



SCHOOL OF MEDICINE AND HEALTH SCIENCES

**KNOWLEDGE OF OCCUPATIONAL HEALTH AND ERGONOMICS AMONGST
NURSES IN SELECTED HEALTH FACILITIES IN MUMBWA DISTRICT**

BY

TERRY GOMBWA

BSPH19114929

BSc PUBLIC HEALTH

SUPERVISOR: DR NOVAN TEMBO

**A Dissertation submitted to the University of Lusaka in partial fulfillment of the
requirements for the award of the Bachelor of Science Degree in Public Health**

DECLARATION

TERRY GOMBWA BSPH19114929

I declare that this proposal is my creative work and to the best of my acquaintance has not been presented for a degree in any other institution.

Signature: T. Gombwa

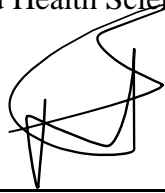
Date: 27th May, 2023

Supervisor Name: Dr Novan Tembo

This dissertation has been submitted with my approval as a University of Lusaka (UNILUS) supervisor.

School of Medicine and Health Sciences, Department of Public Health

Signature: _____



Date: 01/06/23

DEDICATION

I dedicate this research to my mother Crydah Katila who has been there for me throughout this time and been my encouragement.

ACKNOWLEDGEMENT

I want to thank my supervisor, Dr. Novan Tembo, for all of the timely advice and support he provided me with throughout this project. Additionally, I would want to express my profound gratitude to all of my friends and family who supported me throughout the difficult parts of the journey.

ABSTRACT

Background

The safety and well-being of healthcare professionals, especially nurses who are constantly exposed to diverse workplace dangers, are greatly aided by occupational health and ergonomics (chiou et al., 2013). It is crucial to understand nurses' degree of knowledge and understanding of these perspectives in order to establish targeted treatments and enhance occupational health procedures in healthcare environments.

Methods

Semi-structured interviews were used and a cross sectional qualitative research design to collect data. A variety of nurses working in various healthcare settings were chosen using a convenience sampling method. The use of thematic analysis was used to determine important themes and patterns in the data to ascertain the knowledge of occupational health and ergonomics.

Results

Preliminary findings revealed that nurses displayed varying levels of knowledge and awareness regarding occupational health and ergonomics including the risks associated with their profession. The results show a lack regard and neglect to OHS coupled with shortage of equipment and policies to strengthen awareness and knowledge of OHS.

Conclusions

The findings highlight the need for resources and equipment to effectively enhance OHS practices. The need for comprehensive educational programs that focus on OHS and ergonomics, as well as the importance of organizational support in promoting a culture of safety and implementing ergonomic interventions.

Recommendations

The recommendations include creating in-depth instructional programs for nurses on occupational health and safety. offer organizational assistance and resources. To create ergonomically comfortable surroundings, include ergonomic considerations into the structure and organization of

healthcare facilities, which include the choice of equipment, furniture as well as devices, and lighting.

2022

TABLE OF CONTENTS

Contents

CHAPTER ONE	1
1.0 INTRODUCTION/BACKGROUND	1
1.1 Statement of the problem	2
1.2 Justification of the study	3
OBJECTIVES:	3
1.3 General Objectives:	3
1.4 Specific Objectives:	4
1.5 Research Questions:	4
CHAPTER TWO	5
2.0 LITERATURE REVIEW	5
2.1 Introduction	5
2.2 FACTORS ASSOCIATED TO HEALTH FACILITIES THAT PUT WORKERS AT RISK FOR INJURY	5
2.3 HIGH RATES OF OCCUPATIONAL HAZARDS ARE CAUSED BY FACTORS RELATING TO HEALTH WORKERS.	7
2.4 OCCUPATIONAL HEALTH AND SAFETY TRAINING AND PERCEPTIONS IN NEPAL 8	
2.5 PREVENTATIVE MEASURES TO BE TAKEN AGAINST WORKPLACE RISKS	9
2.6 CONCEPTUAL FRAMEWORK	10
2.7 THEORETICAL FRAMEWORK	12
CHAPTER THREE	13
3.0 METHODOLOGY	13
Introduction	13
3.1 Study Approach	13
3.2 Study Design	13
3.3 Study Population/Target Population	14

3.4 Sample size, sampling procedures	14
3.5 Data Collection	14
3.6 Data Analysis	15
3.7 Ethical Considerations.....	15
CHAPTER FOUR.....	16
4.0 RESEARCH FINDINGS	16
4.1 Key findings.....	16
Table 1	16
Table 2	17
Table 3	17
5.0 CHAPTER FIVE.....	23
5.2 limitations	29
CHAPTER SIX	30
6.0 CONCLUSIONS AND RECOMMENDATIONS	30
CONCLUSION	30
References	33
Appendices	38
WORK PLAN	38
WORK BUDGET	39

LIST OF ACRONYMS AND ABBREVIATIONS

BSI	British Standard Institute
CHW	Community Health Workers
GRZ	Government of the Republic of Zambia
ILO	International Labor Organisation
MLSS	Ministry of labour and social security
MOH	Ministry of Health
OD	Occupational Diseases
OHS	Occupational Health and Safety
OHSI	Occupational Health and Safety Institute
OHSS	Occupational Health and Safety Systems
PPE	Personal Protective Equipment
RPA	Radiation Protection Authority
SOP	Standard Operating Procedure
ZOHSA	Zambia Occupational Health and Safety Association
ZOOHS	Zambia Organisation for Occupational Health and Safety

LIST OF TABLES

Table 1 characteristics of participants.....	16
Table 2 Participants units/department of work.....	17
Table 3 Participants main reasons for poor knowledge on OHS.....	18

LIST OF FIGURES

Figure 1 Conceptual framework.....	11
------------------------------------	----

CHAPTER ONE

1.0 INTRODUCTION/BACKGROUND

The advancement of science and technology over the past century has led to economic growth in the majority of industrialized nations. The vast majority of research showed that when technology is applied in an environment, especially in underdeveloped countries, there is an imbalance between the users and the technology, which results in less and lower-quality products, higher injury and job incidence rates, and other undesirable outcomes.

Nurses are vital members of a health team and society that gets to be the first to interact or closest to not only patients but also society. They are a vital group that gets to interact more with individuals seeking basic health services, this is why it is important that work conditions and environment of their profession is safe and conducive to not only prevent injury but also future calamities.

In addition to looking after patients, nurses also interact with doctors, give medication, and monitor vital signs. Compensating for the largest workforce in the health sector. In the past occupational and ergonomic aspects towards health service providers specifically nurses were not taken seriously or considered. It is with this that emergent matter that has been addressed world recognition and formation of Zambia occupational health and safety association whose objective is to raise awareness by changing the attitudes and behavior of people towards occupational health and safety.

The formation of an occupational health and safety institute was made possible by the Occupational Health and Safety Act of 2010, which also calls for the welfare of people who work in regards to their health and safety. The duty of the employers includes establishing a health and safety committee where he or she employs ten or more people; ensure health, safety and welfare of employees; and to place and maintain an employee in an occupational environment adapted to the employees physical, physiological and psychological ability (ILO, 2014).

Like all other workers, health professionals should be able to take advantage of their rights to a living wage, safe and healthy working conditions, and social security benefits for medical care,

sick leave, and compensation for occupational illnesses and injuries. The sample included twenty-six respondent's health or nurses at three health care centers. Therefore, this study determined the knowledge, perceptions, and practices regarding occupational health and ergonomics amongst nurses in selected health facilities in Mumbwa district.

1.1 Statement of the problem

Occupational health and ergonomics is a characteristic of health that involves practice of safe working awareness and environment. Each organization is responsible for the health and safety of its workers and other people who may be affected by its activities. This responsibility includes promoting and protecting the workers' physical and mental health (BSI, 2018). Various chemical hazards and compounds that have been connected to long-term detrimental health consequences are also exposed to by nurses. Chemicals utilized in medical facilities like ethylene, Oxygen, formaldehyde, and anti-cancer medications have been associated with malignancies and negative results of reproduction exposure to cleaning and disinfecting agents, as well as latex among healthcare workers, has been linked to occupational asthma. Musculoskeletal conditions and injuries, as well as a variety of psychological risks such workplace.

Medical caretakers are more susceptible to illnesses, back wounds and radiation. They are likewise likely to cause stress, shift work and brutality in the work environment and Burnouts due to stress associated factors. The costs of noncompliance to occupation and ergonomic health behavior include physical, economic, and mental or psychological. These have posed a great risk to the delivery of healthcare services. Therefore, the importance of this study was to establish the coverage and knowledge and practices about occupational health and ergonomics among nurses in health centers in Mumbwa district and to assess not only the challenges but the effectiveness of already existing preventive and control measures, this is in order to identify the gaps in the application of these practices or health behaviors and policies in place.

1.2 Justification of the study

Healthcare occupational environments continue to be ignored by governments, management, and regulators despite the various risks in their unsafe workplaces. Occupational health risks raise the risk of higher morbidity and mortality for nurses. Loss of qualified nurses and medical staff will have a negative impact on healthcare services delivery which are already of poor quality. Effects of occupational exposure that are multiplied among nurses and health professionals lead to ailments and injuries include economic loss, bodily loss, and mental health issues such stress also low job motivation or productivity. These have a general detrimental effect on the nation at large, the workforce, and their families. Injury statistics and workplace health risks are typically poorly researched and recorded for sharing with other healthcare professionals. As a result, the current study's aim is to pinpoint the occupational health risks that affect nurses and their effect to service delivery. Particularly in the clinics and hospital setting, the occupational health and safety measures have been acknowledged as an effective way to prevent and control related infections. This study's aims are to assess the nature of nurse's occupational health practices and safety systems in selected health centers in Mumbwa district of Zambia and create a long-term learning program for occupational health and safety, by offering crucial information that contributes to the body of academic knowledge and notifies policymakers regarding prevention techniques for occupational diseases or injuries. This would greatly help academicians in interpreting new data and information gathered so as to have better understanding and knowledge on what interventions or solutions to be suggested or need to be revised. This information would be used for academic knowledge purposes and greatly expand in understanding.

OBJECTIVES:

1.3 General Objectives:

1. To assess knowledge and understanding of occupational health and ergonomics among nurses at selected health in Mumbwa district.

1.4 Specific Objectives:

1. To determine what occupational and ergonomic behaviors are practiced in selected health facilities in Mumbwa.
2. To assess effects of poor occupational and ergonomic practices in health facilities.
3. To determine the effectiveness of the law that control concerns relating to ergonomics and work related health actions for workplace hazards.

1.5 Research Questions:

1. What are the occupational and ergonomic behaviors practiced in selected health facilities?
2. What are the effects of poor occupational and ergonomic practices in the selected health facilities?
3. What is the effectiveness of legislation that regulates all ergonomic and occupational health related problems?

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

A literature review is an evaluation of studies that are found in the literature and are relevant to the chosen topic and goes beyond information-seeking to also identify knowledge gaps between the literature and the field of inquiry (Bhattacharjee, 2012). This chapter provides a thorough survey of the literature on the idea of OHS in the Health sector particularly healthcare workers. This also includes actions which could be taken to reduce occupational injuries or accidents

In the past years occupational and safety was not really a concern in the health sector this is due to that only service delivery rendered was the one of main concerns and objective.

2.2 FACTORS ASSOCIATED TO HEALTH FACILITIES THAT PUT WORKERS AT RISK FOR INJURY

A South African investigation highlighted the potential risk of illnesses, such as bodily and blood spillages, notably among medical professionals from needle stick injuries in maternity wards (Lipscomb et al, 2015). Health professionals are more vulnerable to occupational dangers in a poor working environment. For instance, a research in Southern India found that the majority of health centers with Poor working conditions are seen as impacting service delivery and placing health workers in danger or at great risk (Vegso, Cantley and Slade, 2012).

In surveys conducted at two regional hospitals in India, healthcare professionals admitted to eating in their workstation due to the lack of a separate meal space at the job, which could increase exposure to Ingestion of biological and chemical risks (Rogers et al., 2014).

In South Africa's rural healthcare facilities, there was a high rate of workplace aggressiveness and violence. For health professionals, abuse frequently happened in emotionally charged or high-

stress settings, such as when providing treatment for traumatized patients or providing prenatal care. Female healthcare workers described instances in which patients or people accompanying the clients during night shifts were particularly at risk of workplace violence, healthcare professionals say this was due to a lack of security at work (Rockers et al., 2012). A research by Gronkiewicz et al. (2012) found that many healthcare professionals mostly in developing nations, midwives lack adequate safety equipment, therefore they use their bare hands to mothers occasionally during delivery. They as a result come in contact with microorganisms, whenever touching mothers, contaminated materials, viruses, fungus, or parasites when working with mothers, contaminated materials, bodily fluids, tissues, or secretions.

In regard to the aforementioned, a study conducted in Kenya found that the lack of protective equipment among health professionals causes them to be hesitant to touch patients, which lowers the standard of care that patients receive. This is because due to the fact that handling mothers, contaminated objects, body secretions, tissues, or fluids frequently results in health personnel coming into contact with bacteria, viruses, fungus, or parasites (Chankova et al., 2013).

The correlation between working in a public health facility and encountering occupational hazards as opposed to private health facilities was another risk factor for occupational hazards. For instance, it was found that in Uganda, government-run health care institutions health workers had a higher risk of occupational hazards because of job overload, stress, and a frequent absence of the appropriate protective gear such in comparison to those who work in private healthcare facilities (Ziraba et al., 2010).

A study by Bloom (2012), was undertaken at three hospitals in South Africa to identify some of the causes of the rise in occupational hazards among healthcare professionals. His research proved that the lack of appropriate safety regulations in many hospitals significantly increased the likelihood of occupational dangers for healthcare personnel.

In a similar Study by vein Gorter et al. (2012) observed that inappropriate medical waste management in hospitals was largely caused by a lack of oversight. His research showed that health professionals who were constantly under supervision were more likely to follow medical waste treatment requirements than those who weren't constantly under supervision.

2.3 HIGH RATES OF OCCUPATIONAL HAZARDS ARE CAUSED BY FACTORS RELATING TO HEALTH WORKERS.

Although many healthcare institutions offered safety gear and equipment and waste storage sites for medical waste as controls against workplace health hazards, the number of healthcare workers who used them was lower primarily because of a severe workload (Gershon et al., 2013).

A survey by the Ugandan Organization Health Promotion and Social Development (HEPS, 2011) found that health workers' lack of training is another significant factor leading to occupational hazards because they are more likely to accidentally poke themselves with needles. While doing deliveries, medical personnel in maternity wards also run a higher risk of splashing or spills.

In their study, Berland et al., (2013) found that working late increased the risk of biological and no biological risks for healthcare personnel. Long hours at work result in long-term exposure to risks and little time for recovery. This results in physiological exhaustion that lasts into the following shift or workday.

Another factor contributing to occupational dangers for health professionals is negligence. For instance, a research conducted at two hospitals in found that 23% and 26% of occupational accidents at the hospitals were caused by the incompetence of healthcare personnel (Lindquist, 2014).

In their research on safety and quality in healthcare carried out in the United States, (Lockley et al., 2014) found that a lack of job experience made health workers more susceptible to numerous occupational dangers when they were on job.

In addition, Orji et al., (2014) found that the nature of a person's profession also affects the risk of risks they may encounter. For example, health professionals working in particular departments, such as surgical units, labor emergency rooms, and Tuberculosis wards, amongst many others, may be at a greater risk of occupational risks than other health personnel from other departments.

2.4 OCCUPATIONAL HEALTH AND SAFETY TRAINING AND PERCEPTIONS IN NEPAL

According to Budhathoki (2014), study conducted in Nepal, welders can prevent and minimize a number of health risks they are exposed to during welding by using safety precautions appropriately. In this study, information from 300 welders was gathered. They were all male, had a mean age of 31.9 years, and were 93% literate. According to the study, welders rarely used personal protective equipment (PPE) and lacked knowledge of potential threats. 9.3% of welders were unaware of any specific hazards at their jobs and were unable to think of any welding-related dangers. For instance, even though a large percentage of welders (74.3%) usually wore sunglasses at work, 90.7% of welders were aware that wearing welding helmets or an eye shield would safeguard their eyes. Sunglasses are not considered to be among the PPE for eye protection against welding radiation. The employer may provide sunglasses since they are affordable, accessible, and comfy. Additionally, the sunglasses utilized lacked a UV protection certification. Furthermore, only 19.7% of the welders were aware of ear muffs, despite the fact that 75% of them recognized noise as a risk at work. The welders also used cotton masks, which were also widely used at the time. These do not adhere to the standards for welding respirators. Additionally, it was discovered that 52.3% of welders did not wear any PPE while at work welders used at least one PPE at a rate of 47.7%.

This study also shows that education level significantly affects danger awareness, hazard awareness of personal protective equipment (PPE), and PPE use. This demonstrated that as welders' levels of education rose, so did their levels of awareness and safety precautions. Higher educated welders tended to read the news and stay current, which raised their understanding of and use of personal protective equipment (Budhathoki, 2014).

Additionally, it was discovered that welders who had worked for longer periods of time claimed to be less aware of the risks associated with welding. The opposite could likewise be usually anticipated to be true. The outcomes of this study may be due to the fact that welders who worked for extended periods of time failed to recognize exposure as hazardous after being exposed to it for a long time.

Additionally, the welders received no training or orientation regarding workplace hazards or safety precautions, such as basic First Aid. This was one of the reasons they were ignorant of the risks associated with their line of work and the precautions they needed to take (Isah, 2006).

2.5 PREVENTATIVE MEASURES TO BE TAKEN AGAINST WORKPLACE RISKS

In processes where blood splash/spill is expected, personal protective equipment including aprons and face masks should be worn, following a study by (Van der Hulst, 2015) on ways to prevent occupational hazards. When starting intravenous fluids (IVs), giving injections, and loss of blood, gloves ought to always be worn.

To further lessen the danger of exposure to occupational hazards, training of workers and the provision of personal protective equipment (PPE) are required. The hospital administrators should routinely evaluate and amend exposure and infection control guidelines operating procedures (Siegel et al., 2013).

All occupational risk exposures must be recorded to and documented by the proper authorities. The management of the hospital should routinely evaluate and improve exposure and infection control policies (SOPs) (Bolyard et al., 2013).

Hospital management should make an effort to give medical staff the tools they need, including gloves, masks, and aprons. They will be less likely to face occupational risks as a result (O'Dumas, 2012).

A survey on enhancing health care delivery conducted in South Africa found that one of the ways to avoid occupational dangers is for health staff to adhere to ward rules (Van der Klink et al., 2014).

Adding more personnel to decrease work overload is another method of protecting health workers from workplace dangers. This is mostly explained by the possibility that overworked health

professionals are more susceptible to workplace hazards including musculoskeletal injuries like backaches (Mortsen, 2011).

Additionally, keeping wards clean overall has a significant impact on minimizing occupational dangers, particularly illnesses brought on by dusty conditions. Additionally, by reducing blood-borne illnesses like HIV/AIDS and Hepatitis B that are spread by surgical blood spillage on the floors (NIOH, 2013).

Governments, particularly those of poorer nations, should expand funding for the healthcare industry, particularly through the routine distribution of PPE. Additionally, more focus should be placed on ensuring that healthcare professionals receive adequate training on how to protect oneself at work (Ilhan et al., 2014).

2.6 CONCEPTUAL FRAMEWORK

The conceptual framework mentioned below illustrates the relationships between the study variables. Here are the independent variables:

Factors associated to health facilities (bad working conditions, hostility and violence at work, lack of sufficient safety equipment, job overload and stress, lack of proper safety rules, and supervision).

Factors relating to health worker's occupational accidents include: high workload, inadequate training, lengthy working hours, Inattention to detail, lack of expertise, and the nature of the work). Lack of stakeholder education which relates to institutions that are involved in the training and education of nurses in safe occupational and ergonomic practices.

Actions that can be taken to prevent workplace dangers include the supply of personal protective equipment, employee training, exposure and infection control procedures, and hiring extra employees.

The figure shows that the independent variables and the dependent variables interact with the high occurrences or poor regard to occupational risks among health professionals.

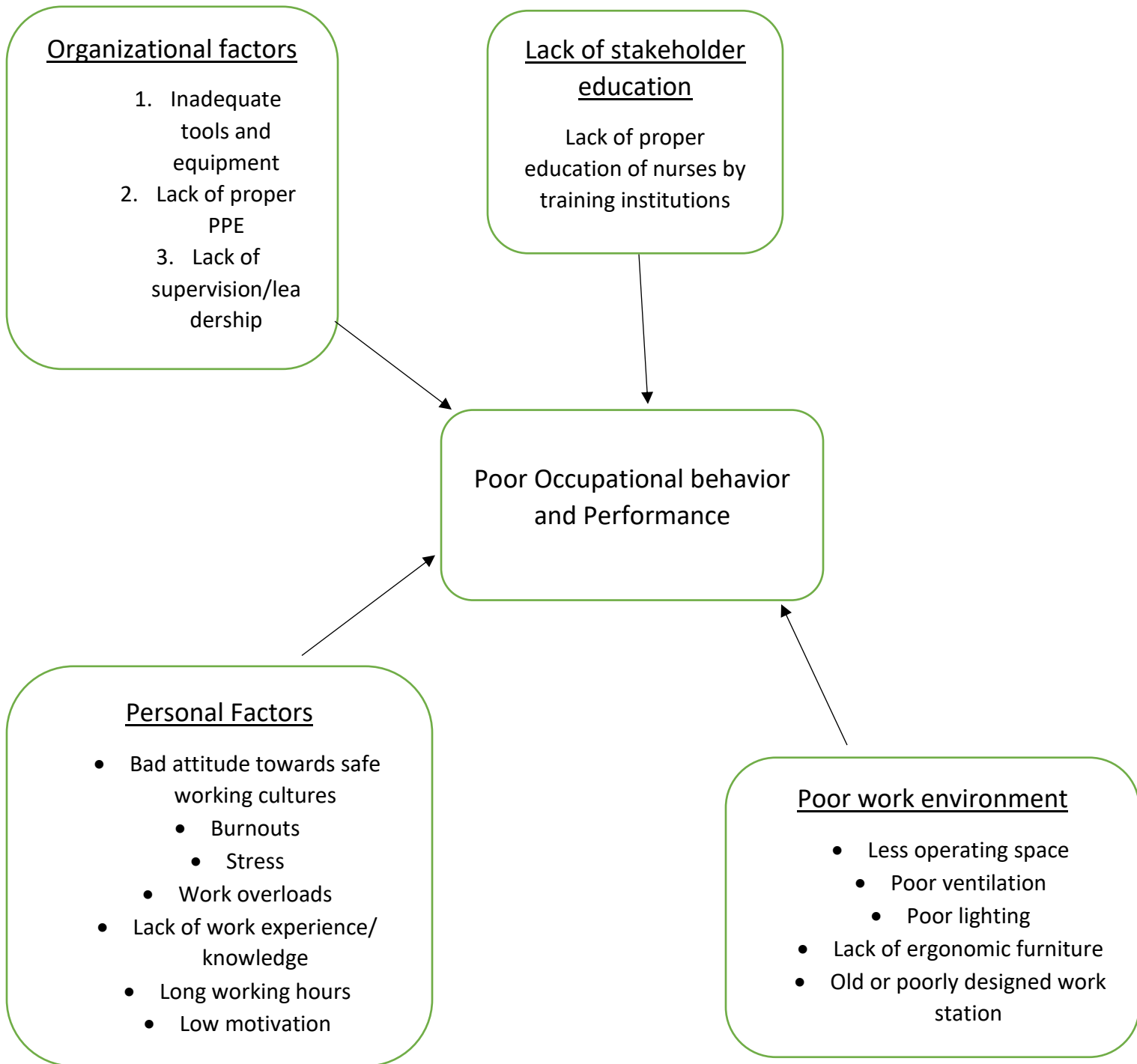


Figure 1.0 Causes of occupational hazards and accidents in workplaces (Amoah, 2021)

2.7 THEORETICAL FRAMEWORK

Richard (2013) asserts that theories are developed to explain, anticipate, and comprehend a phenomenon. They are designed to push the boundaries of essential limiting assumptions and challenge and expand existing knowledge. Therefore, one of the accident causation theories used in this investigation is the Multiple Causation theory. Using this theory, we can best explain why injuries and accidents occur in the health sector generally and health facilities in Zambia. This hypothesis was presented in 1931 by Herbert William Heinrich. The Domino Theory gave rise to it, yet it postulates that there could be contributing elements, causes, and secondary causes for a single event. Accidents can occur when several of these factors are combined (Mahat & Ismail, 2015). In light of this theory, the influencing elements are classified into the following categories:

1 Behavioral: This group of elements includes aspects of the workers themselves, such as poor attitudes, a lack of expertise and skills, insufficient physical and mental circumstances, and a lack of information.

2 Environmental: This category covers inadequate safeguards for additional hazardous job components, equipment deterioration from usage, and unsafe methods (Viner, 1991).

As a result, the Multiple Causation Theory and its two categories will be used in this investigation. This is due to the fact that health facilities have numerous risk factors to accidents. To identify these elements, the workplace health and safety system must be assessed.

Additionally, because accidents are not the result of a single condition, other elements may also contribute to them, including poor worker and supervisor attitudes and a lack of knowledge and skills.

CHAPTER THREE

3.0 METHODOLOGY

Introduction

This chapter provides an overview of the techniques used to conduct the research study. It includes a research design, target area, data requirements, demographic and sample procedures, data collection tools, and data analysis.

3.1 Study Approach

This study examined nurses' understanding of occupational health and the causes causing occupational injuries using a cross-sectional qualitative study approach. The researcher was able to examine the underlying causes of poor knowledge or a high rate of occupational accidents among nurses in health centers thanks to a qualitative investigation. Additionally, the qualitative investigation gave the researcher the opportunity to develop a theory from which to develop a hypothesis. Given that only a sample of the population in the study areas will participate, the study was cross sectional in character.

3.2 Study Design

In this study, the knowledge of occupational health and ergonomics was investigated using a cross-sectional qualitative study approach. The researcher was able to find out how well nurses understand occupational health and safety. Additionally, the qualitative investigation gave the researcher the opportunity to develop a theory from which to derive a hypothesis due to the fact only a sample of the population in the study areas were able to participate, the study was cross sectional in character.

3.3 Study Population/Target Population

The study was carried out at Mumbwa district, which is situated 211 kilometers (km) west of Lusaka, the capital of Zambia. The majority of residents in Mumbwa, particularly those who live in rural areas, rely solely on farming and small-scale business operations. The study included female and male nurses aging between 18-49 and live in Mumbwa district.

Inclusion criteria

Only healthcare professionals, specifically nurses in different departments and wards at the chosen health centers and hospitals, who gave their approval for the study were included. This also included nurses who have been working for more than a year.

Exclusion criteria

Healthcare administrators, regardless of their occupations, were excluded from the study due to its nature, nurses who were less than a year in service and those who did not give consent to participate in the study.

3.4 Sample size, sampling procedures

Sampling involved choosing a subset of the population to represent the complete population (Polit et al., 2003). With convenience sampling, study participants from the intended population who satisfy a set of practical requirements were included. Convenience sampling is simple, inexpensive, and has easy access to subjects (Battaglaim, 2008).

The study's sample size was limited to a maximum of twenty-six participants. This sample size took 26 participants as an expectation of reaching saturation. A small, carefully chosen sample was used in the qualitative research due to the in-depth nature of the study and the need for data processing (Cormack, 2000).

3.5 Data Collection

For this study, an in-depth interview guide was employed. Individual participant engagement occurred during in-depth interviews. This interview enabled the researcher to obtain the specific details needed about a subject or participant (Boyce, 2006). Additionally, it made sampling easy, quick, affordable, and versatile.

3.6 Data Analysis

Since thematic analysis focuses on finding and describing both implicit and explicit ideas it is therefore typically employed when evaluating qualitative data gathered, it was chosen because it was more appropriate for discovering meaning through interpretations (Namey et al., 2008).

3.7 Ethical Considerations

The research study was approved granted by the University of Lusaka Research and Ethics Committee, The National Research Board and the District Health Officer Mumbwa District.

The following moral guidelines were followed:

Do no damage: Participants were given the assurance that taking part in this study won't affect them in any way, whether it's psychological, financial, physical, or social in nature.

Anonymity: By not collecting identities or other personal details, the study maintained the privacy of the research participants.

Participants were made aware that their participation in the study is entirely voluntary and signed, informed consent will be obtained from each participant before they begin.

CHAPTER FOUR

4.0 RESEARCH FINDINGS

4.1 Key findings

The zone of study and concentration presents the findings on the knowledge of occupational health and ergonomics amongst nurses in Mumbwa district. Participants of this study were chosen from 3 health facilities in Mumbwa district namely Nangoma, Mumbwa district hospitals and Bulungu urban clinic. After conducting in-depth interviews with the 26 study participants, the data were deemed sufficiently saturated. Due to an alteration in their interest in the study's subject, two additional volunteers withdrew at the last minute. The interviews took 10 to 15 minutes.

The presentation of the emerging themes resulting from the thematic analysis were followed by a discussion of the respondents' characteristics. Verbatim quotes were used in the presentation of the results to highlight the key themes. To ensure anonymity and confidentiality of the participants, cryptogram (secret code) N01 to N15 were employed to present data.

Table 1 Characteristics of the Participants

Name of Health Facility	female nurses	Male nurses
Mumbwa District Hospital	13	1
Nangoma District Hospital	7	2
Bulungu Urban Clinic	4	---
Education	Degree	Diploma
Mumbwa District Hospital	3	10
Nangoma District Hospital	4	3

Bulungu Urban Clinic	1	3
----------------------	---	---

Source: primary data from field

Table 2 Participants units/department of work

Unit of work	Number (nurses)
Pediatrics	4
Out-patient department (OPD)	6
Maternity	8
Female ward	4
Male ward	4
Participants	Age range of participants
Male	29-51
Female	25-50

Source: primary data from field, 2023

Table 3 Participants main reasons for poor knowledge on OHS

Main codes generated	female	male	Total	%
Lack of proper education and training on OHS	4	8	12	46
Lack of proper equipment and resources	15	9	24	92

Social factors such as (marital, financial, workplace violence)	9	7	16	61
Inconsiderate regard for OHS by authorities and fellow work mates (nurses)	10	9	19	73

Source: primary data from field, 2023

The table above shows the main points or factors that were collected from the participant’s responses. It was found that majority of the respondents or participants attributed to the lack of equipment and resources which had a feedback of 92%, followed by inconsiderate regard or care by authority bodies such as MLSS which had 73% response respectively. Other factors include social attributes such as workplace violence, marital disputes with 61% response and lastly lack of education and training with 46% response.

Thematic Analysis finding

Themes were developed through this studies finding which include 1) Knowledge/awareness of OHS (2) Attitude towards OHS and ergonomics (3) Barriers and (4) experiences

Theme one: Awareness and understanding

Most participants from all the three targeted health facilities were able to define OHS and understood the basic fundamentals involved in maintaining OHS. The participants were aware of hazards and risks associated with being a nurse such as sharps, needles and were able to explain and knew what to do to prevent injuries. However, it was noted that from the responses gathered that there was a general understanding to OHS, knowledge gaps were noticed such as in fire prevention drills and use of extinguishers. These are some of the views of participants.

“...we do have fire extinguishers in wards and around the health facility but most of us do not know how to operate or use them so it would be hard for us to put out a fire if such a thing would

happen. It's not part of my job description and I would rather help patients out of the fire not putting it out..."

"... I did not receive any formal training on how to handle fire or how to use a fire extinguisher..."

Whilst many claimed that

"...Although we have schedules to conduct fire drills and prevention methods such activities do not take place or happen we are usually busy attending to patients and that's how it has been for everyone here, you know we are understaffed so we are usually busy attending to patients the workload is too much and fires are not much of a concern..."

Theme two: Attitude/behavior

The whole nursing team was aware of their responsibility for sustaining OHS and understood that they were the initial point of contact. They all concurred that it is their duty to notify the environmental health technician or the nurse in charge of any occupational injuries or accidents. They were responsive to patients required to be watched for at least 10-15 minutes after receiving any medication or treatment for a condition related to maternal health. All participants were adamant that risks or dangers should be reported. However, it was noted from the participants that there hasn't much done to improve attitude towards OHS. This was what some participants had to say;

"... even though we report injuries such as from needles or oxygen cylinder bursts or as result of a work place tool nothing is usually done or amended so as to prevent future or further calamities. Management doesn't take much consideration..."

some participants also stressed out that other factors such as marital, financial and social from fellow nurses contribute to bad attitudes towards proper OHS practices. This is what they had to say;

"... most of our workmates come stressed either as a result of marital disputes or financial challenges, you would only tell if they open up to you. Most of the times they come with unconcerned or apathetic attitudes towards work, this affects how they handle tools and equipment in the facility..."

“...sometimes its workplace violence that leads to poor regards towards OHS this happens when there is a dispute either between nurses in a ward or between groups of nurses. We have different working standards and when you try to control your fellow nurse on how to maintain proper working spaces we are usually seen as enemies or despised, some nurses don’t like to be controlled or corrected...”

Few participants had to say;

“...every so often disputes arise when an in-charge nurse had a bitter exchange of words with a nurse or a group nurses in a ward, sometimes ikongole (credit) that’s what gets most of our workmates having bad working practices or maintaining proper OHS standards...”

Theme three; Barriers

The majority of the participants struggled with time management due to work overload. For several years in health facilities, staffing shortage was another problem that needed administrative action. The absence of appropriate reporting forms in departments and wards was cited by a few interviewees as another significant issue. Some of the members also find it difficult to call the department head in the event of an injury or accident. Despite the fact that several participants acknowledged forgetfulness and workload as significant obstacles. The absence of habit/rules and policies is the primary barrier to failing to report accidents and injuries, all participants agreed. Only a small number of nursing staff members were afraid to disclose injuries as it looked or was regarded as carelessness or negligence in the handling of the tool or equipment. Some participants acknowledged that forgetfulness and workload were the main obstacles. Participants had this to say;

“... even though we receive a minimum training in OHS it hasn’t been easy to maintain such standards if you are tired or overworked mostly, our facilities do not even have a properly trained occupational and safety officer that can help in maintaining proper OHS. Reporting to the in-charge will only grant you off days depending on the severity of your injury...”

“... most of our working spaces do not cater for proper working conditions, the buildings are old we carry dialysis machines and oxygen cylinders from one ward to another because our walk ways are dilapidated and once you drop it (oxygen cylinders) it explodes and can injure one...”

Few attributed to a lack of a proper OHS body within the MOH unlike the occupational health department under the ministry of labor which only has greater concerns at the mitigative measures rather than preventive side;

“...we don't have a reporting body within the health sector, we are aware of the WCF but even our nurse in-charge don't take injury cases anywhere above her authority, if there was a reporting body or consequences on failing to maintain OHS our superiors would have been taking injuries reported and safety standards seriously...”

“...most of us found poor OHS standards poor and we have assimilated with it over time, looking at the challenges that are beyond our line of authority...”

Theme four: lived experiences

One of the main issues facing nurses at all levels was the lack of appropriate protective gear and refresher training. Their physical and familial circumstances, as well as their mental health on a personal and professional level were being hindered. Concerns were raised about the PPE's quality as well as spacious environments linking to long standing hours. They believed the PPEs were inadequate for their protection. This is what participants had to say;

“...we don't rest even in wards because there no chairs so most of the times we rest or sit on beds that are free (not occupied by patient), long standing makes us have lower back-pain fatigue, this is how it's been and people (nurses) we found say the same...”

Nurses stressed out factors such as Nurses' motivation and job satisfaction can increase when they work in favorable ergonomic settings, which can also minimize their stress levels, occupational diseases, and work-related accidents and absenteeism.

“...as nurses we are always stressed because of workload and repetitive work procedures equipment is not stored in wards so we have to go to the dispensary to get more PPE, needles, sharps, cannulas so we around the facility a lot, with time we get used though we get to have muscle strains from time to time because there is no space to store these tools in the wards...”

Among the Occupational health and safety risks that affect healthcare professionals include stress, exposure to infectious diseases, back and repetitive strain injuries, latex allergies, and assault or violence by patients and caregivers (Gerberich et al., 2011). One of the biggest risks to healthcare professionals' health is biohazards. There are infectious microorganisms that can cause exposure to blood- and air-borne infections in practically all healthcare institutions (Hoffmann et al., 2013).

This study revealed that most nurses understood or were aware of occupational risks and accidents that may hinder or prohibit their work in health facilities, but were however hindered by several factors which prevented or limits their OHS standards.

5.0 CHAPTER FIVE

5.1 DISCUSSION

The results of this study shed light on a significant issue in Zambia's healthcare industry, focusing in particular on the nurses' poor attitudes and lack of knowledge regarding occupational health and ergonomics (OHE) in three particular healthcare facilities: Bulungu Clinic, Nangoma Mission hospital and Mumbwa General Hospital. The findings highlight the urgent need for focused interventions to raise nurses' awareness of and foster a proactive attitude toward their own occupational health and safety, eventually elevating the standard of care they deliver.

5.1.2 WHAT ARE THE OCCUPATIONAL AND ERGONOMIC BEHAVIORS PRACTICED IN SELECTED HEALTH FACILITIES?

This study found that participants had a fair understanding of ergonomics' role in preventing MSDs, and long term injuries. Despite having favorable attitudes toward ergonomics, the nurses in this study did not use ergonomic procedures at work, this was because of limited resource capabilities that they faced. This also hindered senior nurses from conveying more information and knowledge to junior nurses on importance of ergonomics. Activities included use of adjustable beds to avoid awkward postures, proper storage of medical equipment, benches to accommodate visiting patients and personnel. Participants also reported feeling stressed out at work due to their 12-hour shifts and occasionally going without lunch due to their intense workload. According to (Edward et al.'s.,2016) continuous exposure to environmental and situational dangers that cause work-related stress leads to emotional weariness, depersonalization, and a sense of unfulfilled personal potential. The workplace must be set up to shield nursing workers from intrusion, harassment, and stress. However, in line with the findings participants complained of lack of equipment such as stretchers, chairs, rest rooms, most participants complained of long standing hours looking after or attending to patients which greatly led to burnouts. Resources to buy or renovate the structure of the health facilities such as floors, walk pavement, prevented nurses from moving patients from one ward to another due to damaged floors. Machines such as dialysis machines needed to be carried around the health center to attend to patients in different wards, of which if dropped or damaged the nurse with the machine had to be disciplined or pay for the loss.

Accidents or damage to vital health instruments were mainly caused by negligence of a nurse, junior nurses not familiar with the wards or fatigue. This is in line with a research on safety and quality in healthcare carried out in the United States, (Lockley et al., 2014) found that a lack of job experience made health workers more susceptible to numerous occupational dangers when they were on job. Agreeing to this fact was another study was a survey on enhancing health care delivery conducted in South Africa found that one of the ways to avoid occupational dangers is for health staff to adhere to ward rules (Van der Klink et al., 2014). This shows that the amount of equipment and resources mattered and is significant in maintaining a productive and comfortable work environment not only in preventing injuries identifying possible risks.

AWARENESS

The lack of awareness and knowledge of Occupational health and Ergonomic principles among nurses is one of the main challenges raised by this research. Many participants showed poor knowledge of good body mechanics, ergonomic techniques, and potential occupational dangers related to their daily tasks. Since improper practices can result in musculoskeletal illnesses, chronic pain, and other occupational health problems, this information gap presents a serious risk. This gap in knowledge is probably caused by the fact that these healthcare facilities don't have any formal teaching programs that concentrate on Occupational health and ergonomics. Inadequate educational resources may have also prevented nurses from acquiring the fundamental skills necessary to maintain a safe and healthy working environment.

ATTITUDES AND BEHAVIORS

Inadequate attitudes and practices concerning ergonomics and occupational health were also revealed by the Study. A significant portion of nurses showed a lack of initiative in implementing ergonomic practices or making use of the available safety equipment. This conduct may be a result of a persistent mentality that puts the needs of patients ahead of one's own wellbeing, frequently leading to the disregard for ergonomic best practices and self-care. Cultures in these healthcare facilities may unintentionally reinforce these viewpoints. Unintentionally hindering proper

adherence to Occupational Health principles can be a pervasive culture that prioritizes efficiency and patient care at the expense of the wellbeing of healthcare personnel.

The identified knowledge gaps and inadequate attitudes towards Occupational health and Ergonomics have critical implications for both healthcare workers and the healthcare system at the Health facilities. A lack of knowledge regarding ergonomic principles and inadequate attitudes towards safety can jeopardize the health and well-being of the nursing workforce, impacting their ability to provide high-quality patient care. Addressing these issues is imperative to ensure the long-term health and sustainability of the nursing workforce in these specific institutions.

5.1.3. WHAT ARE THE EFFECTS OF POOR OCCUPATIONAL AND ERGONOMIC PRACTICES IN THE SELECTED HEALTH FACILITIES?

Nurses working in facilities with poor occupational and ergonomic practices may have reduced awareness of the risks associated with their work. For example, if a facility does not have a comprehensive infection prevention and control program, nurses may not be aware of the best practices for preventing the spread of infection. This can lead to a lack of knowledge and understanding about the importance of occupational health and safety. Poor ergonomic practices can increase the risk of musculoskeletal disorders and other types of injuries. For example, if nurses are required to lift heavy patients without the proper equipment or training, they may be at increased risk of back injuries. This can result in increased absenteeism and decreased productivity, as well as reduced job satisfaction and overall quality of life, nurses working in facilities with poor occupational and ergonomic practices may experience increased stress as a result of their working conditions. For example, if a facility is understaffed and nurses are required to work long hours or take on additional responsibilities, this can lead to burnout and decreased job satisfaction.

Personal protective equipment (PPE) is regarded as the most crucial component of defense against occupational hazards; yet, it has been noted that neither adequate nor proper PPE provision is made for employees (Kang et al., 2017). One of the public hospitals in the province of Limpopo was the subject of a study by Mokoena, which found that a lack of material resources, equipment, and

supplies (such as glucometers for monitoring blood glucose and needles for lumbar punctures and investigating or diagnosing meningitis) led to prolonged patient stays in the hospital because patients were sent to other facilities for investigation, which resulted in delayed diagnosis and treatment (Mokoena, 2017). Some departments are understaffed, which has increased workload pressure and made it difficult to provide new hires with the proper job orientation and training prior to their start of duty, this is what some participants had to say;

“...most of time in night shift we at least don't get high numbers of clients(patients) but we lack basic PPE such as gloves which are insufficient also needles, sharps (surgical blades) for emergencies because the storerooms or main stores is locked and only operates till 18:00. we are then forced to use bare hands sometimes ...” this is in support by a research done by Gronkiewicz et al. (2012) which found that many healthcare professionals mostly in developing nations, midwives lack adequate safety equipment, therefore they use their bare hands to mothers occasionally during delivery. They as a result come in contact with microorganisms, whenever touching mothers, contaminated materials, viruses, fungus, or parasites when working with mothers, contaminated materials, bodily fluids, tissues, or secretions.

The research also reviewed that shiftwork and repetitive motions/movements have been the main cause of back pains reported by some participants who have served longer periods in service. It was reviewed by participants that their social life has also been greatly affected as time spent meant for them to spend with family and friends is rarely utilized as they would be rather sleeping, or trying to gain rest from their work schedules. The research also revealed that their marital disputes attributed to negligence and workplace violence in health centers which further caused disregard to maintaining a proper work environment. This is also supported by Rockers et al., (2012) a study done in South Africa's rural healthcare facilities, workplace aggression and violence were prevalent. In emotionally charged or high-stress situations, such as when treating traumatized patients or giving prenatal care, abuse regularly occurred to health personnel. Due to a lack of protection at work, female healthcare workers mentioned situations in which clients or those accompanying them during night shifts were particularly at danger of workplace violence.

5.1.4. WHAT IS THE EFFECTIVENESS OF LEGISLATION THAT REGULATES ALL ERGONOMIC AND OCCUPATIONAL HEALTH RELATED PROBLEMS?

This study revealed that much of the work or contributions towards maintaining and effectively enforcing OHS regulations has much greater bearing on nurse's ability to carry out their tasks whilst minimizing and preventing accidents in workplaces. This study also highlighted through table 3 above on how much participants were or felt not much has been done by regulators and authorities responsible for maintaining and enhancing buildings, tools and equipment used by nurses for proper OHS whilst attending to clients/patients.

For an Organisation to run smoothly there needs to be set rules and regulations which guide and control behaviors on how to not only conduct themselves but also safety on a workplace. This for a fact was adamant in nurse's day to day activities, it was revealed through this study that finances and resources that are needed to maintain a safe and conducive work environment such as proper adjustable beds and stretchers, chairs in wards, oxygen cylinder stands, drug trolleys and storage bays affected work performance to the participants. It was evident through this study that most health centers lacked finances to renovate damaged floor sections of their building and still had old structures which failed modern safety standards with the increasing population they serve. It was also revealed that moving patients had to be sometimes carried by without stretchers from one point to another in the health facility this was mainly due to limited number of stretchers, unavailable nurses due to small number of nurses or nurses attending to other patients. It was also revealed through the study that most activities were limited by building design could not safe operational challenges that would support nurse's duties in maintaining OHS. This is in line with a survey conducted at two regional hospitals in India, healthcare professionals admitted to eating in their workstation due to the lack of a separate meal space at the job, which could increase exposure to Ingestion of biological and chemical risks (Rogers et al., 2014).

Working in a small space can force nurses to work in awkward or uncomfortable postures, which can increase the risk of musculoskeletal injuries. Nurses with knowledge of occupational health and safety may be more aware of the risks associated with poor ergonomics, but may still be at risk if they are unable to adjust their work environment to reduce these risks. Small working spaces can also increase the risk of infection transmission, particularly in the context of the COVID-19 pandemic. Nurses with knowledge of occupational health and safety may be more aware of the

importance of infection prevention and control measures, but may still be at risk if they are unable to practice physical distancing, use personal protective equipment, or access other resources needed to prevent the spread of infection. Working in a small space can also increase stress levels and lead to burnout, which can have negative impacts on nurses' mental and physical health. Nurses with knowledge of occupational health and safety may be more aware of the impact of work-related stress, but may still struggle to cope if they are unable to access adequate support or resources.

The ILO's guidelines on occupational safety and health in the healthcare sector emphasize the importance of providing adequate working conditions for healthcare workers, including sufficient space for performing clinical activities. The guidelines recommend that healthcare facilities should prioritize the creation and maintenance of safe and healthy working environments, which may involve regular assessments of the physical space available for clinical activities, identifying and addressing potential hazards or barriers to efficient operations, and implementing appropriate ergonomic solutions to minimize the risk of work-related injuries or discomfort.

According to the attorney general report of 2016, the permanent secretary MOH stated that given the expense of the majority of the equipment needed to conduct efficient inspections, financing for the Occupational Health and Safety Institute had been insufficient. He mentioned that the Ministry of Health has received a list of the necessary equipment from OSH Institute. In order to acquire the necessary equipment for occupational safety and health activities, the Ministry was soliciting the help of cooperating partners. To address these concerns effectively, tailored educational interventions should be designed to meet the unique needs of the nursing staff at Mumbwa General Hospital Nangoma Hospital and Bulungu Clinic. Educational programs should encompass both theoretical knowledge and practical applications, empowering nurses to integrate ergonomics principles into their specific work contexts effectively. Additionally, advocating for the integration of OHE into healthcare policies at these facilities is crucial. Developing facility-specific guidelines that emphasize the importance of a safe work environment and the role of nurses in maintaining it will further reinforce a culture of safety.

To change the attitudes about Occupational health and ergonomics, these healthcare facilities must undergo a cultural makeover. A more proactive and safety-conscious nursing workforce can be attained by promoting an open discourse regarding occupational health concerns, creating a

nurturing workplace, and highlighting the importance of self-care. Finally, it is critical to support research projects and the dissemination of best practices that especially address OH at these facilities. The nursing staff's ability to make well-informed decisions and change their behavior will be facilitated by the promotion of evidence-based practices developed from such research within these facilities.

To protect the safety, health, and general wellbeing of nurses working at Mumbwa General Hospital and Bulungu Clinic, it is critical to address the knowledge gaps and attitudes that have been discovered regarding occupational health and ergonomics. To create a safer and healthier work environment for healthcare professionals in various settings, tailored educational programs, policy advocacy, cultural reform, and research dissemination are essential tactics. This will ultimately improve patient care and the entire healthcare system.

5.2 limitations

Due to the limited time and busy schedules nurses have in health facilities it was much difficult to capture more or detailed information as most nurses felt uninterested and showed less concern. Most nurses preferred their in-charge (nurse responsible for a particular ward) to answer on their behalf whilst others preferred focus group discussions unlike one to one semi structured questionnaire interviews.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

CONCLUSION

The findings in this study reveal that correct body mechanics when lifting, transferring, or caring for patients, nurses were taught how to maintain good posture and body mechanics. This covers methods like lifting using the legs rather than the back, minimizing twisting or bending, and keeping the spine neutral.

The findings also reveal that nurses are urged to take regular breaks and rest periods in order to avoid exhaustion and overexertion. This is particularly crucial when performing duties that call for repeated motions or extended durations of standing or sitting. However, this has been a difficult rule to follow due to the low number and overwhelming patients received at the health facilities. Furthermore, usage of adaptive technology devices to help nurses move and handle patients safely these tools have been proven to fail and sometimes inoperable living the health facilities with less stretchers and wheelchairs than what is needed to carry patients to different wards. this has led to patients been carried by shoulders to ward. the healthcare institutions lack assistance devices like lift equipment, transfer belts, and adjustable beds. These tools lessen the possibility of musculoskeletal strains and injuries. health facilities had good lighting to maintain good visibility of work and reduce eye strain, adequate lighting is crucial in healthcare environments

The findings reveal that nurses have been affected by adverse effects of poor OHS in that work ethics have been hindered social lifestyle, and a growing and persistent un regard for following OHS procedures. This has led to injuries, workplace violence, and musculoskeletal injuries due to unavailability of chairs adjustable equipment.

The findings revealed that the Policies and guidelines in place do not promote modern workplace health and safety as they lack implementation strategies and are not prioritized which is are characterized by less regard by higher authorities and MOH. These regulations if taken into

consideration can address matters including safe patient handling, infection control, preventing workplace violence, and ergonomic requirements.

RECOMMENDATION

Government through OHS bodies should increase support for all activities in OHS and Ergonomics these services have to be through;

- Providing consistent OHS training: Health centers should offer consistent OHS training to all nurses, both new hires and long-standing employees. Infection control, the appropriate use of PPE, the safe handling of hazardous products, and workplace ergonomics should all be covered in the training.
- OHS rules and procedures should be more widely known: Health centers should make sure that all nurses are aware of the OHS policies and procedures in place and that they are constantly reviewed and updated. All employees should have easy access to the policies and procedures, and they should be explained in a clear manner that everyone can understand.
- Provide sufficient resources: Hospitals and health institutions should offer sufficient resources, including PPE, hand sanitizers, and tools for handling hazardous chemicals safely. These tools should be made available to nurses, and they should be regularly reminded of their significance.
- Create an environment of safety: Health centers should work to create an environment where everyone, from management on down, values safety. Any OHS-related concerns raised by nurses should be encouraged, and these issues should be taken seriously and quickly resolved.
- Deploy or employ more OHS trained personnel: government should recruit more OHS officers into the health sector so as to have professional and qualified staff who would help in maintaining safe environments for nurses as well as prevention of occupational accidents and hazards.

Recommendation to Health Center Administrators

- Encourage nurses to report events: Regardless of how seemingly insignificant they may seem, health administrators should encourage nurses to report incidents relating to occupational health and safety. Administrators will be able to see where they can make improvements and take the necessary steps to stop such occurrences from happening again.
- Information access: Health administrators should make sure knowledge regarding occupational health and safety is available to health professionals in an easy-to-access manner. Posters, pamphlets, and other written materials with information on numerous areas of OHS can be used to do this.
- Lead by example: Health administrators should lead by example by following all occupational health and safety practices themselves. This will demonstrate the importance of these practices and encourage health workers to follow them as well.
- Public and Community Awareness: Launch public education programs to inform the public about the value of OHS for Nurses. Encourage awareness of challenges that nurses confront in delivering safe and effective care.

References

- Mossburg, S., Agore, A., Nkimbeng, M., & Commodore-Mensah, Y. (2019). Occupational Hazards among Healthcare Workers in Africa: A Systematic Review. Retrieved from [www.https://doi.org/10.5334/aogh.2434](https://doi.org/10.5334/aogh.2434)
- Lin, Y., Hu, Z., Danaee, M., Alias, H., & Wong, L. P. (2021). The Impact of the COVID-19 Pandemic on Future Nursing Career Turnover Intention Among Nursing Students. *Risk management and healthcare policy*. Retrieved from <https://doi.org/10.2147/RMHP.S322764>.
- Grasmo, S.G., Liaset, I.F. and Redzovic, S.E. (2021) Home Care Workers' experiences of work conditions related to their occupational health: A qualitative study - BMC health services research, Springer Link. Biomed Central. Available at: <https://link.springer.com/article/10.1186/s12913-021-06941-z#citeas>
- Novaes Neto, E.M., Xavier, A.S.G. and Araújo, T.M.de (2020) Factors associated with occupational stress among nursing professionals in health services of medium complexity, Revista Brasileira de Enfermagem. Associação Brasileira de Enfermagem. Available at: <https://www.scielo.br/j/reben/a/zWRFNNmq8rWtWdXNSr4Q5nh/abstract/?lang=en>
- Faremi, F.A. et al. (2019) Assessment of occupational related stress among nurses in two selected hospitals in a city southwestern Nigeria, International Journal of Africa Nursing Sciences. Elsevier. Available at: <https://www.sciencedirect.com/science/article/pii/S2214139118300696> (Accessed: October 2, 2022).
- (no date) Occupational injuries among health care workers at a public hospital in Ghana, The Pan African medical journal. U.S. National Library of Medicine. Available at: <https://pubmed.ncbi.nlm.nih.gov/34512839/>
- Mathewos, B. et al. (2013) Assessment of knowledge, attitude and practice towards post exposure prophylaxis for HIV among health care workers in Gondar, North West Ethiopia - BMC public health, Springer Link. Biomed Central. Available at: <https://link.springer.com/article/10.1186/1471-2458-13-508> (Accessed: October 4, 2022).
- Dissanayake, Y. (2018) The impact of workplace health and safety conditions on Operational Workers' productivity (Business Research Project Proposal), Academia.edu. Available at:

https://www.academia.edu/36673116/The_Impact_of_Workplace_Health_and_Safety_Conditions_on_Operational_Workers_Productivity_Business_Research_Project_Proposal (Accessed: October 31, 2022).

Gordon, D.R., Ames, G.M., Yen, I.H., Gillen, M., Aust, B., Rugulies, R., Frank, J.W. and Blanc, P.D. (2005). Integrating Qualitative Research into Occupational Health: A Case Study Among Hospital Workers. *Journal of Occupational and Environmental Medicine*, [online] 47(4), pp.399–409. Available at: https://www.jstor.org/stable/44997005?seq=7#metadata_info_tab_contents.

Www.ilo.org. (n.d.). Occupational safety and health resources on Zambia (Safety and health at work). [online] Available at: https://www.ilo.org/global/topics/safety-and-health-at-work/country-profiles/africa/zambia/facet/lang--en/index.htm?facetcriteria=TYP=GenericDocument&facetdynlist=WCMS_212240.

Anon, Occupational safety, health at work – Zambia Daily Mail. [online] Available at: <http://www.daily-mail.co.zm/occupational-safety-health-at-work/>.

Sultan, T. (n.d.). Country Profile on Occupational Safety and Health in Pakistan <https://growsafehse.com/wp-content/uploads/2022/01/Country-Profile-on-OSH-for-Pakistan.pdf>.

Muula, A. S., Rudatsikira, E., & Siziya, S. (2010). Occupational illnesses in the 2009 Zambian labour force survey. *BMC research notes*, 3, 272. <https://doi.org/10.1186/1756-0500-3-272>

Phiri, J. (2017). An assessment of health and safety standards implementation on building construction sites in Zambia.

http://dspace.unza.zm/bitstream/handle/123456789/6256/Final_Final%20Dissetation_-_health%20and%20safety%20standards.pdf?sequence=1&isAllowed=y.

Mambwe M, Mwanaumo E M, Thwala W D and Aigbavboa C O. (2021) Evaluating Occupational Health and Safety Management Strategy Success Factors for Small-Scale Contractors in Zambia Sustainability <http://dx.doi.org/10.3390/su13094696>

Litana, M. and Kapambwe, C. (2017). Occupational health hazards among mortuary attendants at Ndola teaching and Arthur Davison children’s hospitals. *Asian Pacific Journal of Health Sciences*, 4(3), pp.88–94. doi:10.21276/apjhs.2017.4.3.14.

Kruse, G.R., Chapula, B.T., Ikeda, S., Nkhoma, M., Quiterio, N., Pankratz, D., Mataka, K., Chi, B.H., Bond, V. and Reid, S.E. (2009). Burnout and use of HIV services among health care workers in Lusaka District, Zambia: a cross-sectional study. *Human Resources for Health*, 7(1). doi:10.1186/1478-4491-7-55.

Mossburg, S., Agore, A., Nkimbeng, M. and Commodore-Mensah, Y. (2019). Occupational Hazards among Healthcare Workers in Africa: A Systematic Review. *Annals of Global Health*, 85(1). doi:10.5334/aogh.2434.

Anon, (n.d.). Occupational health, safety key for development – Zambia Daily Mail. [online] Available at: <http://www.daily-mail.co.zm/occupational-health-safety-key-for-development/>.

AfricaNews (2022). Covid-19 kills over 300 health workers in Zambia. Africanews. Available at: <https://www.africanews.com/2022/05/02/covid-19-kills-over-300-health-workers-in-zambia/>.

Awudu, L. (n.d.). Occupational health and safety practices among healthcare workers in some selected hospitals in tamale metropolis.

<http://udsspace.uds.edu.gh/bitstream/123456789/2325/1/OCCUPATIONAL%20HEALTH%20AND%20SAFETY%20PRACTICES%20AMONG%20HEALTHCARE%20WORKERS%20IN%20SOME%20SELECTED%20HOSPITALS%20IN%20TAMALE%20METROPOLIS.pdf>.

Osei-Asibey, D., Ayarkwa, J., Acheampong, A., Adinyira, E. and Amoah, P. (2021). An Examination of Causes of Accidents and Hazards in the Ghanaian Construction Industry. *Open Journal of Safety Science and Technology*, 11(02), pp.66–88. doi:10.4236/ojsst.2021.112006.

Altus, Inc. (n.d.). The Importance of Ergonomics in Healthcare Facilities Beyond Physical Wellness. [online] Available at: <https://www.altus-inc.com/blog/importance-of-ergonomics-in-healthcare-facilities-beyond-physical-wellness> (Accessed 28 Apr. 2023).

Denge, T. and Rakhudu, M. (2022). Perceptions of nurses on occupational health hazards and safety practices in Ditsobotla public hospitals in North West province. *Curationis*, 45(1). doi: <https://doi.org/10.4102/curationis.v45i1.2220>.

Chang, H. Y., Liu, Y. H., & Huang, K. Y. (2019). A Study on Hospital Staff's Eating Behaviors and Eating Environment in Taiwan. *Journal of Occupational and Environmental Medicine*, 61(11), e477-e481. <https://doi.org/10.1097/JOM.0000000000001701>

Duxbury, J., & Whittington, R. (2020). The importance of food and drink for nurses working in acute care settings. *Journal of Nursing Management*, 28(3), 604-611.

<https://doi.org/10.1111/jonm.12945>

Canadian Union of Public Employees (CUPE). (2017). Eating together: How inadequate eating spaces affect hospital workers' health. <https://cupe.on.ca/wp-content/uploads/2017/09/eating-together-final.pdf>

ILO. (2016). Occupational safety and health in the healthcare sector: A guide for employers. International Labour Organization. https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_533326.pdf

ILO. (2020). COVID-19 and the world of work: Impacts and responses. International Labour Organization. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_745963.pdf

ILO. (2020). COVID-19: Protecting workers in the workplace. International Labour Organization. [https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/instructional material/wcms_745234.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/instructional_material/wcms_745234.pdf)

Karahan, A., & Bayraktar, N. (2020). Impact of working postures and occupational stress on musculoskeletal disorders among nurses. *Journal of Musculoskeletal Research*, 23(3), 2050007. <https://doi.org/10.1142/S0218957720500077>

World Health Organization. (2020). Infection prevention and control during health care when COVID-19 is suspected. <https://www.who.int/publications/i/item/WHO-2019-nCoV-IPC-2020>

Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L. N., Sotile, W., Satele, D., ... West, C. P. (2020). Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Archives of Internal Medicine*, 180(12), 1600–1607.

<https://doi.org/10.1001/archinternmed.2020.4305>

Evanoff, B., & Bohr, P. (2016). Medical and ergonomic considerations for the aging surgeon. *Clinics in Colon and Rectal Surgery*, 29(1), 38-43. <https://doi.org/10.1055/s-0035-1570393>

Jeyapalina, S., & Beckman, J. A. (2014). Stress and ergonomic factors in the surgical workplace. *Seminars in Colon and Rectal Surgery*, 25(4), 201-205.

<https://doi.org/10.1053/j.scrs.2014.09.002>

Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L. N., Sotile, W., Satele, D., ... West, C. P. (2020). Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Archives of Internal Medicine*, 180(12), 1600-1607.

<https://doi.org/10.1001/archinternmed.2020.4305>

World Health Organization. (2019). WHO guidelines on hand hygiene in health care.

https://www.who.int/gpsc/5may/tools/who_guidelines-handhygiene_summary.pdf

REPUBLIC OF ZAMBIA` REPORT OF THE COMMITTEE ON ECONOMIC AFFAIRS,
ENERGY AND LABOUR ON THE REPORT OF THE AUDITOR GENERAL ON THE
MANAGEMENT OF OCCUPATIONAL SAFETY AND HEALTH FOR THE FIFTH
SESSION OF THE ELEVENTH NATIONAL ASSEMBLY APPOINTED ON TUESDAY.

(2015). Available at:

https://www.parliament.gov.zm/sites/default/files/documents/committee_reports/Report%20on%20the%20AGs%20Report%20on%20Health%20and%20Safety-%20Fifth%20Session%202016.pdf.

Chiou, S.-T., Chiang, J.-H., Huang, N., Wu, C.-H. and Chien, L.-Y. (2013). Health issues among nurses in Taiwanese hospitals: National survey. *International Journal of Nursing Studies*, 50(10), pp.1377–1384. doi: <https://doi.org/10.1016/j.ijnurstu.2013.01.012>.

Appendices

WORK PLAN

ACTIVITY	NOV 2022	DEC2022- JAN 2023	JAN – MAR 2023	APR –JUN 2023
Finalize Research Proposal				
Ethical Clearance From UNILUS REC and Funding Authorities				
Preparation of tools and assistants				

Data Collection Management				
Data Analysis				
Draft Report Writing				
Submission of Report and Finalizing				
Dissertation presentation				

WORK BUDGET

ACTIVITY	DESCRIPTION	QUANTITY	UNIT PRICE(K)	AMOUNT(K)
DATA COLLECTION	TRANSPORT	2	K50 × 5 days	500
		Researcher and assistant	×2	
	- Papers	5	1	5
	- Pens	5	4	20
	- Printing	50	4	200
	- Flash drive	1	150	150
	- photocopying	5	2	10
ETHICAL CLEARANCE			1	500

LUNCH	LUNCH		1	200
AIRTIME AND BUNDLES	AIRTIME AND BUNDLES		1	250
RESEARCH ASSISTANTS	ASSISTANTS- 2		150	300
SUM TOTAL				2135 10% INCIDENTIALS =205
GRAND TOTAL				2340

INTERVIEW GUIDE

- 1) What do you know about occupational health and safety?
- 2) What are some of the occupational hazards and risks associated with being a nurse?
- 3) What long-term health effects have you faced associated to your duties as a nurse?
- 4) What are some of the health practices conducted at this health facility?
- 5) What safety measures and practices do you employ for protection against occupational hazards such as the transmission of infectious diseases?
- 6) What tools or equipment are known to cause injuries as you use them?
- 7) Do you readily have access to PPE?
- 8) How do often manage stress whilst working?

- 9) Do you an occupational health and safety officer and how are injuries are reported?
- 10) Have you ever experienced back pain as a result of work duties/tasks?
- 11) How do you ensure sure that your workplace encourages healthy body mechanics and good posture?
- 12) In events of emergencies that need you to carry a patient how effective are the stretchers or equipment used to carry patients? If not what do you use to move patients who are unable to walk?
- 13) Have you ever received training on how to use a fire extinguisher, and if so, how comfortable do you feel about using one in case of an emergency?
- 14) What recommendations would you consider to change in the structure of your workplace or station in order to have a better work performance or reduce strain/injury?
- 15) What methods or techniques have you developed as a nurse or facility in order to reduce injuries, accidents or stress during the course of your shift?



NATIONAL HEALTH RESEARCH AUTHORITY

Lot No. 18961/M, off Kasama Road, Chalala, P.O. Box 30075, LUSAKA
Tell: +260211 250309 | Email: znhrasec@nhra.org.zm | www.nhra.org.zm

Ref No: NHRA00004/13/02/2023

Date: 13th February, 2023

The Principal Investigator,
Terry Gombwa,
University of Lusaka,
Lusaka, Zambia.

Dear Mr. Gombwa,

Re: Request for Ethical Clearance and Authority to Conduct Research

The National Health Research Authority is in receipt of your request for ethical clearance and authority to conduct research titled “**Knowledge of Occupational Health and Ergonomics amongst Nurses in Selected Health Facilities in Mumbwa District.**”

I wish to inform you that following submission of your request to the Authority, our review of the same and in view of the ethical clearance, this study has been **approved** on condition that:

1. The relevant Provincial and District Medical Officers where the study is being conducted are fully appraised;
2. Progress updates are provided to NHRA bi-annually from the date of commencement of the study;
3. The final study report is cleared by the NHRA before any publication or dissemination within or outside the country;
4. After clearance for publication or dissemination by the NHRA, the final study report is shared with all relevant Provincial and District Directors of Health where the study was being conducted, University leadership, and all key respondents.

Yours faithfully,

NATIONAL HEALTH RESEARCH AUTHORITY

Ms. Sandra Chilengi-Sakala,
ACTING DIRECTOR/CHIEF EXECUTIVE OFFICER

SCHOOL OF MEDICINE AND HEALTH SCIENCES LEOPARDS
HILL CAMPUS
Plot No. 37413, Off Alick Nkhata Mass Media. P. O Box 36711, Lusaka.
Phone: +260211258505, 258409 Fax +260211233409; Cell +260976075850,961917862,
E-mail: unilus@zamnet.zm, ictar@zamnet.zm

**SCHOOL OF MEDICINE AND HEALTH SCIENCES
RESEARCH ETHICS COMMITTEE**

Refno: IORG0010092-2023/071

Date: 15th DECEMBER, 2022

TERRY GOMBWA - BSPH19114929

**Re: RESEARCH TITLE: KNOWLEDGE OF OCCUPATIONAL HEALTH AND
ERGONOMICS AMONGST NURSES IN SELECTED HEALTH FACILITIES IN
MUMBWA DISTRICT**

The above research was submitted to the research ethics committee for review. The study has no major ethical problems and is approved subject to the following:

1. The study cannot be changed without express permission of the UNILUS Research ethics committee
2. Approval from the Lusaka District health Management or equivalent health authorities should be sought.
3. The study tools should be added.
4. An informed consent form should be attached and filled by all study participants (If dealing with primary data)
5. The risks and benefits should be included in the consent form.
6. Ensure before commencement that approval is sought from ZNHRA

Congratulations and the committee wishes you success in your work.



Prof Kasonde Bowa
MSc(Glasgow),M.Med(UNZA),FRCS(Glasgow),FACS,FCS,DPH(LSTMH),MPH(UCL)
Chairman- UNILUS REC
Professor of Urology and Consultant Urologist
Executive Dean
University of Lusaka and University Teaching Hospital School of Medicine and Health
Sciences.

**SCHOOL OF MEDICINE AND HEALTH SCIENCES LEOPARDS
HILL CAMPUS**

Plot No. 37413, Off Alick Nkhata Mass Media. P. O Box 36711, Lusaka.

Phone: +260211258505, 258409 Fax +260211233409; Cell +260976075850,961917862,

E-mail:unilus@zamnet.zm,ictar@zamnet.zm

Date: 15th DECEMBER, 2022

.....
.....
.....

PERMISSION FOR **TERRY GOMBWA - BSPH19114929** TO CONDUCT A RESEARCH STUDY AT YOUR FACILITY/ INSTITUTION/ORGANIZATION

Reference is made to the above subject matter

The University of Lusaka, School of Medicine and Health Sciences here by requests for permission for **TERRY GOMBWA** Public Health Student to conduct research at your facility/ institution/ organization, entitled; **KNOWLEDGE OF OCCUPATIONAL HEALTH AND ERGONOMICS AMONGST NURSES IN SELECTED HEALTH FACILITIES IN MUMBWA DISTRICT**. The research is in partial fulfillment of the requirements for the degree of Bachelor of Science Public Health. This is purely for academic purposes and information gained in such a way will not be used in the public domain without prior authorization from the institutions/ organizations involved.

The research topic has been cleared by the University of Lusaka, School of Medicine and Health Sciences Research Ethics Committee as per the attached copy. Data collection is expected to be done from **1st January, 2023 to 31st March, 2023**.

The University of Lusaka avails itself of this opportunity to review to your office the assurances of its highest considerations and looks forward to your timely and favorable response.



Prof Kasonde Bowa
MSc(Glasgow),M.Med(UNZA),FRCS(Glasgow),FACS,FCS,DPH(LSTMH),MPH(UCL)
Chairman- UNILUS REC
Professor of Urology and Consultant Urologist
Executive Dean University of Lusaka and University Teaching Hospital School of Medicine and Health Sciences.

- All correspondence should be addressed to:
The District Health Office

Telephone: 260-1-800197
Fax: 260-1-800197

In reply Please quote:
No:



**REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH**

MUMBWA DISTRICT HEALTH OFFICE
P.O. BOX 830018
MUMBWA

21st February, 2023

The Medical Officer In – Charge
Nangoma Mission Hospital
MUMBWA.

Dear Sir/Madam,

REF: RECOMMENDATION TO CONDUCT A RESEARCH STUDY – MR. TERRY GOMBWA.

Reference is made to the above subject matter.

The above mentioned is a student who is doing Public Health at University of Lusaka, School of Medicine and Health Sciences and would like to conduct his research at Nangoma Mission Hospital.

Management has considered Mr. Gombwa and has decided to place him at Nangoma Mission Hospital for the period of one week.

We sincerely hope that this will be of benefit to Mr. Gombwa as an individual and our institution.

Yours faithfully,

Christabel Matimba (Mrs.)
Human Resource Management officer
For/District Health Director
MUMBWA DISTRICT



CC: Mr. Terry Gombwa
CC: The In – Charge/ NMH
CC: file

- All correspondence should be addressed to:
The District Health Office

Telephone: 260-1-800197
Fax: 260-1-800197

In reply Please quote:
No:



**REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH**

MUMBWA DISTRICT HEALTH OFFICE
P.O. BOX 830018
MUMBWA

21st February, 2023

The In – Charge
Bulungu Urban Clinic
MUMBWA.

Dear Sir/Madam,

REF: RECOMMENDATION TO CONDUCT A RESEARCH STUDY – TERRY GOMBWA.

Reference is made to the above subject matter.

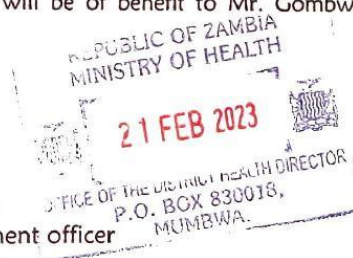
The above mentioned is a student who is doing Public Health at University of Lusaka, School of Medicine and Health Sciences and would like to conduct his research at Bulungu Urban Clinic.

Management has considered Mr. Gombwa and has decided to place him at Bulungu Urban Clinic for the period of one week.

We sincerely hope that this will be of benefit to Mr. Gombwa as an individual and our institution.

Yours faithfully,


Christabel Matimba (Mrs.)
Human Resource Management officer
For/District Health Director
MUMBWA DISTRICT



CC: Mr. Terry Gombwa
CC: The In – Charge/ Bulungu Urban Clinic
CC: file

- All correspondence should be addressed to:
The District Health Office

Telephone: 260-1-800197
Fax: 260-1-800197

In reply Please quote:
No:



**REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH**

MUMBWA DISTRICT HEALTH OFFICE
P.O. BOX 830018
MUMBWA

8th February, 2023

The Medical Officer In – Charge
Mumbwa District Hospital
MUMBWA.

Dear Sir/Madam,

REF: RECOMMENDATION TO CONDUCT A RESEARCH STUDY – MR. TERRY GOMBWA.


Reference is made to the above subject matter.

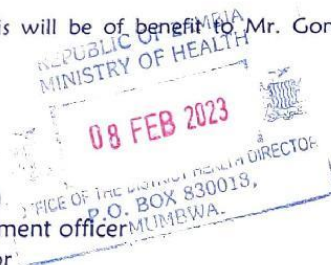
The above mentioned is a student who is doing Public Health at University of Lusaka, School of Medicine and Health Sciences and would like to conduct his research at Mumbwa District Hospital.

Management has considered Mr. Gombwa and has decided to place him at Mumbwa District Hospital for the period of two weeks.

We sincerely hope that this will be of benefit to Mr. Gombwa as an individual and our institution.

Yours faithfully,


Christabel Matimba (Mrs.)
Human Resource Management officer
For/District Health Director
MUMBWA DISTRICT



CC: Mr. Terry Gombwa
CC: The Medical Officer In – Charge/ MDH
CC: file