

Knowledge of Occupational Hazards and Factors Militating Against Safety Practices Among Staff of Primary Health Care Centres in Benin City, Nigeria

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Abstract:

➤ *Background:*

Occupational hazards and safety practices are crucial components of workplace health, especially in the healthcare sector. This study aimed to assess the knowledge of occupational hazards and the factors militating against adherence to safety practices among staff of Primary Health Care Centres in Benin city, Nigeria.

➤ *Methodology:*

A descriptive cross-sectional design was used with structured questionnaire administered to the entire one hundred and ninety two staff in Oredo local government area. One hundred and eighty four filled questionnaire were retrieved representing 95.8%. Data collected focused on level of knowledge of occupational hazards among the staff, the safety practices engaged, and the factors hindering adherence to safety practices.

➤ *Results:*

Findings revealed high knowledge of occupational hazards, inconsistent safety practices, with inadequate supply of personal protective devices, inadequate staff, lack of enforcement of safety protocols, as well as inadequate training and retraining of staff identified as militating factors against adherence to safety practices. Statistically significant relationship exist between level of knowledge and the reported factors militating against safety practices.

➤ *Conclusion:*

The study highlights the need for a holistic approach to improving adherence to safety practices.

Keywords: Hazards, Occupational Health, Safety Practices, Primary Health.

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I. INTRODUCTION

➤ *Background to the Study*

Occupational hazards is defined as risks present in the workplace that may lead to health complications, injuries, or other harm to employees (World Health Organization, 2022). According to the World Health Organization, primary health care is a comprehensive approach that encompasses health promotion and disease prevention. It was established as a global priority through the Alma-Ata Declaration of 1978, which underscores health as a fundamental human right and advocates for universal accessibility (World Health Organization, 2022). Primary Health Care (PHC) centres serve as essential community-level facilities that provide vital health services, emphasizing accessibility, affordability, and equity. These centres address a wide spectrum of health needs, ranging from preventive measures to basic treatment services (Sharma et al., 2021). Furthermore, the World Health Organization highlights that PHC prioritizes community participation to ensure health services are culturally relevant and financially sustainable for local populations.

Primary Health Care centres employ a diverse workforce, each member contributing their expertise. For example, medical officers manage patient treatment, nurses and midwives specialize in maternal and child health, community health workers focus on outreach and preventive care, pharmacists handle medications, laboratory technicians perform diagnostic tests, and administrative staff oversee the centre's daily operations (Assefa et al., 2021). As noted by Assefa et al. (2021), the staff at PHC centres function as a multidisciplinary team dedicated to addressing the healthcare needs of local communities effectively.

Safety practices refer to systematic guidelines and procedures aimed at reducing risks and preventing workplace hazards. These practices ensure the safety and well-being of employees by providing clear, actionable steps for managing specific tasks or environments.

Investigating the knowledge of occupational hazards and safety practices among staff in PHC centres is crucial for improving the health and safety of healthcare workers who are regularly exposed to various occupational risks. These risks include physical, chemical, biological, ergonomic, and psychological hazards, all of which can significantly impact the health, productivity, and overall well-being of healthcare workers (CDC, 2024). Key statistics further highlight the widespread nature of these hazards.

This perspective is particularly relevant in settings such as Oredo Local Government Area, where resource limitations and infrastructural challenges might impact safety protocols.

Primary healthcare workers are important to the healthcare system, especially in local government areas as they provide frontline services such as preventive, promotive, curative and rehabilitative care.

However, Mills et al.(2020) showed that many health workers especially in low and middle income countries face significant exposure to occupational hazards such as infectious diseases, chemical exposures, and physical injuries. It highlighted the inadequate use of personal protective equipment and lack of training and awareness about these risks

➤ *Statement of the Problem*

The issue of occupational hazards and safety practices among staff in primary health care centres within Oredo Local Government Area represents a critical concern for both worker well-being and public health outcomes. Staff in primary health care centres are exposed to various occupational hazards such as infections agents, chemicals, sharp injuries, ergonomic and psychological stress. Despite these risks, research suggest that many health care workers at the primary healthcare centres may have limited awareness and knowledge of these hazards, as well as insufficient adherence to essential safety practices (Akanbi et al., 2019).

If and whenever gaps exist in knowledge and safety practices; healthcare providers, patients and even the broader community they serve, are significantly put at risk.

In addition, the absence of strong organizational policies and limited oversight in the implementation of safety protocols are likely contributing to an unsafe work environment. Addressing this problem is essential to reduce occupational hazards, ensure safer healthcare service delivery, and promote the well-being of PHC staffs in Oredo Local Government Area.

This study seeks to investigate the current level of knowledge, identify gaps in safety procedures, and explore factors influencing adherence to occupational safety measures among primary health care staff in this local government area.

➤ *Aim/Objective*

The objective of this study is to investigate the knowledge of occupational hazards and the factors militating against safety practices among healthcare workers in primary healthcare centres in Benin city.

➤ *Specific Objectives*

The specific objectives of this study are:

- To assess the levels of knowledge of staff of the Primary Health Care centres i about occupational hazards.
- To investigate the factors militating against safety practices.

➤ *Research Questions*

- What is the level of knowledge of occupational health hazards among staff in the primary health care centress?
- What are the factors militating against adherence to safety practices?

➤ *Research Hypothesis*

- Null Hypothesis (H₀): There is no significant relationship between the level of knowledge about occupational hazards and factors hindering safety practices among staff of the Primary Healthcare Centres.

➤ *Significance of the Study*

This study is to enhance healthcare delivery, improve worker safety and strengthen public health outcomes in Oredo Local Government Area, Edo state.

A vital significance of this study is its potential to inform targeted training and educational programs to increase awareness among healthcare workers and support staff about occupational hazards and standard safety practices. Implicated contributory factors to this include inadequate training on occupational safety, limited protective equipment, and lack of safety policies. (Isah et al., 2021).

In addition, the effective implementation of occupational safety measures is frequently challenged by organizational constraints and lack of reinforcement mechanisms as reported by (Treich et al., 2021). Research has shown that where healthcare workers have adequate knowledge and adhere to safety practices, there is significant reduction in the incidence of occupational hazards (Aliyu et al., 2020). Again, the World Health Organisation emphasizes the importance of implementing safety measures, regulating frameworks, and support systems to mitigate these occupational risks, noting that safeguarding workers' health ultimately supports better patient outcomes and healthcare sustainability. (World Health Organisation, 2022).

In Oredo Local Government Area, evaluating the level of knowledge and safety practices among the workforce at the different Primary Health Care centres can inform policy makers on areas in need of improvement and thereby contribute to developing targeted interventions for a safer workplace environment.

Enhanced awareness and adherence to safety measures could decrease work-related injuries and illnesses which are frequently lead to absenteeism, reduced productivity, increased healthcare costs. (Awosan et al., 2016).

Furthermore, findings from the study would guide policy makers and healthcare administrators in developing or updating safety policies and ensuring their effective implementation within the settings in question.

Additionally, the broader public health impact of this study is improved occupational health practices with attendant reduction in associated infections and injuries which will benefit bopatients and health care providers alike.

➤ *Knowledge Gap*

Limited local data on knowledge of occupational hazards and factors militating against safety practices in Primary Health Care centres.

While some studies assess knowledge of occupational hazards, fewer explore the disconnect between knowledge and real- life safety practices , especially in Primary Health Care settings.

➤ *Scope of the Study*

The scope of this study is to investigate the knowledge of occupational hazards and safety practices among staff of Oredo Local Government Area , Benin city. The study was restricted to primary health care centres and did not capture hospitals.

➤ *Limitation and Strength*

The study is limited to Benin city, Nigeria but can be replicated on a wider scale across the country.

This paper provides a solution to the problem of disparity between high knowledge and adherence to safety practice.

II. EMPIRICAL REVIEW

The following studies are relevant to the research questions.

Aluko et al., 2016 in a cross-sectional study in Nigeria with 290 respondents found that about 89 % had knowledge of hazards; yet only ~52 % “always” complied with standard procedures. The authors found that knowledge was high, but practice did not mirror that knowledge. They identified factors militating against adherence: lack of safety kits/equipment (41%), perceptions that compliance wastes time (5.9%) or is uncomfortable (1%). They also found that education level and occupation were significantly associated with knowledge and attitude, but not necessarily with practice.

Similarly, Chanda, M. (2025). In a study involving 183 nurses in Zambia, found that 77% demonstrated good knowledge of occupational health and safety (OHS) practices; 60% had positive attitudes; but only 51% reported good safety practices. The study found that although knowledge and attitudes were reasonably good, adherence was still modest, suggesting that there are other barriers beyond knowledge/attitude. The authors conclude that other institutional or structural factors likely impede practice.

III. RESEARCH METHODOLOGY

➤ *Research Design*

A descriptive cross sectional study design was used to identify the knowledge of occupational shazards and safety practices among staff of primary health care centres in Oredo Local Government Area of Edo state.

➤ *Study Area*

The study took place in the fifteen primary health care centres all domiciled in Oredo Local Government Area , Benin city , Edo state. Oredo is one of the local government areas (LGAs) in Edo State, Nigeria, located within the state's capital, Benin City. It is an essential part of Benin City and is

known for its rich cultural heritage, historical significance, and economic activities. Benin City, which serves as the administrative seat for Oredo, is famous for its unique Edo cultural traditions, ancient artifacts, and ties to the historic Benin Kingdom.

Here are a few notable aspects of Oredo LGA: **Culture and History:** Oredo is home to the Edo people, with a heritage deeply tied to the Benin Kingdom. It's known for its bronze work, traditional festivals, and the Oba's Palace, which reflects the area's historical importance. **Economic Activity:** As part of Benin City, Oredo has vibrant markets, businesses, and a growing population that contribute to the local economy. The New Benin Market, one of the largest markets, is located here. **Educational Institutions:** Oredo is home to several educational institutions, including the University of Benin, which is one of Nigeria's foremost universities. This contributes to a vibrant student population in the area. **Tourism:** The LGA attracts visitors interested in the cultural history of the Benin Kingdom, with notable sites like the National Museum of Benin, which showcases ancient artifacts, and various historic sites tied to the Benin Empire. **Administration and Infrastructure:** As the administrative center of Benin City, Oredo has government offices, municipal buildings, and infrastructure supporting the state capital. Oredo is a dynamic area with a blend of historical significance and modern growth, making it one of the notable LGAs in Edo State.

➤ *Study Population*

The population of study was the entire staff (192) of primary health care centres in Oredo Local Government Area of Edo state. The number covers all workers (both health workers and support staff) in the fifteen (15) primary health care centres in Oredo Local Government Area, Benin city, Edo state.

➤ *Sample/Sampling Technique*

The entire one hundred and ninety two primary health care staff in Oredo Local Government Area were used for the study.

➤ *Study Instrument*

The instrument of study was structured questionnaire designed to elicit information on knowledge and safety practices of occupational hazards among staff of primary health care centres in Oredo Local Government Area of Edo state. The questionnaire had four sections: Sections A,B,C and D. Section A contained the biodata of the participants while Section B focused on level of knowledge of Edo state. Similarly, Section C dwelt on exposure of primary health care staff in Oredo Local Government Area to occupational hazards just as Section D was streamlined to elicit information on safety practices in the primary health care centres in Oredo Local Government Area of Edo state

➤ *Validity of Instrument*

The face and content validity of the instrument was done by the experts and the corrections were effected accordingly.

➤ *Reliability*

The reliability of the instrument was checked with the test retest method . Using this method, the questionnaires were given to test 10 primary health care staff in Egor primary health care centre at Egor secretariat behind Uselu market, off Uselu lagos road and five days later , the same number of staff at Use primary health care centre were administered the questionnaire to determine the reliability. The Reliability index was calculated using Cronbach's Alpha through the Statistical package for social sciences (SPSS), which gave a good reliability of 0.8 for the questionnaire. The instrument of data collection was therefore found appropriate and reliable for the study.

➤ *Data Collection*

The collection of data involved the use of well-structured questionnaires for the study. One hundred and ninety-two questionnaires were directly administered on one-on-one basis to the target population over a period of two weeks and also directly retrieved to ensure a good response rate of 96%.

➤ *Data Analysis*

Data was presented using descriptive tools while the Statistical package for social sciences (SPSS) software version 20 was used to analyze the data. Additionally, the research hypothesis was tested by using Chi square Inferential statistical test of significance at 95% confidence level ($p=0.05$) to analyze the categorical data harvested from level of knowledge and adherence to safety practices.

➤ *Ethical Approval*

- Informed consent and right to self-determination : Prospective participants were informed about the research study. Their voluntary consent was sought for through proper explanation of the research topic , aims , and the benefits and they willingly accepted to participate.
- Non-falsification of data: All data collected and used for this study were not adulterated.
- Avoidance of plagiarism: The researcher did not plagiarize other peoples' work, rather review of literature for other works used were duly acknowledged in the research work.
- Respect for research subjects : All the research subjects used for this study were treated with respect and dignity.
- Confidentiality: Participants were assured of utmost confidentiality relating to them and their information.

IV. RESULTS (DATA ANALYSIS AND PRESENTATION)

➤ *Introduction*

Here are the presented, analysed and interpreted data, using tabular, simple percentage and inferential statistics methods The research questions formulated in chapter one were answered in this chapter. The results of the analysis of data collected is shown in this section and includes the results of data collected from a sample size of 192 with a return percentage of 95.8% (184).

➤ *Demographic Characteristics of Respondents*

Table 1 Showing the Demographics of the Respondents

S/N	Variable	Response	Frequency(N)	Percent	Mean	S. D
1	Age	20-30years	41	22.3	39.90	10.52
		31-40years	54	29.3		
		41-50years	54	29.3		
		51years and above	35	19		
2	Marital Status	Single	42	22.8		
		Married	128	69.6		
		Divorced	6	3.3		
		Widowed	8	4.3		
3	Number of years of work experience in primary healthcare	Less than 1year	13	7.1		
		1-5years	34	18.5		
		6-10years	37	20.1		
		Above 10years	100	54.3		
4	Category of Staff	Medical Staffs (Doctors, Nurses, Pharmacists and others)	127	69		
		Non-medical staff (Clerks, Cleaners, Security and others)	57	31		
		Total	184	100		

Table 1 highlights the socio-demographic characteristics of the respondents. Most participants were aged 31-40 years (29.3%) and 41-50 years (29.3%), with fewer in the 20-30 years (22.3%) and 51 years and above (19%) age groups. The majority were married (69.6%), while 22.8% were single, 3.3% divorced, and 4.3% widowed. Regarding work experience, 54.3% had over ten years of experience in primary healthcare, followed by 20.1% with 6-

10 years, 18.5% with 1-5years, and 7.1% with less than one year. Additionally, 69% of respondents were medical staff, while 31% were non-medical staff.

➤ *Knowledge of Occupational Hazards Among Staff of Primary Health Care Centres in Oredo Local Government Area, Benin City, Edo State*

Table 2 Showing Knowledge of Occupational Hazards Among Staff of Primary Healthcare Centres in Oredo Local Government Area, Benin City, Edo State

S/N	Variable	Response	Frequency (N)	Percent	Mean	SD	Decision
1	Occupational health hazard is?	Dangers one is exposed to while working in the health centre	157	85.3	2.83	0.43	Monitoring
		Poor relationship between patients and healthcare workers	23	12.5			
		Lack of experience of the healthcare worker	4	2.2			
2	Occupational hazard is a major health concern worldwide?	Yes	130	70.7	2.49	0.823	Intervention
		No	15	8.2			
		I don't know	39	21.2			
3	Factors that could lead to occupational health hazards						
A	Negligence of carelessness on the part of the healthcare workers	Yes	146	79.3	2.65	0.716	Monitoring
		No	12	6.5			
		I don't know	26	14.1			
B	Failure to observe standard precaution	Yes	135	73.4	2.53	0.809	Monitoring
		No	12	6.5			
		I don't know	37	20.1			
C		Yes	94	51.1	2.18	0.898	Intervention
		No	30	16.3			

	Lifting of patients and other heavy equipment	I don't know	60	32.6			
D	Lack of use of protective devices such as gloves, PPE, aprons and others	Yes	159	86.4	2.76	0.636	Monitoring
		No	5	2.7			
		I don't know	20	10.9			
E	Workload, poor relationship with colleagues and managers, shift duties, and emotional demand	Yes	87	47.3	2.23	0.818	Intervention
		No	52	28.3			
		I don't know	45	24.5			
F	Prolonged standing while on duty	Yes	66	35.9	2.1	0.779	Intervention
		No	71	38.6			
		I don't know	47	25.5			
		Total mean score			2.5		Intervention

Table 2 summarizes the respondents' knowledge of occupational hazards in primary health care centres in Oredo Local Government Area, Benin City, Edo State. The majority (85.3%) identified occupational health hazards as "dangers one is exposed to while working in the health centre," with 12.5% attributing it to poor relationships between patients and healthcare workers and 2.2% to a lack of experience. Most participants (70.7%) acknowledged occupational hazards as a major global health concern, while 21.2% were

unsure, and 8.2% disagreed. Respondents also identified several factors contributing to occupational hazards.

We used a mean cut-off of 2.5 As seen in the table, although the respondents showed a high level of knowledge of occupational health hazards with a total mean score was 2.5 .necessitating monitoring..

➤ *Exposure and Rate of Exposure of Respondents*

Table 3 Showing Exposure and Rate of Exposure of Respondents

S/N	Variable	Response	Frequency(N)	Percent	Mean	SD	Decision
1	Biological Hazards	Always	5	2.7	2.75	1.108	Intervention
		Often	44	23.9			
		Sometimes	71	38.6			
		Rarely	28	15.2			
		Never	36	19.6			
B	Contact with other body fluids like urine, faeces	Always	25	13.6	2.83	1.346	Intervention
		Often	45	24.5			
		Sometimes	21	11.4			
		Rarely	60	32.6			
		Never	33	17.9			
2	Chemical Hazards	Always	0	0	2.34	0.945	Monitoring
		Often	27	14.7			
		Sometimes	43	23.4			
		Rarely	80	43.5			
		Never	34	18.5			
B	Chemical burns & disinfectant	Always	0	0	2.49	1.035	Monitoring
		Often	33	17.9			
		Sometimes	66	35.9			
		Rarely	43	23.4			
		Never	42	22.8			

3	Accidental Hazards						
A	Needle pricks	Always	0	0	2.23	0.798	Monitoring
		Often	9	4.9			
		Sometimes	57	31			
		Rarely	85	46.2			
		Never	33	17.9			
B	Burns, scalds from sterilizing equipment	Always	0	0	1.96	0.949	Monitoring
		Often	18	9.8			
		Sometimes	25	13.6			
		Rarely	73	39.7			
		Never	68	37			
4	Physical Hazards						
A	Radiation	Always	0	0	1	0	Monitoring
		Often	0	0			
		Sometimes	0	0			
		Rarely	0	0			
		Never	184	100			
B	Hot and Cold stress	Always	0	0	2.24	0.73	Monitoring
		Often	13	7.1			
		Sometimes	37	20.1			
		Rarely	115	62.5			
		Never	19	10.3			
C	Vibration and Noise	Always	0	0	2.1	1.107	Monitoring
		Often	26	14.1			
		Sometimes	44	23.9			
		Rarely	36	19.6			
		Never	78	42.4			
5	Ergonomic Hazards						
A	Sprains and Strains	Always	0	0	2.28	0.927	Monitoring
		Often	24	13			
		Sometimes	40	21.7			
		Rarely	84	45.7			
		Never	36	19.6			
B	Back pain	Always	40	21.7	3.41	1.137	Intervention
		Often	42	22.8			
		Sometimes	64	34.8			
		Rarely	29	15.8			
		Never	9	4.9			
C	Muscle pain	Always	14	7.6	3.28	0.926	Intervention
		Often	62	33.7			
		Sometimes	76	41.3			
		Rarely	25	13.6			
		Never	7	3.8			
6	Psychological Hazards						
A	Stress from shift duties	Always	36	19.6	3.9	0.79	Intervention
		Often	104	56.5			
		Sometimes	37	20.1			
		Rarely	4	2.2			
		Never	3	1.6			
B	Poor relationship with colleagues and other staff	Always	13	7.1	2.61	1.271	Intervention
		Often	40	21.7			
		Sometimes	40	21.7			
		Rarely	44	23.9			
		Never	47	25.5			
C	Emotional demand	Always	8	4.3	2.84	1.193	Intervention
		Often	60	32.6			
		Sometimes	45	24.5			

		Rarely	37	20.1			
		Never	34	18.5			
D	Lack of appreciation or reward	Always	35	19	3.21	1.367	Intervention
		Often	60	32.6			
		Sometimes	26	14.1			
		Rarely	34	18.5			
		Never	29	15.8			
		Total mean score			2.5		Intervention

Table 3 shows the rate and nature of exposure to various occupational hazards among healthcare workers. Biological hazards, such as blood spills and body fluid contact, were most commonly experienced "sometimes" (38.6%) and "often" (24.5%), respectively. Chemical hazards, including latex allergies and chemical burns, were reported as "rarely" by 43.5% and "sometimes" by 35.9% of workers. Accidental hazards, such as needle pricks and burns from sterilizing equipment, were primarily encountered "rarely" (46.2% and 39.7%, respectively). Physical hazards, like hot and cold stress, were experienced "rarely" by 62.5% of respondents, while vibration/noise was not frequently reported. In terms of

ergonomic hazards, back pain was most commonly reported as "sometimes" (34.8%) and muscle pain as "often" (33.7%). Psychological hazards, particularly stress from shift duties, were the most prevalent, with 56.5% of workers experiencing it "often."

We used a mean score of 2.5 such that any hazard is captured as long as it occurs sometimes. From the table, biological, ergonomic and psychological hazards are mainly above the mean cut-off therefore necessitating intervention.

➤ *Safety Practices of Respondents*

Table 4 Showing Safety Practices of Respondents.

S/N	Variable	Response	Frequency(N)	Percent	Mean	SD	Decision
1	Recapping of needles	Always	68	37	2.67	1.85	Intervention
		Often	0	0			
		Sometimes	9	4.9			
		Rarely	18	9.8			
		Never	89	48.4			
2	Hand washing during and after each procedure or contact with patient	Always	25	13.6	3.05	1.179	Intervention
		Often	41	22.3			
		Sometimes	52	28.3			
		Rarely	50	27.2			
		Never	16	8.7			
3	Use of protective devices such as PPEs, gloves and face masks and others	Always	34	18.5	3.32	1.071	Intervention
		Often	36	19.6			
		Sometimes	73	39.7			
		Rarely	36	19.6			
		Never	5	2.7			
4	Disposing used needles into safety box	Always	127	69	3.79	1.821	Intervention
		Often	0	0			
		Sometimes	0	0			
		Rarely	5	2.7			
		Never	52	28.3			
5	Emptying safety boxes when they are three-quarter full	Always	108	58.7	4.07	1.411	Intervention
		Often	35	19			
		Sometimes	14	7.6			
		Rarely	0	0			
		Never	27	14.7			
6	Safety protocols	Always	112	60.9	4.02	1.414	Intervention
		Often	19	10.3			
		Sometimes	16	8.7			
		Rarely	19	10.3			
		Never	18	9.8			
7	Are you immunized for Hepatitis B?	Yes	144	78.3	2.78	0.414	Monitoring

	No	40	21.7			
	Total mean score					
				3.5		Intervention

Table 4 demonstrates the safety practices among healthcare workers in preventing occupational hazards. Hand washing during and after procedures was the most frequently practiced safety measure, with 82.1% of workers always washing their hands. The use of protective devices, such as PPEs, gloves, and face masks, was also common, with 72.8% of respondents always using them. Recapping of needles was the least common practice, with 48.4% of respondents never engaging in it, while 37% reported doing it always. The proper disposal of used needles into safety boxes was observed by 69% of workers, although 28.3% never disposed of them correctly. Regarding the emptying of safety boxes when three-quarters full, 58.7% always complied, while

14.7% never did. Safety protocols were followed regularly by 60.9% of respondents, and 78.3% reported being immunized for Hepatitis B.

We used a mean cut-off of 4.5 as safety practices are meant to always be done. The total mean score of 3.5 just like most of the mean scores for the individual responses is way below the mean cut-off with a clear need for intervention.

➤ *Factors Posing Challenge or Hindrance to Adherence to Safety Practices among Respondents*

Table 5 Factors that Pose a Challenge or Hindrance to Adherence to Safety Practices Among Respondents.

S/N	Variable	Response	Frequency	Percent	Mean	SD	Decision
1	Inadequate supplies or availability of personal protective devices like PPEs, gloves	Yes	176	95.7	2.96	0.204	Intervention
		No	8	4.3			
2	Inadequate or lack of training and retraining of staffs on use of PPE and other personal protective devices	Yes	121	65.8	2.66	0.476	Intervention
		No	63	34.2			
3	Lack of supervision or reinforcement of safety protocols	Yes	94	51.1	2.51	0.501	Intervention
		No	90	48.9			
4	Inadequate number of staff and therefore exercise workload	Yes	148	80.4	2.8	0.398	Intervention
		No	36	19.6			
		Total mean score			2.68		Intervention

Table 5 highlights the factors that pose a challenge to adherence to safety practices among healthcare workers. The majority of respondents (95.7%) indicated that inadequate supplies or availability of personal protective equipment (PPE) and gloves was a major hindrance to safety practices. Additionally, 65.8% of respondents reported that inadequate or lack of training and retraining on the use of PPEs and other protective devices contributed to non-compliance. Over half of the respondents (51.1%) noted the lack of supervision or reinforcement of safety protocols as a challenge.

Furthermore, 80.4% identified the inadequate number of staff and the resulting excessive workload as factors that hindered adherence to safety practices.

We used a mean cut-off of 2.5 being the midpoint of the range for the numerical values allocated to the response options. As seen in the table, the mean scores for all four variables assessed as well as the overall mean score of 2.68 are clearly off the cut-off signifying a high presence of these hindrance factors and therefore the decision is intervention.

Table 6a Relationship Between Level of Knowledge of Occupational Hazards and Inadequate Supplies or Availability of Personal Protective Devices.

	Variables	Inadequate or lack of training and retraining of staff on use of PPE and other personal protective devices	Total	Df	χ^2	P	Decision	
Occupational health hazard is ?	Dangers one is exposed to while working in the health centre	Yes (%)	No(%)	157(100)	2	60.775	0.000	Reject null hypothesis

		121(77.1)	36(22.9)				
	Poor relationship between patients and healthcare workers	0(0)	23(100)	23(100)			
	Lack of experience of the healthcare worker	0(0)	4(100)	4(100)			
Total		121	63	184			

- Interpretation: The calculated χ^2 value was 60.775, while the critical value was 5.99. The calculated value is greater than the critical value making it significant and we therefore reject the null hypothesis.

Table 6b Relationship Between Level of Knowledge of Occupational Hazards and Inadequate or Lack of Training and Retraining of Staff on use of PPE and Other Personal Protective Devices

	Variables	Lack of supervision or reinforcement of safety protocols	Total	Df	χ^2	P	Decision	
Occupational health hazard is ?	Dangers one is exposed to while working in the health centre	Yes (%)	No(%)	157(100)	2	33.050	0.000	Reject null hypothesis
		94(59.9)	63(40.1)					
	Poor relationship between patients and healthcare workers	0(0)	23(100)	23(100)				
	Lack of experience of the healthcare worker	0(0)	4(100)	4(100)				
Total		94	90	184				

- Interpretation: The calculated χ^2 value was 33.050, while the critical value was 5.99. Since the calculated value is greater than the critical value, it is significant and we therefore reject the null hypothesis.

Table 6c Relationship Between Level of Knowledge of Occupational Hazards and Lack of Supervision or Reinforcement of Safety Protocols

	Variables	Inadequate number of staff and therefore excessive workload	Total	Df	χ^2	P	Decision	
Occupational health hazard is ?	Dangers one is exposed to while working in the health centre	Yes (%)	No(%)	157(100)	2	130.089	0.000	Reject null hypothesis
		148(94.3)	9(5.7)					
	Poor relationship between patients and healthcare workers	0(0)	23(100)	23(100)				
	Lack of experience of the healthcare worker	0(0)	4(100)	4(100)				
Total		148	36	184				

- Interpretation: The calculated χ^2 value was 130.089, while the critical value was 5.99. Since the calculated value is greater than the critical value, it is significant and we therefore reject the null hypothesis.

Table 6d Relationship Between Knowledge of Occupational Hazards and Inadequate Number of Staff and therefore Excessive Workload

	Variables	Inadequate supplies or availability of personal protective devices like PPEs	Total	Df	χ^2	P	Decision	
Occupational health hazard is ?	Dangers one is exposed to while working in the health centre	Yes (%)	No(%)	157(100)	2	104.545	0.000	Reject null hypothesis
		157 (100)	0(0)					
	Poor relationship between patients and healthcare workers	19(82.6)	4(17.4)	23(100)				
	Lack of experience of the healthcare worker	0(0)	4(100)	4(100)				
Total		176	8	184				

- Interpretation: The calculated χ^2 value was 104.545, while the critical value was 5.99. The calculated value is greater than the critical value making it significant and we therefore reject the null hypothesis.

➤ *Hypothesis Testing*

- Null Hypothesis (H_0): There is no significant relationship between the level of knowledge of occupational hazards and the factors that pose a challenge or hindrance to adherence to safety practices among staff of primary healthcare centres in Oredo local government area, Benin City, Edo State.
- Alternative Hypothesis (H_1): There is a significant relationship between the level of knowledge of occupational hazards and the factors that pose a challenge or hindrance to adherence to safety practices among staff of primary healthcare centres in Oredo local government area, Benin City, Edo State.

Tables 6a to 6d show the relationships between the level of knowledge of occupational hazards and each of the factors that pose a challenge or hindrance to adherence of safety practices. The factors tested included;

- Inadequate supplies or availability of personal protective devices (PPEs, gloves and others)
- Inadequate or lack of training and retraining of staff on use of PPE and other personal protective devices
- Lack of supervision or reinforcement of safety protocols
- Inadequate number of staff and therefore excessive workload

As seen in the tables , the p-values were less than 0.05 (the null hypothesis was rejected) and the alternative hypothesis was accepted. This implies that may know about occupational hazards but not put the knowledge to practice

because of hinderance factors such as inadequate supplies or availability of personal protective devices,lack of training and retraining of staff on use of personal protective devices, inadequate staffing, and lack of enforcement of safety protocols. Conclusively, interventions should target both elements of knowledge and hindrance factors holistically to achieve meaningful improvements in safety practices at primary healthcare centres in Oredo Local Government Area.

V. DISCUSSION OF FINDINGS, CONCLUSION, RECOMMENDATION AND SUMMARY

➤ *Introduction*

This is the discussion of findings in accordance with the research questions and hypothesis, as well as implications, summary, conclusion and recommendations.

➤ *Discussion of Findings*

• *Knowledge of Occupational Hazards*

The findings relating to the level of knowledge of occupational hazards which is the first research question, showed a high level of knowledge with 86.4% of staff aware that lack of use of personal protective devices such as PPEs, gloves, and aprons can lead to occupational hazards while 85.3% of staff identified occupational hazard as danger one is exposed to at the health centres. This finding is in agreement with the findings of Desta et al., (2018) who reported 84.7% of nurses as knowledgeable about occupational hazards.It is similar to Aluko et al.,(2016) whose report showed 89% of healthcare workers as having adequate knowledge of occupational hazards The finding is also in alignment with the 84% reported by Innocent ,D. (2020) .

However, the finding is at variance with the 49.08% reported by Erah et al.(2020) as well as the 47.5% revealed by Dhakai,B.,8 Archaya,S.(2020).

The high level of knowledge of occupational hazards found among staff of Primary Health Care centres in Benin city could be as a result of in-service trainings and continued medical education (which is a requirement for license renewal by various professional health bodies in Nigeria).

- *Factors Militating Against Safety Practices*

The second research question focused on factors posing hindrance to adherence to safety practices. Of the four factors assessed under this question, inadequate supplies or availability of personal protective devices such as Personal Protective Equipment (PPE), gloves, and aprons was the most reported with 95.7 % of respondents pointing to it as a challenge to adherence. This finding is similar to a high report of 77% by Deressa et al.(2021) .It is at variance with the report of Agarwal et al.(2020) which showed 62% of healthcare staff reporting inadequate supplies of personal protective devices as well as the 44.0% that reported lack of training on how to use PPE as a barrier to adherence with infection control guidelines (Abubakir et al., 2022).

The reported inadequate supplies or availability of personal protective devices by respondents in this research might be one example of general resource limitations due possibly to poor funding of the health sector in the country.

Furthermore, results also showed the outcome of hypothesis testing as p-value was < 0.05 and therefore the null hypothesis was rejected prompting the acceptance of the alternative hypothesis which says “there is significant relationship between level of knowledge of occupational hazards and factors posing hindrance to adherence to safety practices”. As such, the influence or impact of knowledge therefore on attitude and practice is diminished by the investigated hindrance factors such as inadequate supplies or availability of resources and inadequate staff with consequent excessive workload etc. This is in agreement with the findings of Asuzu, M.C. (2018) which reported that such factors as insufficient training, inadequate provision of personal protective devices, and lack of enforcement policies significantly affected adherence to safety protocols. It equally aligns with the findings of Adegoke ,A.N.,& Ajibola, O.O.(2020) which highlighted that despite adequate knowledge, barriers like resource constraints , limited institutional support and irregular safety training programmes hindered adherence to safety protocols.

- *Summary*

The above study done to assess the knowledge of occupational hazards and safety practices among staff of Primary Healthcare Centres in Benin City, Nigeria shows the introduction which entails the background to the study, statement of problem, objectives of the study; research questions, which assessed level of knowledge of occupational health hazards, rate of exposure to occupational health hazards ,and the safety practices employed. The literature reviewed various studies previously done on occupational

health hazards and various measures to mitigate them. The methodology of the study was a descriptive cross-sectional study design with a population of one hundred and ninety two (192) staffs. Data were collected with the use of questionnaire and same analysed using descriptive statistics such as frequencies and percentages as well as inferential statistics for testing of the research hypothesis.

- *Conclusion*

In conclusion, findings revealed that the high level of knowledge of occupational hazards is not sufficiently matched by the same level of adherence to safety protocols reported hindrance factors being inadequate supplies or availability of personal protective devices, lack of supervision or enforcement of safety protocols, inadequate training and retraining of staff as well as inadequate staff with consequent excessive workload. This highlights the need for a holistic approach to improving adherence to safety practices.

- *Recommendations*

From the findings of this study, it is recommended that:

- The National and State Primary Health Development Agencies should ensure adequate supply of personal protective devices such as PPEs, gloves, face masks as well as the training and retraining of staff on their use.
- There should be periodic training or seminars on occupational health and safety practices for all staff of the Primary Health Care centres in Benin city.
- The State Primary Health Development Agency should ensure that there is consistent supervision and reinforcement of safety protocols.
- There should be provision of adequate staffing and introduction of incentives for better motivation.

- *Suggestion for Further Studies*

- Perception of occupational health hazards among management staff of State Primary Health Development Agencies in Nigeria.

REFERENCES

- [1]. Adegoke, A. N., & Ajibola, O. O. (2020). Occupational hazards awareness and compliance with safety measures among primary health care workers in Southwestern Nigeria. *Journal of Community Medicine and Primary Health Care*, 32(2), 45–55. <https://doi.org/10.4314/jcmphc.v32i2.6>
- [2]. Agarwal, S., Pahwa, S., & Kumar, R. (2020). Knowledge, attitudes, and practices of healthcare workers regarding personal protective equipment in India. *Journal of Infection and Public Health*, 13(9), 1393–1399. <https://doi.org/10.1016/j.jiph.2019.11.010>
- [3]. Akambi, O. M., Ojo, T. O., & Oke, M. O. (2019). Occupational health hazards and safety practices among healthcare workers in selected primary

- healthcare centers. *Journal of Occupational Health and Safety*, 35(2), 205–213.
- [4]. Aliyu, S. M., Bello, M. S., & Umar, S. M. (2020). Knowledge of occupational hazards and safety practices among primary healthcare workers. *Nigerian Journal of Basic and Clinical Research*, 18(4), 45–51.
- [5]. Assefa, Y., Hill, P. S., Van Damme, W., & Baerniggause, T. (2021). The role of primary health care in achieving global health goals: A scoping review. *Global Health Action*, 14(1). [https://doi.org/\[insert DOI if available\]](https://doi.org/[insert DOI if available])
- [6]. Asuzu, M. C. (2018). Knowledge, attitude, and practice of occupational safety among primary healthcare workers in a Southern Nigerian community. *African Journal of Primary Healthcare & Family Medicine*, 10(1), 1–6. <https://doi.org/10.02/phcfm.v10i1.1579>
- [7]. Deressa, W., Worku, A., & Amogne, W. (2021). Shortage of personal protective equipment (PPE) among healthcare professionals in Addis Ababa, Ethiopia during the COVID-19 pandemic. *Archives of Public Health*, 79(1), 135. <https://doi.org/10.1186/s13690-021-00668-3>
- [8]. Deressa, W., Worku, A., & Amogne, W. (2021). Prevalence and associated factors of low back pain among healthcare professionals in Addis Ababa, Ethiopia. *Dove Press Journal of Pain Research*. <https://doi.org/10.2147/JPR.S306107>
- [9]. Dhakal, B., & Acharya, S. (2020). Knowledge regarding occupational health hazards among nurses in a hospital, Rupandehi, Nepal. *Journal of Health and Allied Sciences*, 9(1), 65–70.
- [10]. Erah, F. O., Chijioke, E. A., Uwaibi, N., Akamen, J., & Okhaware, M. (2020). Occupational hazards and safety measures in a tertiary health institution in Southern Nigeria. *International Journal of Medical States*, 10(1), 32–39.
- [11]. Innocent, D., Emerole, L., Ezejindu, C., Udoewah, S., Uzowuihe, P., & Madueke, V. (2022). Examination of common occupational hazards among healthcare workers in a university healthcare centre in South Eastern Nigeria. *Health*, 14(8), 833–852. <https://doi.org/10.4236/health.148059>
- [12]. Isiah, A. R., & Ofili, A. N. (2018). Knowledge and practice of standard precautions among healthcare workers in tertiary healthcare facilities in Nigeria. *Nigerian Medical Journal*, 59(2), 102–108. <https://doi.org/10.4103/115-2613.267617>
- [13]. Mills, E. J., et al. (2020). Exposure to occupational hazards among healthcare workers in low and medium-income countries: A scoping review. *Occupational and Environmental Medicine*, 77(6), 365–372. <https://doi.org/10.1136/oemed-2019.106358>
- [14]. World Health Organization. (2022). Occupational health: Health workers. Retrieved from <https://www.who.int>
- [15]. Aluko, O. O., Adebayo, A. E., Adebisi, T. F., Ewegbemi, M. K., Abidoye, A. T., & Popoola, B. F. (2016). Knowledge, attitudes and perceptions of occupational hazards and safety practices in Nigerian healthcare workers. *BMC Research Notes*, 9, Article 71. <https://doi.org/10.1186/s13104-016-1880-2>
- [16]. Desta, M., Ayenew, T., & Getie, M. (2018). Knowledge, practice and associated factors of infection prevention among healthcare workers in Debre Markos Referral Hospital, Northwest Ethiopia. *BMC Health Services Research*, 18, Article 465.
- [17]. Khamsa, C. A., Isunju, J. B., Babibako, H. M., & Ntoni, F. N. (2025). Adherence to standard infection prevention and control practices and factors associated among healthcare workers at Juba Teaching Hospital, Juba–South Sudan: A cross-sectional study. *Journal of Health, Population and Nutrition*, 44, Article 66. <https://doi.org/10.1186/s41043-025-00807-4>
- [18]. Endalew, S. M., Melake, B. A., Geremew, A., & Baraki, N. (2022). Healthcare workers' compliance with standard precautions and associated factors in Bahir Dar Town, Ethiopia. *Environmental Health Insights*, 16, 1–11. <https://doi.org/10.1177/11786302221117071>
- [19]. Babore, G. O., Eyesu, Y., Mengistu, D., Heliso, A. Z., & Ashine, T. M. (2024). Adherence to infection prevention practice standard protocol and associated factors among healthcare workers. *Global Journal on Quality & Safety in Healthcare*, 7(2), 50–58. <https://doi.org/10.36401/JQSH-23-14>
- [20]. Aluko, O. O., Adebayo, A. E., Adebisi, T. F., Ewegbemi, M. K., Abidoye, A. T., & Popoola, B. F. (2016). Knowledge, attitudes and perceptions of occupational hazards and safety practices in Nigerian healthcare workers. *BMC Research Notes*, 9, 71. <https://doi.org/10.1186/s13104-016-1880-2>
- [21]. Chanda, M. (2025). Knowledge and attitude of nurses toward occupational hazards and safety practices at Kasama General Hospital, Kasama, Zambia. *Medical Journal of Zambia*, 52(5), 821–836.