

The Socio-Demographic Characteristics and Prevalence of Occupational Health Hazards Among Healthcare Workers in Tertiary Health Institutions in Imo State, Nigeria

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Abstract:

This study was carried out to determine the socio-demographic features and prevalence of occupational health hazards among healthcare workers in tertiary health institutions in Imo State, Nigeria. The study employed descriptive survey research design. In Imo State, a total of 350 health personnel were selected from tertiary health institutes. Data were acquired using structured questionnaire and observational checklist. Validity and reliability of the instruments were determined before data collection. Obtained data were analysed using descriptive and inferential statistical approaches. The study demonstrated the significant incidence of occupational health hazards among healthcare workers with the total prevalence rate of 41.1%. The largest percentage was for psychosocial dangers (38.9%) followed by physical hazards (28.5%), biological hazards (16.7%), chemical hazards (8.3%), explosive hazards (4.9%) and electrical hazards (2.8%). The study therefore found that occupational health hazards are still quite frequent among health care workers at tertiary health institutions in Imo State. The study advocates continued availability of personal protective equipment (PPE) and enforcement of PPE use among health care professionals. Also, the occupational health and safety training and immunisation of health care workers against hepatitis infections and other communicable illnesses should be routine and prioritised to mitigate health hazards in the workplace.

Keywords: Prevalence, Occupational Health Hazards, Socio-Demographic Characteristics, Healthcare Workers, Tertiary Health Institutions, Imo State, Nigeria

Introduction

Occupational hazards are potential dangers, risks or threats to the health, safety and well-being of workers that may result from workplace activities, job obligations or environmental factors linked with their occupation. The nature of their employment exposes HCWs to a range of physical, chemical, biological, ergonomic and psychosocial hazards that can lead to severe health consequences, making them especially susceptible to occupational hazards [1].

Globally, the COVID-19 pandemic has further emphasised the susceptibility of health-care personnel and has highlighted the critical need for appropriate occupational safety measures in health-care settings [2]. As a result, biological hazards such as tuberculosis (TB), hepatitis B virus (HBV), human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), severe acute respiratory syndrome (SARS) and other infectious diseases have become a major focus of occupational health research and workplace safety programmes. Healthcare professionals are generally exposed to biological, physical, chemical, ergonomic and psychosocial dangers in the course of providing health care services to patients.



Occupational health hazards can also be characterised as situations in the workplace that may predispose workers to illness, injury or exposure to toxic substances and unsafe conditions. These hazards are in the form of physical, chemical, biological, mechanical, psychological or ergonomic concerns. The effects of occupational hazards are injuries, impairment, disease conditions, low productivity, economic losses, absenteeism and psychological anguish among the workers. Engineering controls, administrative controls, use of personal protective equipment (PPE), substitution, correct ventilation, workplace monitoring, and enforcement of occupational health legislation are essential measures for minimising workplace dangers [3].

The health care sector continues to be one of the fastest expanding job sectors in the world, employing millions of workers. Women make up over 80% of the healthcare workforce. Healthcare professionals are subject to many occupational dangers such as needle-stick injuries, musculoskeletal diseases, workplace violence, stress, infections, and chemical exposures. These concerns relate to healthcare personnel working in hospitals, community healthcare settings, general practice clinics and private healthcare businesses. Occupational dangers can also affect personnel in allied sectors such as pharmaceutical businesses and diagnostic laboratories [4].

Health care facilities are locations of work and delivery of health care. Over 59 million health-care professionals in health facilities are routinely exposed to a range of occupational hazards worldwide. The biological dangers typical of the industry are tuberculosis, hepatitis, HIV/AIDS, and SARS. Chemical dangers include exposure to ethylene oxide, anaesthetic gases, disinfectants such as glutaraldehyde, cytotoxic medicines. Radiation, excessive loudness, slips and falls, and injuries from sharp items are physical risks. These psychosocial dangers include work-related stress, shift work, burnout, workplace violence and emotional weariness. Additionally, healthcare workers are exposed to fire and explosion threats from oxygen cylinders, alcohol-based sanitisers and electrical hazards from malfunctioning or exposed electrical equipment [5].

Poor health has an impact on the work performance, productivity, efficiency and quality of patient care of the health care personnel. Occupational illnesses and injuries also contribute to absenteeism, health care expenses and risks to co-workers and patients. Such as reducing exposure to hazardous chemicals and infectious agents by engineering controls, administrative rules and adequate use of PPE [6]. Different preventative strategies have been advocated to limit occupational hazards among health care professionals. Considering the level of occupational risks exposed to health care professionals and the implications to public health, this study was conducted to examine the occupational health hazards among health care workers in tertiary health institutions in Imo State, Nigeria. The study aims to contribute towards better safety practices in the workplace and to highlight the need of occupational health protection measures, especially the effective utilisation of PPE among healthcare personnel [7].

Healthcare personnel face a variety of workplace hazards, including biological and chemical hazards and mechanical, physical and psychological concerns. Biological dangers include tuberculosis, hepatitis infections, HIV/AIDS and SARS, while chemical hazards include exposure to ethylene oxide, anaesthetic gases and glutaraldehyde. Physical hazards include radiation, noise, slips, falls, and injury from medical equipment. Psychosocial hazards include stress, workplace violence, and shift-related exhaustion [8].

The consequences of these dangers include injury, disability, loss of production, disease incidence, economic hardship, and even death [9].

Therefore health care workers should be protected in the workplace like in high-risk sectors such as mining and construction industries. Occupational safety measures include engineering controls, administrative controls, personal protective equipment, workplace monitoring, proper ventilation, and enforcement of occupational safety legislation, all of which are crucial to minimising workplace dangers [10]. This study was done to assess the occupational health hazards among healthcare professionals in tertiary health institutions in Imo State, Nigeria recognising the need to protect healthcare workers.

Materials And Method

Study Design

A descriptive survey design was used for this work to determine the occupational hazards of some health care workers in tertiary health institutions in Imo State.

Study Area

The study area comprises of three geopolitical zones of Imo State i.e Owerri zone, Orlu Zone and Okigwe zone. Owerri geographical zone harbors the state capital.

1. Federal University Teaching Hospital Owerri
2. General Hospital Orlu
3. General Hospital Okigwe

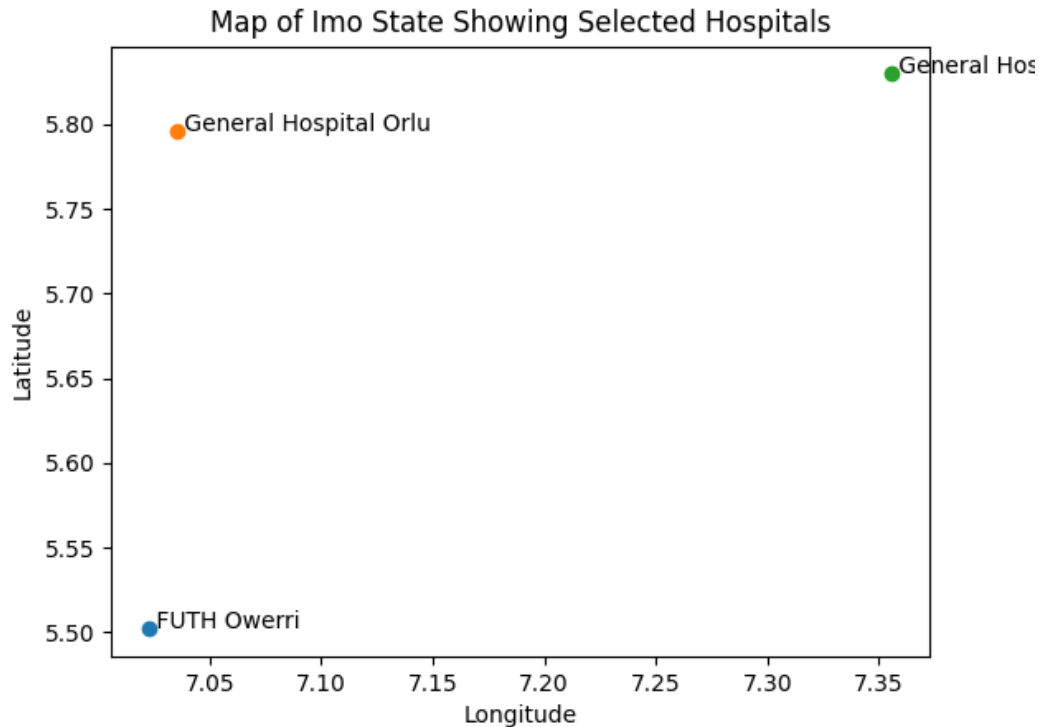


Figure 1: Map of Imo State showing Federal University Teaching Hospital Owerri, General Hospital Orlu, and General Hospital Okigwe.

POPULATION OF STUDY

The target population comprises the number of accessible health care workers in three tertiary health institutions in Imo state. There is a total of 3520 staff in the three tertiary health institutions viz Federal university teaching hospital Owerri Imo state (2500), General hospital Okigwe Imo state (150) and Imo state University teaching hospital orlu Imo state (870)

SAMPLE SIZE AND SAMPLING METHODS

The sample size of 350 healthcare workers was determined.

INSTRUMENT FOR DATA COLLECTION

Questionnaire and Observations checklist were used

The required primary and secondary data were collected using questionnaires, field observation, and formal and informal interviews. The questionnaire was divided into sections according to the study objectives

VALIDITY OF INSTRUMENT

Face and content validity methods were used

Test items were developed to include variables that were observed during the study which were types of job hazards among health care workers, effects on health and productivity and preventive measures. The instrument was taken to the project supervisor for correction and to ensure that the questions are in line, consistent and relevant with the objective of the study.

RELIABILITY OF INSTRUMENTS



The reliability of the instrument was tested with Test – Retest method, whereby ten of the questionnaire was given to selected staff outside of the study population and after 3 days interval, it was repeated on the same staff. The results of the Test – Retest was compiled and analyzed using Pearson's project Moment Correlation coefficient to ascertain the reliability coefficient of 0.71.

ETHICAL CONSIDERATION AND INFORMED CONSENT

Ethical clearance was sort and obtained from Imo State University ethical committee and management. Informed consent was obtained from all the participants and participation was made voluntary.

DATA COLLECTION

A letter of identification was presented to the management of the tertiary health institutions for permission to collect necessary information from relevant staff and significant others. The questionnaires were shared among the relevant staff interviews and personal observations checklist made to obtain pertinent primary and secondary data for the study.

METHOD OF DATA ANALYSIS

The collected data was organized and analyzed using descriptive and inferential. Descriptive statistics include construction of frequency, percentage and mean as a useful summary statistics appropriate for data analysis.

RESULTS

Distribution for Socio-demographic Characteristics

There were in all 350 health workers that participated in the study. Their socio demographic characteristics distribution (Table 4.1) indicate that mmore than a quarter (26,6%: n=93) were between 36 -45 years old while up to one fifth of the group (20.3%, n=71) were between 26 -45 years. The youngest age group (≤ 25 years) consists of 15.7% (n=55) while the oldest age group make up 16% (n=56).were below 25 years Clear majority of the participants (71.4%, n=250) were females while the remaining 27.1% (n=95) were males. More than half (54.3%, n=190) were married and 22.9% (n=80) were singles. They were predominantly Christians (97.4%, n=341) and more than half have up to tertiary level of education level (58.6%, n=205). Similarly, more than half were nurses (55.4%. n=194). Laboratory workers were 96 (27.4%) in all, doctors were 25 (7.1%) and 23 (6.6%) respectively.

Table 1 Distribution for Socio-demographic Characteristics of Healthcare Workers

Socio-demographics	Frequency (n=350)	Percent (%)
Age		
≤ 25 yrs	55	15.7
26-35yrs	71	20.3
36-45yrs	93	26.6
46-55yrs	75	21.4
55yrs+	56	16.0
Total	350	100.0
Gender		
Male	95	27.1
Female	250	71.4
Total	345	98.6
Marital Status		
Single	80	22.9
Married	190	54.3
Separated/Divorce	35	10.0

Widowed	45	12.9
Total		
Religion		
Christianity	341	97.4
Other	9	2.6
Total	350	100.0
Education Level		
Primary	23	6.6
Secondary	122	34.9
Tertiary	205	58.6
Total	350	100.0
Work cadre		
Doctor	25	7.1
Nurse	194	55.4
Lab workers	96	27.4
Nursing Assistants (Auxiliary)	23	6.6
Other	12	3.4
Total	350	100.0

Table 2 Rate of Occurrence of Occupational Hazard among the study group

Figure 1 is a pie chart describing the rate of occurrence of occupational hazard among the study group. It shows that among the participants, a total of 144 (41.1%) reported that they have experience occupational hazard at their place of work within the last 5 years, while 206 (58.9%) indicated that they never had any occupational hazard in the last 5 years. Therefore the overall reported rate of occupational Hazard was found to be 41.1% (144 out of 350) among the study group, which is quite high.

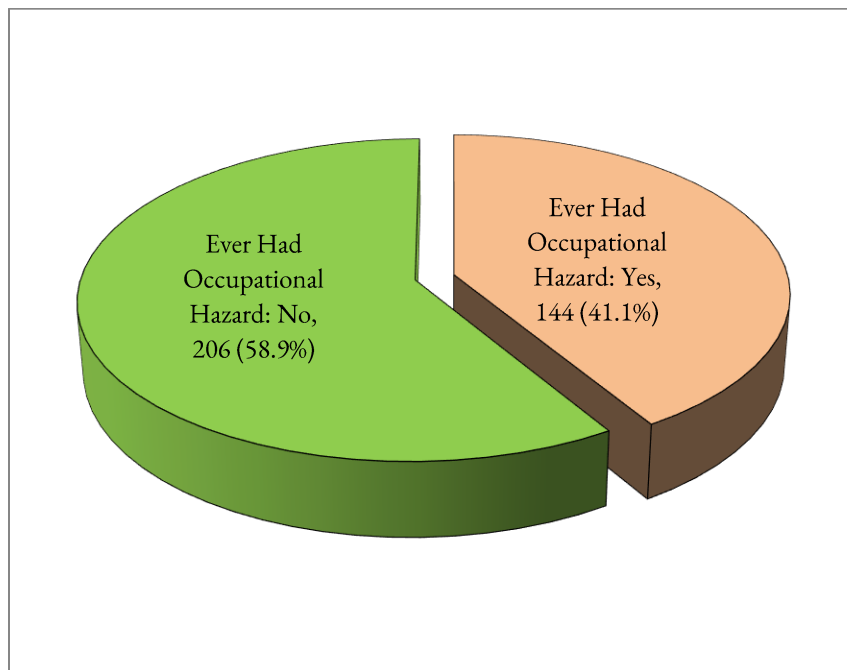
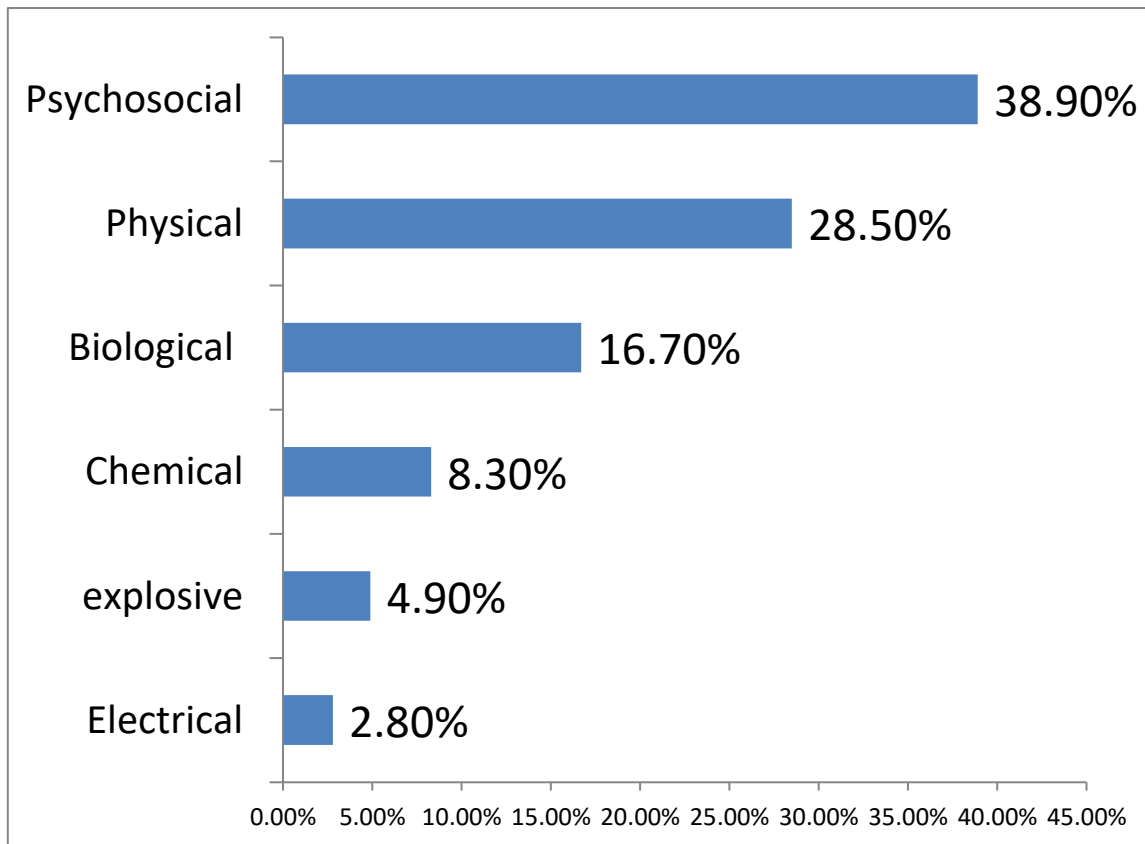


Fig 1 Reported rate of Occurrence of occupational Hazard among the study group

Figure 4.2 is a comparative bar chart representing the distribution for different types of occupational hazards reported among health care workers studied. Among the participants that recorded occupational hazard, 38.9% (n=56) reported having psychosocial hazard, 28.5% (n=41) reported having physical hazard and 16.7% (n=24) reported having biological hazard. Others include 8.3% (n=12) for chemical hazard, 4.9% (n=7) for explosive hazard and 2.8% (n=4) for electrical hazard.



DISCUSSION

The survey results showed that 41.1% of health workers had exposure to occupational health hazards, indicating a significant prevalence. This implies that around half of the health care staff in tertiary institutions in Imo State are at danger of health and productivity in the workplace[11].

This finding is in line with a number of research carried out in Nigeria and other developing countries which reported high level of exposure to occupational hazards among health personnel. For example, a study in tertiary institutions in Nigeria had prevalence rates between 30% to 60%, showing that this is a persistent occupational health problem in the health care sector. Similarly, studies carried out in sub-Saharan Africa have shown that healthcare personnel are among the most vulnerable occupational categories because of the nature of their work environment[12].

However, the reported prevalence in this study seems to be comparatively greater in comparison to the data from industrialised countries. Higher income countries have lower exposure rates due to tougher occupational safety rules, more availability to personal protective equipment (PPE) and stronger institutional arrangements. Therefore, the increased frequency in this study may be due to variables such as poor safety policies, limited resources, poor implementation of occupational health standards and high patient-to-worker ratios[13].

This research has major implications, as high exposure to occupational risks can result in decreased productivity, increased absenteeism, work discontent and eventually impact the quality of patient care results.

The high occurrence indicates the strenuous and risky character of healthcare environments especially at tertiary institutions with complex medical procedures, significant turnover of patients and emergency care. The conclusion indicates that occupational hazards are not isolated episodes but systemic problems ingrained in the healthcare delivery system[14]. Several variables may be responsible for the high exposure rate, including: Inadequate supply and utilisation of personal protective equipment (PPE). High workload owing to shortage of workers, Low



compliance to occupational safety measures, Low institutional focus on occupational health services[15]

The finding also highlights the difference between policy making and policy execution. There are requirements for workplace safety but enforcement appears to be lacking, so putting healthcare professionals at unnecessary risk.” This finding is in line with trends in many low- and middle-income nations where healthcare systems are commonly faced with resource constraints, therefore making workers more vulnerable to occupational hazards [16].

The most common kind of occupational hazard was psychosocial risks, which comprised 38.90% of cases. This involves stress, burnout, emotional weariness, aggression in the workplace and unhappiness with work [17].

The finding is in line with earlier research that have repeatedly indicated significant levels of psychological stress among healthcare personnel. Studies have found that healthcare workers, especially nurses and doctors, incur severe emotional and psychological stress due to long hours, heavy patient caseloads, exposure to pain and death, and lack of staff [18].

The prevalence identified in this study is comparable to those from other Nigerian studies 6,7,8,9 where psychosocial hazards are usually the most prevalent occupational concerns. Psychosocial hazards are also common in wealthy countries, but are generally addressed by systematic interventions such as counselling services, mental health programs, and better work-life balance policies [19].

The high rate found in this study may be due to: Staff shortages with increased demand Poor compensation and job unhappiness Absence of psychological support services, Exposure to distressing clinical settings, Weak institutional policies on workplace well-being. [17]. This research underscores the critical need for healthcare facilities to focus on the mental health and psychosocial assistance of staff. The second most common occupational risks are physical hazards accounting for 28.50% of the reported instances. These include exposure to noise, radiation, severe temperatures, slips and falls and musculoskeletal injuries[18].

This is consistent with previous research that indicated that healthcare personnel often suffer from physical strain owing to prolonged standing, lifting patients and repeated movement. Musculoskeletal diseases have been particularly well documented among nurses and other frontline healthcare providers [19].

The magnitude of this study is slightly higher than studies in industrialised countries. This disparity can be accounted for by: Inadequate hospital infrastructure, Lack of ergonomic equipment, Lack of training on safe handling practices Environments that are too crowded The existence of physical dangers points to the necessity for improved workplace design, current equipment and training courses in occupational safety[20].

16.70% of the respondents mentioned biological risks. These include exposure to infectious agents like bacteria, viruses and other pathogens through needle-stick injuries, contact with human fluids and airborne transmission. This is quite modest compared to past studies which indicated greater rates of biological exposure among health care workers, notably blood borne illnesses such hepatitis B, hepatitis C and HIV [21].

The comparatively lower prevalence found in the present study may indicate: Increased knowledge of infection prevention methods. Increased use of PPE and improved infection control protocols following global health crises

However, it is crucial to emphasise that reporting of biological hazards is often underreported due to stigma, fear of discrimination or absence of reporting methods. So, the real prevalence could be higher than what is reported. Biological hazards, while moderately prevalent, are one of the most dangerous occupational dangers because of their potential for severe and life-threatening repercussions.

Chemical risks represented 8.30% of cases. These dangers stem from exposure to sterilising chemicals, disinfectants, anaesthetic gases and laboratory reagents.

This finding is consistent with earlier research that have indicated considerably lower exposure to chemical risks among healthcare settings relative to other industries. But even low-level chemical exposure over long periods can cause cumulative health concerns such as respiratory issues, skin irritation and long-term poisoning.

This explains the comparatively low prevalence observed: Restricted use of hazardous substances in some departments, Better handling and storage techniques and Knowledge of chemical safety protocols 4.90% of responders reported explosion hazards. These dangers are commonly related with handling of gas cylinders, combustible substances and pressurised equipment[21].

This is consistent with the prior studies that have revealed that explosion-related events are rather rare in healthcare settings. But when they happen, they can have terrible repercussions.

The low prevalence indicates that such hazards are not prevalent but may be due to:

Uncontrolled Charging of Solar Batteries, Equipment in poor condition ,Improper gas storage and lack of safety training. This underscores the need of regular equipment inspections and compliance with safety procedures. Electrical dangers were the least reported, accounting for 2.80 percent of the instances. These include the danger of unprofessional solar roof panel installations, poor wiring, electrical equipment and power supply systems [22].



This finding is consistent with earlier research that have documented minimal levels of electrical risks in healthcare environments. The relatively low incidence may reflect better electrical safety procedures in academic institutions[23].

But, even a slight contact with electrical hazards can lead to major dangers including burns, shocks and fire outbreaks. Therefore, electrical systems need to be constantly monitored and maintained.

Conclusion

The study concluded that occupational health hazards were very widespread among health care workers in tertiary health institutions in Imo State. The study finds that dangers at work are still a major worry, with 41.1% of respondents reporting high exposure. The study revealed that psychosocial health hazards were the most prevalent occupational health problem among healthcare personnel in tertiary health institutions in Imo State. In the present study, psychological risks were shown to have the greatest incidence rate of 38.90%, which was higher than physical, biological, chemical, electrical and explosion-related dangers. This indicates that healthcare professionals are increasingly exposed to emotional, mental and social pressures due to the demanding nature of healthcare delivery. Psychosocial hazards are the factors in the workplace that affect negatively the psychological and emotional health of workers. These are work overload, burnout, occupational stress, bad interpersonal connections, workplace violence, emotional exhaustion, anxiety, depression, role conflict, and job discontent. This is especially true for healthcare workers in higher institutions who are exposed to long hours of work, inadequate staffing, high patient load, poor remuneration and emotionally stressful clinical responsibilities. The high frequency of psychosocial hazards found in this study could be due to the stressful healthcare environment in the tertiary hospitals of Imo State. Most tertiary hospitals suffer from shortage of healthcare personnel resulting in excessive workload among available staff. Thus, health care providers are often forced to labour under pressure, to take care of several patients at a time and work for long hours without enough rest. These factors are major contributors to mental tiredness, emotional exhaustion and burnout.

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