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An Investigation into Nigerian Healthcare Workers' Knowledge of and Compliance with Occupational Health and Safety Standards

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Abstract

The goal of this study was to find out how well Nigerian healthcare workers knew about occupational health and safety regulations and how well they followed them. The study used a descriptive and explanatory design to collect data, which included questionnaires as well as library research. The data was evaluated using frequency tables at a 5% level of significance, and the results were reported as frequency tables and percentages. Knowledge has a significant impact on healthcare workers compliance with safety and health requirements, according to the findings of the study.

Keywords: occupational health and safety, regulations, standards, knowledge, compliance.

1. Introduction

Infections and diseases is one of the most important problems in any work place worldwide. It constitutes one of the most important causes of morbidity and mortality associated with clinical, diagnostic and therapeutic procedures. Healthcare workers or employees in work places are at a high risk of injuries, infections and blood-borne pathogens as they perform their work activities. They are exposed to blood-borne infections by pathogens, sharp injuries and contacts. According to a World Health Organization (WHO) estimate, in year 2002, injuries resulted in over 16 000 occupational hazards worldwide. Recapping, disassembly, and inappropriate health and safety precautions increase the risk of injury. Developing countries where the prevalence of work-related injuries is very high, record the highest injuries too. Occupational injuries were also reported as the most common occupational health hazard in a Nigerian work place. Interventional measures have been proposed to minimize exposure of healthcare workers to infection/health hazards with the implementation of universal precautions as one of the strategies. In 1983, the United States Centre for Disease Control and Prevention (CDC) published a document that recommended occupational precautions during work hours. In 1987, the CDC recommended that regardless of workers level, occupational precautions must be strictly and consistently adhered to. These precautions include set of precautions devised to prevent transmission of all known air-borne pathogens, blood-borne pathogens and general work accident during the cause of their work. In 1996, the CDC included the universal precautions in a new prevention concept the so-called "safety precautions." The "safety precautions," which are devised to be used for all workers or staff in workplaces regardless of their place of work, work level and status. The fact that "safety precautions" are recommended for all workers, regardless of their presumed work level, is important when handling work equipment and devices that are contaminated or suspected of contamination, and in situations of contact risk with contaminated surfaces. Safety precautions in work places include hand washing; use of barriers (e.g., gloves, gown, cap, mask); care with devices, equipment and clothing used during care; environmental control (e.g., surface processing protocols, health service waste handling); adequate discarding of sharp instruments including needles; and patient's accommodation in accordance with requirement levels as an infection transmission source. Another important measure is adequate professional immunization, as this guarantees anticipated protection against immune-preventable diseases.

The level of practice of universal precautions by healthcare workers may differ from one type of worker to another. The differences in knowledge of universal precaution by healthcare workers may be influenced by their different type of training. Various studies carried out among different categories of healthcare workers found that exposure to contaminated surfaces, materials or injurious objects was approximately 9.3%. A similar study conducted in Ibadan found a higher exposure rate of 25.1%. Several factors ranging from personal to organizational causes were responsible for non-adherence to the basic principles of universal precautions among healthcare workers. Universal precaution awareness education has not been pronounced among healthcare workers, particularly in developing countries. According to the most recent guideline published by the Healthcare Infection Control Practices Advisory Committee (HICPAC) in 2007, it has been recommended to apply safety precautions for all people during working hours. These safety precautions include but not limited to hand hygiene, use of personal protective equipment, and instrument processing. In many studies, compliance with safety precautions among healthcare workers was reported to be inadequate with regard to eye and nose protection, glove use when required, and washing hands, use of face masks. According to the literature, major reported factors that affect compliance with safety precautions include but not limited to lack of understanding and knowledge among healthcare workers on occupational safety precautions, shortage of time to implement the precautions (work overload), limited resources, lack of proper training, uncomfortable equipment, skin irritation, forgetfulness, distance from the necessary facilities, and insufficient support from management in creating a facilitating work environment. Moreover, certain socio-demographic variables such as age, sex, job category, marital status, working site in the hospital and work experience were found to be associated with compliance with occupational safety precautions. Interventions tried in other countries to increase the compliance of healthcare workers with occupational safety and health precautions include but not limited to in-service training on occupational safety precautions beyond ordinary level, pre-service training by inclusion of occupational safety and health precautions in educational curricula, and availability of personal protective equipment. This study was therefore conducted to assess the knowledge of, and compliance with safety and health standards among healthcare workers in Nigeria.

The need for infection control in work places is borne out of the need to prevent work associated infections or hazards. Occupational hazards or infections can be defined as an infection or hazard occurring to a worker during the process of his/her work. It contributes to significant morbidity and mortality in both developed and resource-poor countries. The prevalence of occupational hazards in developing countries is somewhat higher with up to 19% prevalence of occupational hazards or infections among workers. In the United States, the added expenditure as a result of occupational hazards or infections is in excess of \$4.5 billion, while in the United Kingdom, a mortality rate of 13% and a prolongation of hospital stay by a factor of 2.5 was reported. Even with the paucity of data in sub-Saharan Africa, occupational hazards or infections remain a major cause of preventable morbidity and mortality in

developing countries where work infection rates are relatively higher due to poor occupational hazard and infection control practices. To curtail this menace, it has become necessary to implement infection or hazard control measures so as to reduce morbidity and mortality that comes with the occupational hazards or infections. Safety guidelines with various components from evidence-based care have been outlined to ensure global safety among healthcare workers for effective infection control especially in Nigeria where work related hazards or infection has been on the rise. Many studies have shown disparity in knowledge of infection control based on a cadre of healthcare workers and their years of experience.

2. Components of Safety Precautions

Occupational infection control issues that surface during outbreak investigations frequently point to the need for additional or strengthened infection control recommendations to safeguard workers (CDC, 2005).

Healthcare workers should consider that everyone is potentially infected or inoculated with an organism that could be transmitted in the workplace, according to Gbepwi (2004), and should use the following infection control techniques while providing health care.

Hand hygiene, the use of barriers, such as gloves, gowns, masks, and caps, depending on the anticipated exposure, and care with devices, equipment, clothing, and textiles used during care, as well as items in the patient's environment likely to have been contaminated with infectious body fluids, are all components of safety precautions (Heinrich, 2000).

Glanz *et al.* (2005) acknowledge that patient placement for healthcare workers, proper and careful waste handling, adequate disposal of sharp instruments, including needles, for healthcare workers, correct sterilization and office sanitization processes, appropriate use of tools, vaccination, health education, and post-exposure prophylactic protocol, are examples of safety precautions.

A. Hand Hygiene

Hand hygiene has been recognized as the most significant practice in minimizing the spread of infectious agents in work settings, according to Twitchell (2003), and is a crucial component of safety and health measures. Hand hygiene includes:

Hand washing with both plain or antiseptic-containing soap and water and the use of alcohol-based products (gels, foams or rinses), which do not require the use of water. Hand washing with non-antimicrobial soap and water or with antimicrobial soap and water is recommended if contact with contaminated surfaces is likely to have occurred. To prevent infection of clean hands by environmental surfaces or transmission of pathogens from contaminated hands to surfaces, avoid needless touching of surfaces that are adjacent to suspected sick persons.

Hand hygiene should be performed

- Before having direct contact with work equipment and appliances.
- After contact with work equipment, appliances and objects and
- After removing gloves.

B. Personal Protective Equipment

Personal protective equipment (PPE) is a term that refers to a set of barriers that can be used alone or in combination to protect the mucous membranes of the airways, skin, and clothing from pathogenic pathogens (Twitchell, 2003).

Diro and Alemu (2008) went on to say that the type of personal protective equipment used is determined by the nature of the worker's employment. Placing a physical, mechanical, and chemical barrier between microbes and people is a highly effective way to stop illnesses from spreading and thereby reduce risks. Hand gloves, facemasks, goggles/eye or face shields, gowns/aprons, caps, and boots are all part of the personal protective equipment.

The following personal protective equipment are recommended for implementing standard safety and health precautions:

Hand Gloves: The use of gloves is a key element of personal protective equipment.

Glove Policies

Gloves are recommended to be worn:

- To reduce risk of personnel acquiring infections from contaminated surfaces and from co-workers.
- To prevent transmission to workers from infected patients.
- To reduce transient contamination of the hands of personnel by flora that can be transmitted from one worker to another (Reda *et al.*, 2008).

Gloves should be used when it is reasonable to expect contact with surfaces as part of the safety and health precautions (Cutter & Jordan, 2004). Removable medical examination gloves or reusable utility gloves should be worn when cleaning the environment, office garbage, or work equipment. To avoid hand contamination, Lacerda (2003) recommended that gloves be removed following interaction with the surrounding environment (including work equipment) using suitable technique. Because this practice has been linked to the transfer of diseases, the same pair of gloves should not be worn for the treatment of more than one patient, and gloves should not be reused (Diro & Alemu, 2008).

Gowns/Aprons

Gowns/aprons should be suitable for safeguarding the skin and preventing soiling or contamination of garments while working, particularly if contact with contaminated surfaces is expected (Reda *et al.*, 2008). It should be removed and hand hygiene performed before leaving contaminated areas or environment.

C. Mouth, Nose and Ear Protection

During procedures and occupational activities that are likely to cause splashes or sprays of blood, bodily fluids, secretions, or excretions, personal protective equipment should be worn to protect the mucous membranes of the eyes, nose, and mouth. Masks, goggles, face shields, and combinations of these should be chosen according to the requirements of the work task at hand (Juan *et al.*, 2004).

For maximum safety, Juan *et al.* (2004) believe that face masks and goggles (in addition to gloves and gowns) should be used during high-risk jobs, particularly in the medical field.

D. Care of Work Environment

According to Trim *et al.* (2003), policies and processes for routine and targeted environmental cleaning should be implemented. Surfaces that are often touched, such as door knobs and surfaces in and around public restrooms, should always be cleaned and disinfected. Policies and processes for cleaning and sanitizing the office or work environment at regular intervals should be implemented.

Multi-purpose electronic equipment, particularly those used by office visitors, and mobile devices should be incorporated in policies and procedures to prevent contamination and ensure that they are cleaned and disinfected on a regular basis (Diro & Alemu, 2008).

E. Safe Work Waste Disposal System

There are four kinds of wastes found in healthcare facilities:

- General waste e.g. papers, which should be incinerated.
- Clinical or medical wastes e.g. blood/body fluids, organic waste, e.g. human tissue, placenta and body parts and sharps. These should be buried.
- Chemical or hazardous waste – toxic or poisons e.g. cleaning products, cytotoxic drugs and radioactive compounds. These should be buried in a landfill for hazardous waste.
- Sharp objects should be discarded in sharps containers which should be puncture resistant and incinerated or buried when three-quarter full.

E. Immunization

Consequent upon their interaction with patients or infective materials from patients, many healthcare workers are at risk of exposure and possibly transmission of several vaccine-preventable diseases, especially during this era of many infectious diseases like the COVID-19 (Twitchell, 2003). The most effective usage of immunizing agents protects workers and tourists from becoming infected as a result of exposure. A well-coordinated immunization program might significantly reduce the number of vulnerable workers in diverse workplaces, as well as the risk of spreading vaccine-preventable diseases to other workers and visitors (Lacerda, 2003). Any work facility that provides direct contact with visitors is encouraged to formulate a comprehensive immunization policy for all its workers.

Adinma *et al.* (2009) pointed out that on the basis of documented nosocomial transmission, healthcare workers are considered to be at significant risk of acquiring or transmitting hepatitis B, influenza, COVID-19, mumps, rubella and varicella, all of which are vaccine-preventable and for which immunization is strongly recommended.

3. Review Of Previous Research Studies on Knowledge, Attitude and Practice of Safety and Health Precautions and Standards

Level of Knowledge

Knowledge, according to Gbefwi (2004), is a requirement for optimal behavioral change because it pertains to the memory of information. It is the most crucial weapon for bringing about change. The cognitive behavior theory holds that conduct is controlled through cognition and that knowledge is essential but not sufficient to generate behavior change (Parmeggiani *et al.*, 2010).

In their studies, Saroh *et al.* (2006) also pointed out that knowledge is influenced by a variety of circumstances. As a result of technological developments and the advent of new diseases and concepts in disease prevention or management, healthcare workers' knowledge tends to diminish or become outdated over time following their basic training, according to research. In comparison to their younger, freshly trained colleagues or those who have received continuous medical education, more experienced nurses who have not undergone continuous medical education are likely to have worse knowledge. The value of training and education in creating awareness among healthcare staff, as well as enhancing adherence to excellent clinical practice, has been discovered (Heinrich, 2000).

It is crucial to highlight, however, that despite training and instruction, understanding and adherence to taught technique may still be lacking due to low information retention. Healthcare workers' knowledge of universal precaution may be modified by their diverse types of training (Stein *et al.*, 2003).

Vaz *et al.* (2010) conducted a cross-sectional study survey in September and October 2007 with the goal of assessing the knowledge, awareness, and adherence of universal precautions among workers at the University Hospital of the West Indies (UHWI) in Jamaica. To examine their knowledge, awareness, and practice of universal precautions, 200 healthcare personnel, including medical doctors, medical technologists, nurses, and porters, were given a 28-item self-administered questionnaire. Almost two-thirds of the respondents, which represented 64.0 percent of the study population were very conversant with universal precautions, with females (representing 75.4 percent) outnumbering males (representing 42.9 percent). Ninety percent of nurses, eighty percent of doctors, and seventy percent of medical technologists were well familiar about universal precautions. More respondents (92.9 percent) who had worked in the healthcare industry for 16 years or more reported a high level of awareness of standard precautions than those who had worked for less than five years (39.5 percent). A total of 57 (28.5%) of the healthcare workers said they were unaware of universal precautions, with more males (48.6%) than females (17.7%) falling into this category. Fifteen (representing 7.5%) of those polled had a basic understanding of universal precautions. Three-quarters of the women (75.4%) and 42.9 percent of the males in the study were extremely knowledgeable on the subject of universal precautions. There was a substantial correlation between awareness of standard precautions and occupation; more nurses (90.0%), medical doctors (88.0%), and medical technologists (70.0%) were very informed of universal precautions, compared to only 8.0 percent of porters. 54 persons (or 77 percent) did not know if they were immunized or not. Many characteristics were shown to be significantly associated with the level of awareness of universal precautions. The longer a healthcare practitioner worked in the field, the more probable his or her degree of awareness of standard precautions improved (Vaz *et al.*, 2010).

The fact that universal precautions have been incorporated into the nursing and medical students' curriculum at the University of the West Indies, as well as in on-the-job training protocols at the UHWI, may explain why staff

have a good understanding of them (Vaz *et al.*, 2010). The lack of this information in introductory training courses and orientation programs may be the reason for porters' lack of awareness and grasp of standard precautions.

Furthermore, Godin *et al.* (2000) noted that some of the medical workers in this study had an inadequate knowledge base, which they attributed to a lack of investment in staff training, a lack of understanding of workers' safe behavior in the clinical setting, or indifference.

The study concluded that medical doctors, medical technologists, and nurses had enough understanding and awareness of standard precaution (Vaz *et al.*, 2010). These findings show that increasing healthcare personnel understanding of blood-borne infections and universal precautions could help them employ standard precautions more effectively. Standard precautions, initial biohazard handling, safety rules, safety activities, safety equipment and materials, ongoing monitoring, and potent exposure of workers should all be covered in regular training (Vaz *et al.*, 2010).

Adinma *et al.* (2009) conducted another investigation, which was published in the Nigerian Journal of Clinical Practice in December 2009. According to the findings of the research, a cross-sectional descriptive analysis was conducted, with stratified random sampling used to determine the sample. The study's goal was to look at the understanding and practice of universal precautions among house officers and nurses in tertiary health facilities in South Eastern Nigeria, as well as the factors that influence them. A pretested, structured, self-administered questionnaire was used to gather data. EPI-Info was used to analyze the data. The majority of doctors, representing 66.6 percent, were between the ages of 26 and 30 years, while nurses, 41.1 percent, were between the ages of 40 and 50 years. Males made up 57.6 percent of doctors, while females made up 85.7 percent of nurses. Both types of respondents had a high level of knowledge of universal precautionary measures - 96.0 percent of doctors and 92.0 percent of nurses.

Although both house officers and nurses have a high level of understanding of universal precautions, adequate knowledge of universal precautions among hospital staff is an urgent prerequisite to fight infection from blood and body fluid pathogens (Adinma *et al.*, 2009).

In another study conducted by MagBoo (2002) in January 2002 at the 100-bed Armed Forces Hospital, Sharourah, a total of 104 healthcare workers were polled, with 70 nurses and paramedical staff (representing 67 percent) from various departments/wards of the hospital. When dealing with patients, these healthcare personnel were frequently exposed to blood products and needle stick accidents. A standardized questionnaire was used to collect data. The purpose of the study was explained to the respondents. The goal was to examine healthcare professionals' knowledge, attitude, and practice related biological hazards and needle stick injury prevention. EPI INFO – version 6 statistics package was used to enter and evaluate data. According to the study, 21 percent and 30 percent of healthcare workers were ignorant that human immuno-deficiency virus (HIV) and hepatitis C virus (HCV) can be transferred by needle-stick injury, respectively, while 100 percent of the subjects were aware that hepatitis B virus (HBV) can be transmitted by needle-stick injury. Only 43, representing 61 percent of the individuals were aware of universal precautionary

guidelines, and only 50 percent of the subjects knew enough about new needle devices and their safety characteristics. Healthcare workers' knowledge of the dangers connected with needle-stick injuries, as well as their usage of preventive measures, was found to be insufficient.

Ofili *et al.* (2003) published a study in the Nigerian Post-graduate Medical Journal in March 2003. The goal of the study was to determine if nurses at the Central Hospital in Benin City, Edo State, Nigeria, were aware of and used standard precautions. A total of 155 nurses took part in the cross-sectional survey. The nurses were chosen through a stratified random sampling procedure. Only 34.2 percent of nurses had heard of universal precautions, indicating that they were poorly informed about them.

Level of Compliance

Adherence to standard precautions has been demonstrated to lower the risk of exposure to blood and bodily fluids, according to Chan and Molassiotis (2002). However, there is sometimes a significant rate of non-compliance among healthcare employees, which could be related to a lack of understanding of how to effectively use protective barriers among healthcare professionals (Danchaivijitr, 1995).

Non-compliance among medical doctors and nurses is also linked to a lack of knowledge, a heavy workload, forgetfulness, workplace safety, and insights that colleagues did not share. Non-compliance among healthcare professionals may be related to their opinion that following universal precautions increases their effort, making certain equipment and/or procedures impossible to accommodate due to day-to-day clinical pressures (Cutter & Jordan, 2004).

The most important factor influencing universal precautions practice according to Adinma (2009) is the lack of provision of adequate personal protective equipment. Other factors, all of which show significant difference between doctors and nurses ($p < 0.05$), include carelessness, lack of display of universal precautions guidelines, emergency nature of the procedure, insufficient water supply, patient perceived to be at low risk of blood borne pathogens, pressure of time, universal precautions equipment interfering with technical skills. Healthcare workers may have similar training but their behavior may vary according to their perception of risks (Kermode *et al.*, 2008). Habit, lack of time, interference with operations, discomfort with personal protective equipment, shortage of supplies, carelessness, cost concerns, unexpected body fluid contact, and the danger of creating anxiety in patients are some of the reasons offered by healthcare workers for not following universal precautions (Kermode *et al.*, 2008). According to Tadese and Tadesse (2009), worker training does not always result in protection against occupational exposure. The reason for this could be that the knowledge gained does not always translate into precautionary measures in practice, or that the trainings provided are more theoretical than practical, or that there are limited sources of continual safety information. Lack of a conducive environment in the healthcare facility, such as a lack of constant running water or a scarcity of personal protective equipment (PPE), may also result in low adherence to safety precautions.

The level of practice of universal precautions by healthcare workers may differ from one type of healthcare worker to

another (Chan *et al.*, 2002). Non-compliance among healthcare professionals may differ depending on whether they operate in a rural or urban context. Eye protection compliance was found to be low among healthcare professionals in rural north India, according to a study. The needle recapping precautions were not followed by a large percentage of healthcare staff. Compliance with safety precautions was also linked to being on the job for a longer amount of time, awareness of blood-borne disease transmission, and a strong dedication to workplace safety, according to the study. According to the findings, interventions to promote compliance with safety precautions among healthcare professionals in rural north India should focus on knowledge and awareness, as well as organizational safety measures.

Michalsen *et al.* (1997) conducted a study at the University of Texas School of Public Health in Houston, Texas, on physician compliance with universal precautions. A total of 1,746 physicians were polled, with participants coming from three different geographical locations. Using a rigorous eleven-item private questionnaire that analyzed personal, work-related, and organizational characteristics, the study's goal was to discover major factors associated with both compliance and non-compliance. Compliance was observed to vary across the eleven items: it was high for some, (for example, glove use, 94 percent) and low for others (for example, sharps disposal was 92 percent, wearing protective clothing was 55 percent, and not recapping needles was 56 percent). All of the items had a poor level of compliance (31 percent to 38 percent). Non-compliant physicians were more likely to be 37 years old or older, to be under a lot of stress at work, and to be more concerned with delivering patient care than with protecting themselves. Physicians who were compliant were more likely to be educated about and trained in universal precautions, to believe that protective measures were effective, and to believe that their company or organization was committed to safety (Michalsen *et al.*, 1997).

Wilson *et al.* (2003) conducted another investigation in Abeokuta city in September 2003. The study's goal was to see how well healthcare workers in Abeokuta, Nigeria's Ogun State, followed universal precautions. Doctors, professional and auxiliary nurses, laboratory scientists, and domestic staff were among those who responded. They were chosen from public and private healthcare facilities throughout the metropolis using a multistage sampling process. The instrument was a semi-structured interviewer-administered questionnaire that examined the practice of recapping and disposing of used needles, as well as the usage of barrier devices, hand washing, and transfusion blood screening. There were 433 responders, with 211 (48.7 percent) of them being trained nurses. There were 100 men (23.3 percent) and 333 women (76.7 percent) that took part in the survey. The information from the questionnaire was coded and loaded into a computer, where it was analyzed with Epi Info 6.1 software. A third of all responders (representing 31.9 percent) said they always recapped used needles. The highest level of compliance with the non-recapping of used needles was found among trained nurses, with doctors being the worst. More than half of all responders (representing 56.5 percent) had never worn goggles during deliveries or surgeries, and less than a fifth (16.3 percent) always wore protective eyewear. Sharps containers and transfused blood screening were both

provided in plenty by the facilities investigated. Hand washing was observed by a large percentage of healthcare workers (94.6%) after handling patients. Barrier equipment was used in a variety of ways in the institutions studied. 73.9 percent of respondents said that sharps containers were always available at their workplace.

The self-report technique of assessing universal precautions practice hindered this study, as the level of compliance may have been better examined by observation. The tendency for healthcare workers to exaggerate their adherence to standard precautions may have resulted in a less negative picture than is actually the case.

It was discovered that used needle recapping is common in the healthcare facilities investigated. Nigerian healthcare workers are putting their health at risk by failing to follow universal measures. However, based on the findings of this study, universal precautions are ineffective in an environment where the number of HIV-positive people is increasing. It was suggested that training programs and other related measures be implemented to encourage healthcare workers to use protective barrier equipment appropriately at all times.

4. Methodology

Research Design

Research designs are often referred to as the structuring of investigation aimed at discovering variables and their correlations to one another, according to Heinrich (2000). In this study, the questionnaire acts as a helpful guide to the data collection endeavor. The study employed a survey research design involving the distribution of questionnaires.

Population of the Study

The population of the study consists of selected health care givers at selected healthcare facilities in Akwa Ibom State, Nigeria.

Sample Size Used for the Study

Convenience sampling technique was utilized to pick 200 healthcare workers from the overall population at designated healthcare facilities. Due to the researcher's financial strength and time limitations, this was picked.

Instrument for Data Collection

These are the methods or tools that are used to gather data from respondents. In this study, questionnaires and interviews were used as research instruments. A questionnaire is the study's primary research tool, and it is used to collect data from the sample respondents. The questionnaire is organized and includes responses to the study's questions and hypotheses.

This instrument is divided into two sections: Section A and Section B. The respondents' personal information is contained in Section A, whereas Section B contains a research statement based on the study question and hypothesis. Each respondent is shown a number of options or alternatives from which to choose, and they must select or tick one of them.

Reliability and Validity of Instrument

Validity relates to how well a research instrument measures what it was supposed to test, whereas reliability refers to a measuring instrument's accuracy and precision. The study's reliability and validity were determined using the test-retest method. In order to be a useful tool, the questions in the questionnaire must be clear (that is, the questions should not be too complex). Following the questionnaire, a group of respondents will be interviewed to see if their opinions on the subject are trustworthy.

5. Result And Discussion

Table 1: There is a Significant Impact of Knowledge on Compliance with Safety and Health Standards among Healthcare Workers in an Organization.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	100	50.0	50.0	50.0
	agree	50	25.0	25.0	75.0
	undecided	10	5.0	5.0	80.0
	disagree	20	10.0	10.0	90.0
	Strongly disagree	20	10.0	10.0	100.0
	Total	200	100.0	100.0	

Source: field survey, January, 2022

Table 1 displays the views of respondents who believe that knowledge has a substantial impact on healthcare workers' compliance with safety and health regulations. There is a considerable impact of knowledge on compliance with safety and health requirements among healthcare workers in an organization, according to 100 respondents (50.0 percent). There is a considerable impact of knowledge on compliance with safety and health requirements among healthcare workers in an organization, according to 50

respondents (25.0 percent). Undecided respondents accounted for 5.0 percent of the total. Twenty respondents (10.0 percent) disagree that knowledge has a significant impact on compliance with safety and health standards among healthcare workers in an organization, while the remaining twenty (10.0 percent) strongly disagree that knowledge has a significant impact on compliance with safety and health standards among healthcare workers in an organization.

Table 2: Healthcare Workers Are Well Educated About Occupational Safety and Health Precautions in Nigeria.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	100	50.0	50.0	50.0
	agree	60	30.0	30.0	80.0
	undecided	5	2.5	2.5	82.5
	disagree	20	10.0	10.0	92.5

	strongly agree	15	7.5	7.5	100.0
	Total	200	100.0	100.0	

Source: field survey, January, 2022

Table 2 indicates how healthcare workers in Nigeria are highly educated about occupational safety and health precautions, according to respondents. Healthcare workers in Nigeria are adequately educated on workplace safety and health precautions, according to 100 respondents (50.0 percent). Healthcare workers in Nigeria are highly educated on workplace safety and health precautions, according to 60 respondents (30.0 percent).

Undecided respondents accounted for 5% of the total. Twenty respondents (10.0 percent) dispute that healthcare workers in Nigeria are well informed about occupational safety and health precautions, while the remaining 15 respondents (7.5 percent) strongly disagree that healthcare workers in Nigeria are well educated about occupational safety and health precautions.

Table 3: There is a Significant Relationship Between Knowledge of and Compliance with Occupational Health and Safety Standards Among Healthcare Workers in Nigeria.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	80	40.0	40.0	40.0
	agree	100	50.0	50.0	90.0
	undecided	5	2.5	2.5	92.5
	disagree	10	5.0	5.0	97.5
	strongly disagree	5	2.5	2.5	100.0
	Total	200	100.0	100.0	

Source: field survey, January, 2022.

There is a substantial association between awareness and compliance with occupational health and safety regulations among healthcare workers in Nigeria, as shown in Table 3. There is a considerable association between awareness and compliance with occupational health and safety regulations among Nigerian healthcare workers, according to 80 respondents (40.0 percent). There is a considerable association between awareness and compliance with occupational health and safety requirements among Nigerian healthcare workers, according to 100 respondents

(50.0%). Undecided respondents accounted for 5% of the total. 10 respondents (5.0%) disagree that there is a significant relationship between knowledge and adherence to occupational health and safety standards among Nigerian healthcare workers, while the remaining 5 respondents (2.5%) strongly disagree that there is a significant relationship between knowledge and adherence to occupational health and safety standards among Nigerian healthcare workers.

Table 4: Workers in Nigerian Healthcare Facilities Do Not Sufficiently Comply with Occupational Health and Safety Standards.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	100	50.0	50.0	50.0
	agree	19	9.5	9.5	59.5
	undecided	41	20.5	20.5	80.0
	disagree	20	10.0	10.0	90.0
	disagree	20	10.0	10.0	100.0
	Total	200	100.0	100.0	

Source: field survey, January, 2022.

Table 4 displays the responses of respondents who believe that workers in Nigerian healthcare facilities do not adhere to occupational health and safety requirements to the extent that they should. Workers in Nigerian healthcare facilities do not comply with occupational health and safety regulations to the satisfaction of 100 respondents, or 50.0 percent. Workers in Nigerian healthcare facilities do not comply with occupational health and safety regulations to the satisfaction of 19 respondents, or 9.5 percent of the total. Undecided respondents accounted for 41 percent of the total, or 20.5 percent. Workers in Nigerian healthcare facilities do not comply with occupational health and safety norms in sufficient numbers, according to 20 respondents, representing 10% of the total. The remaining 20 respondents, representing 10% of the total, strongly disagree.

Conclusion

Since it has been shown in this research that there is a substantial association between awareness and compliance with occupational health and safety regulations among healthcare workers in Nigeria, there is an immediate need to resolve the difficulties raised in relation to the study's barriers. Furthermore, improving existing training on healthcare workers' safety and health precautions could highlight the need of adhering to basic occupational safety and health rules during work. In addition, establishing an effective occupational health cell that includes all of these elements, as well as frequent observation, could be the way forward. The efficacy of such an endeavor in dealing with occupational safety and health precautions and compliance among healthcare professionals might be evaluated in future studies.

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