assessed all the healthcare workers as compared to only doctors in

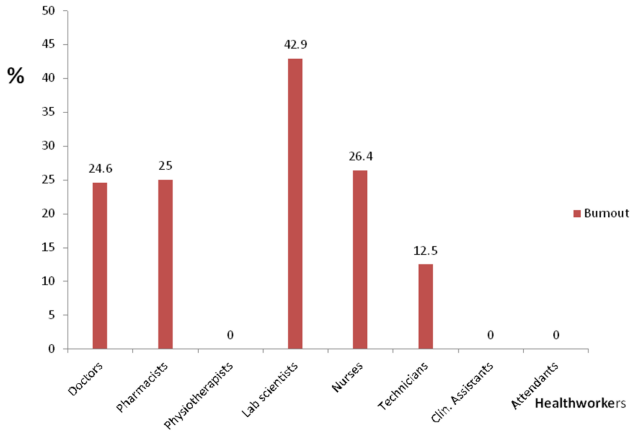

Figure 1. Burnout prevalence among health workers.

Table 1. Socio-demographic, work-related, lifestyle and clinical characteristics of the respondents (N=224).

Variables	Frequency (%)
Age (years)	
<20	3 (1.3)
20-40	156 (69.6)
>40	65 (29.1)
Mean ±SD =37.05±8.24 years	
Sex	
Male	120 (53.6)
Female	104 (46.4)
Religion	
Islam	191 (85.3)
Christianity	33 (14.7)
Marital status	
Single	64 (28.6)
Married	156 (69.8)
Separated/divorced	4 (1.6)
Family type	
Monogamous	162 (72.3)
Polygamous	62 (27.7)
Educational level	
Primary	1 (0.4)
Secondary	4 (1.8)
Tertiary	219 (97.8)
Monthly income (USD)	
<53	18 (8.0)
53-105	20 (8.9)
106-158	32 (14.3)
>158	154 (68.8)
Median (IQR) =75.4 (62.3) USD	
Profession	
Doctor	57 (25.4)
Pharmacist	16 (7.1)
Physiotherapist	4 (1.8)
Lab scientist	7 (3.1)
Nurse	110 (49.1)
Technician	16 (7.2)
Clinical assistant	9 (4.1)
Attendant	5 (2.2)
Year of practice (years)	
<5	60 (26.8)
5-10	83 (37.1)
>10	81 (36.1)
Average time spent getting to work daily (minutes)	
<15	59 (26.3)
15-30	89 (37.8)
>30	76 (33.9)
Smoking	
No	216 (96.5)
Ex-smoker	5 (2.2)
Currently smoking	3 (1.3)
Alcohol use	
No	219 (98.8)
Yes	5 (2.2)
Exercise	
No	32 (14.3)
Not regular	125 (55.8)
Regular	67 (29.9)
BMI (kg/m^2)	
Underweight	2 (0.9)
Normal	78 (34.8)
Overweight	69 (30.8)
Obese	75 (33.5)
High blood pressure	
No	204 (91.1)
Yes	20 (8.9)

IQR, Interquartile Range; SD, Standard Deviation; BMI, Body Mass Index

the Yemen study. Also, the prevalence of burnout in this study was lower than 45.4% reported in National survey of US physicians,[20] 67% reported in a systemic review of burnout among physicians in 45 countries,[21] and 75.5% reported in a multi-centered survey in mostly Southeastern region of Nigeria.[18] Apart from the fact that all these studies were on only physicians, the difference in the study design might contribute to the significant difference between their results and that of this study; which was a cross-sectional single-centered study.

Interestingly, the prevalence of burnout was found to be highest among the laboratory scientists, followed by nurses, pharmacists, and then doctors. This was similar to the findings in a Teaching Hospital in Southeastern Nigeria, where the laboratory scientists followed by the nurses had the highest level of burnout while the physiotherapists were the least burnt out.[5] Although there are other studies that reported psychiatrists, nurses and physiotherapists to have the highest burnout, all of them only assessed a single or few members of the health workers.[6,22-24] This revealed that the medical laboratory scientists were possibly the most overworked in the hospital followed by the nurses, pharmacists, medical doctors, technicians and lastly physiotherapists. This could be due to the high workload against a few laboratory scientists employed in most hospitals in Nigeria. This could also explain why the laboratory scientists had the highest proportion of reduced personal accomplishment (PA) in this study, which was statistically significant (p=0.018).

When examining burnout subdomains among healthcare workers, the prevalence of high EE in our study was lower than the 39.1% reported by Lasebikan *et al*., whereas the prevalence of high DP and reduced PA was higher than the corresponding rates of 29.2% and 40% reported among nurses in a Nigerian general hospital.[24] Similar pattern was reported by Radman *et al.* among Yemeni doctors where high EE was 63.2%, high DP was 19.4% and reduced PA was 33%.[4] Shanafelt *et al.* also reported a prevalence of 37.9%, 29.4% and 12.4% for EE, DP and reduced PA respectively, among US physicians.[19] The low EE in this study could be due to higher preponderance of male healthcare workers since evidence has shown that women are more emotionally exhausted than men, while men are more depersonalized than women in male-typed occupations like most health care profes-

Table 2. Burnout components among the respondents (N=224).

Variables	Frequency (%)
Overall burnout	
No	172 (76.8)
Yes	52 (23.2)
Emotional Exhaustion (EE)	
Low	150 (67.0)
Moderate	42 (18.8)
High	32 (14.2)
Depersonalization (DP)	
Low	85 (37.9)
Moderate	63 (28.2)
High	76 (33.9)
Personal Accomplishment (PA)	
Low	127 (56.7)
Moderate	36 (16.1)
High	61 (27.2)

Table 3. Association between Socio-demographic factors and burnout components

Variables	High EE (%)	p	High DP (%)	p	Low PA (%)	p
Age (years)						
<20	0 (0.0)	0.677*	0(0.0)	0.294*	3 (100)	0.514*
20-40	21 (13.5)		58 (37.2)		89 (57.1)	
>40	11 (16.9)		18 (27.7)		35 (53.8)	
Sex						
Male	16 (13.3)	0.878	39 (32.5)	0.632	68 (56.7)	0.861
Female	16 (15.4)		37 (35.6)		59 (56.7)	
Religion						
Islam	28 (14.7)	0.067	64 (33.5)	0.862	108 (56.5)	0.773
Christianity	4 (12.1)		12 (36.4)		19 (57.6)	
Marital status						
Single	8 (12.5)	0.411*	23 (35.9)	0.531*	37 (57.8)	0.623*
Married	24 (15.4)		51 (32.7)		88 (56.4)	
Separated/divorced	0 (0.0)		2 (66.7)		1 (33.3)	
Family type						
Monogamous	26 (16.5)	0.671*	47 (29.0)	0.450	94 (58.0)	0.195
Polygamous	6 (10.2)		28 (47.5)		31 (52.5)	
Educational level						
Primary	0 (0.0)	0.801*	0 (0.0)	0.609*	1 (100)	0.398*
Secondary	0 (0.0)		1 (25.0)		1 (25.0)	
Tertiary	31 (14.7)		73 (34.6)		118 (55.9)	
Monthly income (USD)						
<53	0 (0.0)	0.142*	7 (38.9)	0.453	10 (55.6)	0.007**
53-105	2 (10.0)		9 (45.0)		5 (25.0)	
106-158	16 (50.0)		14 (43.8)		6 (18.8)	
>158	96 (62.3)		46 (29.9)		24 (15.6)	

Pearson chi square test, *Fisher's exact, **Statistically significant. EE, Emotional Exhaustion; DP, Depersonalization; PA, Personal Accomplishment

sions.[25] Also, the higher prevalence of increased DP and reduced PA in this study is not surprising, since Lasebikan's and Radman's studies were on only nurses and doctors respectively, as compared to this study on all healthcare workers. The low burnout in the area of reduced PA among US physicians was attributed to the high rate of problematic alcohol use, broken family and suicidal ideation,[19] all of which were absent among the participants in our study. Similar to our study findings, the high prevalence of burnout in the three domains was attributed to the heavy workload, stressful call duty and poor remuneration among resident doctors in Lagos State Teaching Hospital, Southwestern Nigeria.[26]

There was a significant association (p=0.007) between monthly income and burnout in the area of reduced PA, such that healthcare workers earning below ₦ 30,000 (53 USD) per month had the highest level (55.6%) of reduced PA. This could be because low income against high financial responsibilities will lead to poor job performance and satisfaction, and consequently high risk of burnout. This finding was similar to the report among nurses in Ibadan, Southwestern Nigeria, where those with poor wages had the worst burnout across the three components.[24] Similar finding was also reported among Physiotherapists in Nnewi, Southeastern Nigeria, where those with poor renumeration had the highest mean

Table 4. Association between Socio-demographic factors and burnout components

Variables	High EE (%)	p	High DP (%)	p	Low PA (%)	p
Year of practice (years)						
<5	8 (13.3)	0.827	19 (31.7)	0.604	40 (66.7)	0.585
5-10	13 (15.7)		34 (41.0)		42 (50.6)	
>10	11 (13.9)		23 (29.1)		43 (54.4)	
Ave. time spent to get to work daily (minutes)						
<15	9 (15.3)	0.723	21 (35.6)	0.829	32 (54.2)	0.488
15-30	13 (14.6)		33 (37.1)		54 (60.7)	
>30	10 (13.2)		22 (28.9)		41 (53.9)	
Smoking						
No	29 (13.4)	0.088*	70 (32.4)	0.057*	123 (56.9)	0.781*
Ex-smoker	3 (60.0)		4 (80.0)		3 (60.0)	
Currently smoking	0 (0.0)		2 (66.7)		1 (33.3)	
Alcohol						
No	0 (0.0)	0.081*	3 (60).0	0.326*	3 (60.0)	1.000*
Yes	32 (14.6)		73 (33.3)		124 (56.6)	
Exercise						
No	11 (16.4)	0.011**	26 (38.8)	0.098*	39 (58.2)	0.076*
Not regular	14 (11.2)		34 (27.2)		71 (56.8)	
Regular	4 (12.5)		16 (50.0)		17 (53.1)	
BMI (kg/m^2)						
Underweight	0 (0.0)	0.495	1 (50.0)	0.737	2 (100.0)	0.496
Normal	9 (11.5)		24 (30.8)		46 (59.0)	
Overweight	13 (18.8)		23 (33.3)		35 (50.7)	
Obese	10 (13.3)		28 (37.3)		44 (58.7)	
High blood pressure						
No	3 (15.0)	0.732*	7 (35.0)	0.667	8 (40.0)	0.162
Yes	29 (14.2)		69 (33.8)		119 (58.3)	

Pearson chi square test, *Fisher's exact, **Statistically significant

Table 5. Relationship between healthcare professions and burnout components.

Variables	High EE (%)	p	High DP (%)	p	Low PA (%)	p
Occupation		0.253*		0.141*		0.018**
Doctor	6 (10.5)		16 (28.1)		31 (54.4)	
Pharmacist	1 (6.3)		4 (25.0)		7 (43.8)	
physiotherapist	1 (25.0)		0 (0.0)		2 (50.0)	
Lab scientist	1 (14.3)		2 (28.6)		5 (71.4)	
Nurse	21 (19.1)		39 (35.5)		70 (63.6)	
Technician	2 (12.5)		10 (62.5)		9 (56.3)	
Clinical assistant	0 (0.0)		4 (44.4)		2 (22.2)	
Attendant	0 (0.0)		1 (50.0)		0 (0.0)	

*Fisher's exact, **Statistically significant.

for EE and DP.[27] A narrative review by De Hert in Belgium also identified imbalance in the effort (work demand, responsibility and time pressure) and rewards (salary/wages, promotion and job security) as a significant risk factor for burnout among health workers.[28]

Exercise also had a significant association with burnout in the area of EE (p=0.011) such that the physically active (regular on exercise) health workers had a lower prevalence of burnout (12.5%) as compared to the inactive respondents (27.6%). This is consistent with the findings in the literature that aerobic exercise such as running, promotes recovery for the neurological and cognitive systems thereby, reducing mental exhaustion and burnout.[29] A meta-analysis in Germany also reported that consistent evidence suggests that physical activity constitutes an effective medium for reducing burnout.[30] Our study has some limitations. The Maslach Burnout Inventory (MBI) focuses on burnout related to the general performance of work rather than on relationships at work thereby, de-emphasizing human relationships.[20] Hence, further studies should consider modified survey tools that will assess personal, work-related and client-related burnout. A descriptive cross-sectional study of this type cannot establish causality between burnout and the selected factors; thus a longitudinal study is required to test and confirm these findings. Similarly, generalization of the findings in this study should be done with caution.

Despite these limitations, the data generated from this study may contribute to scientific evidence on this subject matter. Since there are limited published data on burnout among healthcare workers, especially in the Northern Nigeria; this might form the basis for advocacy towards screening for burnout among staff in the healthcare settings.

Conclusions

The prevalence of burnout among health workers in this study was high, although within the global reported range. Hence, interventions to reduce burnout among healthcare workers should consider improved staff welfare and regular exercise as important risk factors. Also, the number of laboratory scientists should be increased in most hospitals in Nigeria to reduce the rate of burnout among them. Based on the multi-dimensional impact of burnout syndrome, further study is needed to develop personal, organizational, and societal strategies to address this problem.

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