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KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING ON USE OF PERSONAL PROTECTIVE EQUIPMENT AMONG MIDWIVES WORKING IN LABOUR WARD AT MBUYA NEHANDA MATERNITY HOSPITAL 2018 TO 2020

By

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A RESEARCH PROJECT IS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE POST BASIC BACHELOR OF SCIENCE DEGREE IN NURSING IN THE COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES, AFRICA UNIVERSITY

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ABSTRACT

A significant percentage (4.6%) of babies delivered vaginally at Mbuya Nehanda Maternity Hospital developed neonatal sepsis from 2018-2020. This is attributed to non-adherence by midwives to the recommended Infection Prevention and control principles that include use of personal protective equipment (PPE). The purpose of this research was to determine the knowledge, attitudes, and practices regarding use of personal protective equipment among midwives working in the labor ward. A quantitative, descriptive survey research design was used in this study. A purposive sampling method was used to select all the 34 midwives working in the labour ward. Self-administered questionnaires with sections namely, demographic information, knowledge, attitudes and practices with closed and open-ended questions were used to collect data. Majority (91%) participants had an age range of 20 to 50 years were females (69%) and had more than 3 years working experience in the labour word (91%). The findings indicate that the midwives working in the labour ward are mostly females who are not elderly, have adequate experience of working in the labour and are likely to withstand the heavy labour ward nursing demands. All the participants had heard about PPE and agreed that its use was important although a big number (47%) were not aware that the hospital had IPC policy. More than half (59%) did not know that PPE reduces the spread of infection despite all (100%) knowing how to wear and remove PPE. Majority (81%) participants cited that the hospital 81%) had no regular trainings for staff on use of PPE. The findings demonstrate that the midwives working in labour ward have partial information regarding use of PPE. More than half (56%) had not attended the yearly IPC in-service training/work. Most (65%) participants indicated that PPE makes them feel uncomfortable and majority (72%) felt that the workload in the labour ward made them not to wear PPE. The finding also revealed that most of the participants have negative attitude towards use of PPE. The results revealed that use of PPE in the labour ward was encouraged (72%) but only (56%) participants used PPE (putting on gloves, goggles, gowns/aprons, masks) all the time when indicated and most (60%) participants did not wear PPE in emergencies. A very big number (84%) indicated that PPE was not always available in the maternity. The findings suggest that majority of midwives working in the labour ward do not use PPE when indicated and the PPE is not always available for them to use. The maternity hospital management, therefore, needs to equip the hospital in particular the labour ward with adequate PPE. Continuous training for all midwives in the maternity hospital in particular the labour ward on IPC with reference to PPE use needs to be conducted. The training will equip the midwives with adequate knowledge and skills to enable them to appropriately use PPE that will prevent occurrence of neonatal sepsis.

Key words: Personal protective equipment, infection prevention and control, midwives, labour ward and neonatal sepsis

DECLARATION PAGE

I declare that this dissertation is my original work except where sources have been cited and acknowledged. The work has never been submitted, nor will it be submitted to another university for the award of a degree.

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DEDICATION

I wish to dedicate this work to my family.

LIST OF ABBREVIATIONS

UNICEF – The United Nations Children's Fund

PPE – Personal Protective Equipment

CDC – Centres for Disease Prevention and Control

EVD -Ebola Viral Disease

FDA-Food and Drug Administration

HCW – Health Care Worker

EHTs: Environmental Health Technicians

ICNA-Infection Control Nurses' Association (ICNA)

IPC – Infection Prevention and Control

KAP – Knowledge Attitudes Practices

MoHCC – Ministry of Health and Child Care

MNMH – Mbuya Nehanda Maternity Hospital

SDGs – Sustainable Developmental

ZIPCOP Zimbabwe Infection, Prevention and Control Project

WHO: World Health Organisation

UKAID: United Kingdom Agency for International Development

SARS: Severe Acute Respiratory Syndrome

COVID: Coronavirus Disease

DEFINITION OF KEY TERMS

Personal protective equipment – personal protective equipment is equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses (FDA, 2020).

Infection prevention and control: infection prevention and control (IPC) are a scientific approach and practical solution designed to prevent harm caused by infection to patients and health workers (WHO, 2016).

Hospital acquired infections: hospital acquired infections also known as healthcare-associated infections (HAI), are acquired infections that are typically not present or might be incubating at the time of admission. These infections are usually acquired after hospitalization and manifest 48 hours nosocomially after admission to the hospital (Monegro, 2020).

Standard precautions: standard precautions are a set of infection control practices used to prevent transmission of diseases that can be acquired by contact with blood, body fluids, non-intact skin (including rashes), and mucous membranes. These measures are to be used when providing care to all individuals, whether or not they appear infectious or symptomatic (WHO, 2016).

Sepsis: sepsis is a life-threatening organ dysfunction caused by a dysregulated host response to infection (Marick, 2017).

Knowledge: knowledge is what is learnt, understood or aware of (Your Dictionary, 2016).

Attitude: attitude is a complex mental state involving beliefs, feelings, values, and dispositions to act in certain ways (Advanced English Dictionary, 2019).

Practices: practices are a repetition of an activity to improve skill (English dictionary, 2004).

Hospital acquired infections: hospital acquired infections also known as healthcare-associated infections (HAI), are acquired infections that are typically not present or might be incubating at the time of admission. These infections are usually acquired after hospitalization and manifest 48 hours nosocomially after admission to the hospital (Monegro, 2020).

Midwife: a midwife is a person who assists women in childbirth (Webster, 2021).

Labour ward: a labour also called a delivery ward or labour and delivery, is generally a department of a hospital that focuses on providing health care to women and their children during childbirth (Jessica, 2019).

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Infection prevention and control (IPC) is an integral component of nursing care delivery in any setting to reduce risks for morbidity and mortality in patients and care givers at all levels. The use of personal protective equipment (PPE) is one of the principles of infection prevention and control. In the labour ward if PPE is not used appropriately during the delivery process it will put newborn babies at risk of developing neonatal sepsis. Neonatal sepsis is a major health problem throughout the word and has a greater effect especially in developing countries.

According to WHO (2020) about 30 million babies worldwide acquire infections during the neonatal period and about 1.2 million die due to neonatal infections. Pre-labour, infra-labour and post-delivery practices related to IPC practices and use of PPE in labour wards are closely related to development of neonatal sepsis. Failure to use PPE in labor ward favors the transmission of pathogens and health-care settings can act as amplifiers of disease during epidemics, with a bearing on both hospital and public health (WHO, 2016). This chapter presents background to the study, statement of the problem, research objectives and research questions. Furthermore, the significance of the study, limitations and delimitations of the study are also outlined.

1.2 Background of the study

Appropriate use of personal protective equipment (PPE) is a critical tool for a safe delivery and immediate newborn care to prevent increased maternal and newborn mortality due to preventable causes such as sepsis. Nurses and midwives share responsibility with other health

care personnel for infection risk reduction in patients across entire continuum of care. PPE used in healthcare includes gloves, aprons, long sleeved gowns, goggles, fluid-repellant surgical masks, face visors and respirator masks (WHO 2016). Globally PPE is being used in labour wards in the provision of clean and safe deliveries. However, since the surge of the Covid 19 pandemic, PPE shortages became a dire emergency across the globe and that did not spare the delivery wards in all maternity hospitals.

On September 17, (2020), the United States government wrote, 'It may be hard to believe the shortages of personal protective equipment (PPE) and other critical health care supplies in the United States. Instead, they continue and some have become worse. Hospitals, nursing homes, and medical practices routinely have to waste time and heighten their disease exposure by decontaminating disposable masks and gloves for reuse (Danie,2020). Wellington (2020) indicated that to address the problem of shortages of PPE during the Covid 19 pandemic, boosting domestic PPE production is the key.

In England, the government is working to ensure adequate PPE supply to the front-line workers within the health sector. The Health and Social Care Secretary Matt Hancock stated that in the face of this unprecedented global emergency (covid 19), never has the need to bolster their workforce and arm them with the vital tools they need to save lives been more crucial. We are taking urgent action to ensure dedicated front-line NHS and social care staff, including midwives in maternity wards, who are working tirelessly to tackle this outbreak, feel supported, he said. Today they are getting millions more PPE kits as part of that promise.

Given the background that China is the largest manufacturer and supplier of PPE, their maternity hospital labour wards are fully equipped with PPE and they have since, like other countries in the developed world, developed a shield which can be used against all infectious

agents that carry the risk of transmission of respiratory-borne infections as well as the SARS-CoV-2 infection, that is being used during deliveries conducted on Covid 19 positive mothers (Sahin, 2020).

In the sub-Saharan Africa, 24 countries including, Angola, Benin, Burkina Faso, and Zimbabwe, receive a direct relief of PPE from COVID-19 Action Fund for Africa (CAFA). The COVID-19 Action Fund for Africa (CAFA) is working in partnership with Ministries of Health to meet the essential PPE needs (including surgical masks, gloves, eye protection and more) of up to one million community health workers serving over 400 million people during the COVID-19 pandemic. This is the only known effort to date that pools resources for PPE for community health workers in Africa (USAID. (2021).

In Zimbabwe PPE use is according to WHO 2016 IPC guidelines, which are currently being revised in view of the novel coronavirus. Furthermore, Bindura university offers a degree in IPC. National IPC education programs are being done by organisations such as the Biomedical Research and Training Institute (BRTI) in partnership with Infection Control Association of Zimbabwe (ICAZ) and Management Science for Health (MSH) to support the Ministry of Health and Child Welfare (MOHCW) to strengthen Infection Prevention and Control (IPC) in Health Facilities in Zimbabwe. This involves multisectoral organisations and funding from non-governmental organizations such as UKAID, USAID, UNICEF UNFPA, MSF, Africa CDC, Resolve Saves Lives (RSL) and OXFAM, who are IPC training global partners. The United States Government, through President's Emergency Plan for AIDS Relief (PEPFAR) and CDC, supports the Zimbabwe Infection Prevention and Control Project (ZIPCOP) through cooperative agreements (WHO,2012).

According to WHO (2020), UKAID generous funding, in collaboration with WHO was able to support MoHCC build capacity in IPC by training a group of national trainers under MoHCC.

The national trainers who include nurses, doctors and Environmental Health Technicians (EHTs) then taught provincial coaches. The provincial trainers further taught district level mentors per region. District level trainers then cascaded what they learnt to facilities in their areas.

Through ZIPCOP and other major partnerships with the government and health community in Zimbabwe, the United States continues to work with Zimbabwe in the fight against HIV/AIDS (WHO,2012). These national programs include training of trainers who then further spread the training programs in their respective provinces and districts. Individual institutions are also encouraged to provide IPC training sessions including maternity hospitals and wards. They also provide regular IPC workshops through departmental focal persons in training like the doffing and donning in relation to Covid 19.

At MNMH there are several IPC focal nurses in wards who provide information on IPC and concientise staff on IPC and use of PPE. Although IPC training is irregular, each department is provided with a copy of hospital IPC policy document adapted from the National IPC guidelines which the country also adopted from WHO. Furthermore, flow charts on IPC procedure are well displayed on wards such as hand washing, PPE donning and doffing.

In the labour ward at MNMH, PPE is usually available for deliveries and this includes sterile gowns in delivery packs. Continued support to labour ward from the hospital IPC department include regular spot checks on stocks and practices by midwives. Hospital IPC department demonstrates the correct way of donning and doffing of gowns, wearing gloves and face masks.

Although there has been a fair availability of PPE at the hospital, neonatal sepsis post normal delivery continued to rise. MNMH labour ward is adequately equipped with basic PPE including gumboots, gowns, plastic aprons, gloves, goggles and the basic PPE in sterile packs.

The researcher wished to determine, knowledge, attitudes and practices regarding use of personal protective equipment (PPE) among midwives at Mbuya Nehanda Maternity Hospital Zimbabwe.

1.2 Problem statement

Table 1.1: Neonatal sepsis among babies of vaginal delivery at Mbuya Nehanda Maternity Hospital admitted in the Nursery Unit at from 2018 to 2020.

Year	Babies delivered vaginally	Babies delivered vaginally who developed neonatal sepsis	Percentage
2018	1936	92	6
2019	1895	85	4,5
2020	2303	104	4.7
TOAL	6134	281	4.6

Source: Mbuya Nehanda Maternity Hospital Nursery Unit statistics register 2018 to 2020.

In 2018 a total number of 1936 vaginal births were recorded at Mbuya Nehanda Maternity Hospital and 92 (6%) babies developed neonatal sepsis. In 2019, 1895 babies were delivered vaginally and 85 (4,5%) developed neonatal sepsis. In 2020, 2303 babies were delivered vaginally and 104 (4,7%) developed sepsis. Over the three-year period under the study a total number of 6134 babies were delivered vaginally and 281 (4,6%) babies developed neonatal sepsis. The statistics indicate that a significant percentage of babies delivered vaginally at Mbuya Nehanda Maternity Hospital develop neonatal sepsis. The neonatal sepsis could be

attributed to poor IPC practices including use of PPE among midwives in labour ward. This prompted the researcher to investigate on the knowledge, attitudes, and practices regarding use of PPE among midwives working in the labour ward at Mbuya Nehanda Maternity Hospital.

1.3 Research objectives

1.3.1 Broad objective

The purpose of the research was to determine the knowledge, attitudes, and practices regarding use of personal protective equipment among midwives working in the labor ward at Mbuya Nehanda Maternity Hospital.

1.3.2 Specific objectives

1. To determine the knowledge level regarding use of personal protective equipment among midwives working in the labor ward at Mbuya Nehanda Maternity Hospital.
2. To find out the attitudes of midwives towards use of personal protective equipment among midwives working in the labor ward at Mbuya Nehanda Maternity Hospital.
3. To determine the practices of midwives regarding use of personal protective equipment among midwives working in the labor ward at Mbuya Nehanda Maternity Hospital.

1.3.4 Research questions

The research addressed the following questions:

1. What is the knowledge level regarding use of personal protective equipment among midwives working in the labour ward at Mbuya Nehanda Maternity Hospital?
2. What are the attitudes towards use of personal protective equipment among midwives working in the labour ward at Mbuya Nehanda Maternity Hospital?

3. What are the practices regarding use of personal protective equipment among midwives working in the labour ward at Mbuya Nehanda Maternity Hospital?

1.4 Significance of the study

It was hoped that results will either strength or improve IPC practices by midwives working in labour ward with regards to use of PPE which will contribute towards improvement in midwifery practice as regards to reducing neonatal sepsis. The study findings would also either strengthen or improve the training curriculum of nurses at any level including midwives regarding IPC with reference to use of PPE. The study findings would also be used to educate pregnant women regarding the use of PPE by nurses and midwives in order to allay their anxiety when they see midwives putting on PPE. It was also hoped that the study findings would be used as a springboard for further research regarding use of PPE by midwives and other nurses.

1.5 Study delimitations

The research was conducted at one location (Mbuya Nehanda Maternity Hospital) on all 34 midwives working in the labour ward at Mbuya Nehanda Maternity Hospital and the results were generalized and yet this might not be a true representation of all midwives in other maternity hospitals. The investigator who is naive to research developed and used the research instrument for the first time. The research instrument may not have yielded accurate and detailed information which might have distorted the results despite being pretested for validity and reliability. Census sampling method was used to select the participants for this study. It is a statistical method of enumeration where all members of the population are studied. The disadvantage of using census method is that the researcher may have difficulties to enumerate all units of the population if large within the available time.

1.6 Summary

This chapter focused on the background of the study and statement of the problem, research objectives and research questions. Significance of the study, delimitation and limitations of the study were also addressed. The next chapter highlighted on the review of related literature.

CHAPTER 2

REVIEW OF RELATED LITERATURE

2.1 Introduction

A literature review is a comprehensive summary of previous research on a topic. It is the literature review on surveys, scholarly articles, books, and other sources relevant to a particular area of research (Webster, 2012). The purpose of a literature review is to gain an understanding of the existing research and debates relevant to a particular topic or area of study and to present that knowledge in the form of a written report. Conducting a literature review helps the investigator to build some knowledge in the field of study. This chapter addressed the conceptual framework the review of related literature on the knowledge, attitudes, and practices regarding use of personal protective equipment among midwives.

2.2 Conceptual Framework

A conceptual framework is a structure which the researcher believes can best explain the natural progression of the phenomenon to be studied (Camp, 2001). This study utilised Florence Nightingale theory on infection control (1854). The Environmental Theory by Florence Nightingale defined Nursing as "the act of utilizing the environment of the patient to assist him in his recovery''. The four meta-paradigms of Florence's theory are the environment, nursing, and health. It involves the nurse's initiative to configure environmental settings appropriate for the gradual restoration of the patient's health, and that external factors associated with the patient's surroundings affect life.

The environment

The environment is the major focus of Nightingale's theory. The theory provides an explanation as to why it is important to carry out infection control measures such as damp

dusting, use of sterile technique during procedures and use of personal protective equipment. Nightingale was the first nurse to identify the relationship between nursing and infection control (Kamisky, 2014). The conditions in the hospitals at that time were deplorable hence her observations led her to believe that improving hygiene conditions would decrease the number of deaths. Lawrence, chairperson of the infection control nurses' association (ICNA) believed that Nightingale was probably the first infection control nurse without actually realising it (Elliot, 2010). Today nurses are key players in the fight to ensure the survival of infection control practices. This can be achieved through observing proper infection control and sterile technique principles as well as continuous education on infection control through in-service training and induction courses.

Nursing

Nursing and nursing practice as Nightingale saw them, were an integral part of daily hospital life, as they are today. The goal of nursing, according to Nightingale, is to place the patient in the best possible condition that promotes healing. In this study the nurse is expected to provide nursing care by creating a safe environment through the correct use of PPE. During Nightingale's time in the creamian war, patient wellbeing always came first, and, as a by-product, was closely followed by cleanliness and good sanitary practices. This was aided by the proper use of antiseptic; carbolic solutions being utilised as the only safe method of disinfection. Nightingale stated, 'Absolute cleanliness is the true disinfectant'. The nurse must be taught the nature of contagion and infection, and the distinctions between deodorants, disinfectants and antiseptics (McDonald, 2010). Although current understanding of the "germ theory" and infection control seems common knowledge, much is owed to Nightingale's solid sanitary foundations. Healthcare workers today are responsible for the health and safety of their patients, their colleagues and themselves, suggesting that basic infection control is the responsibility of all, including individuals at the community level. Hospital-acquired, or

nosocomial infections, which unfortunately are still active today, primarily come from healthcare workers themselves, often due to a lack of adherence to basic hand hygiene and inappropriate or ineffective use of PPE, which this study will explore the practice by midwives in regard to use of PPE during vaginally delivery.

Health

Health is viewed as the combined result of environmental, psychological, and physical factors, not just the absence of disease (Parker,2005). Nightingale states that "health is not only to be well, but to be able to use well every power we have" (Selanders, 2010). This is consistent with our perception of health today, where one does not have to be disease free to be healthy but to maximize their potential to be in a healthy state.

Person

In Florence Nightingale's theory, the Person, one of the elements in the four meta-paradigms, is the individual receiving care (Selanders, 2010). Nightingale's perception of the Person is that the person is a multidimensional being, that includes biological, psychological, social and spiritual components (Selanders, 2010). It is against this background, in this study, that holism is the concern of integrating the biological, social, psychological and spiritual needs within a person's environment (Selanders, 2010). Providing a safe environment through the use of PPE during a delivery give patients psychological stability and therefore the midwives obtain cooperation from the patient, avoid contamination from the environment hence the prevention of neonatal sepsis.

Guidelines have been developed to assist healthcare workers in maintaining robust sanitary conditions and practices in support of patient well being, whilst also attending to their own health and safety. These guidelines were introduced in 1985 by the Centres for Disease Control (CDC), primarily in response to the human immunodeficiency virus (HIV), to prevent the

transmission of blood borne pathogens (Broussard and Kahwaji, 2020). They were subsequently replaced by the Standard precautions which remain in use today.

In view of the unprecedented global corona virus pandemic, declared by the World Health Organisation (WHO) on 11th March 2020 (WHO, 2020), it is important to include comment here, that the WHO also declared 2020 as the Year of the Nurse and the Midwife (WHO, 2020). Front-line healthcare workers, including nurses and midwives, willingly put themselves at great risk every day of contracting HAIs from their patients and their colleagues, but, like Nightingale, are completely dedicated to the care and wellbeing of others (Fedele, 2020; Koven, 2020). Worldwide shortages of personal protective equipment PPE have placed healthcare workers in an unenviable position (Fedele, 2020; Koven, 2020), some even making the ultimate sacrifice, with loss of life, for example, in China, Italy, Iran, France, UK and the USA (Amnesty International, 2020:) (Mhango, Dzobo, Chitungo and Dzinamarira, 2020).

2.3 Knowledge of midwives on use of personal protective equipment

Oxford dictionary (2016) defines knowledge as the information, understanding and skills that are gained through education and experience in this case knowledge about infection prevention and control. Failure to use PPE in labor ward favors the transmission of pathogens, and health-care settings can act as amplifiers of disease during epidemics, with a bearing on both hospital and public health (WHO, 2016). A huge gap exists between the knowledge accumulated over the past decades and implementation of infection control practices by using PPE. This gap is

even deeper in poor-resource settings with devastating consequences. Breaches of infection control measures undermine every advance and investment in health care (WHO, 2016)

Beghdadli (2018), conducted a survey to examine knowledge and practices regarding standard precautions among nurses in a university hospital in Western Algeria and majority (95%) of nurses reported washing their hands after removing gloves, and 69% of them reported washed their hands between two patients. Male nurses wear gloves more often than females.

Olowookere and Aderogba (2015) in the study in which preparedness of health workers in the control and management of Ebola Viral Disease (EVD) was assessed, the results showed knowledge gap of PPE and poor infection control preparedness among health workers including nurses. Thus, knowledge and practices of health workers towards EVD needed improvement. The WHO Update (2014) states that the occurrence of fatal infections such as severe acute respiratory syndrome (SARS) and viral haemorrhagic fevers (for example, Ebola Viral Disease) indicate the serious need for effective infection control practices in the health care system like wearing of PPE. Failure to apply infection control measures leads to transmission of infection and health-care settings can act as amplifiers of disease in the course of outbreaks with a bearing on both hospital and public health (WHO Update, 2014).

Lack of standard precautions adherence is primarily due to the lack of awareness and knowledge as well as insufficient supply of equipment and materials for good hand hygiene maintenance. It was confirmed that there is an urgent need to implement a programme to improve standard precautions adherence among nurses and midwives and to increase supply of hand washing and drying materials.

Tirivanhu et al (2014) carried out a research on barriers to infection prevention and control practice among nurses at Bindura Provincial Hospital Zimbabwe and found out that lack of knowledge among the student nurses was one of the barriers to IPC practice.

Dodzo (2017) concurs with Tirivanhu (2014), that nurses who include midwives lack knowledge on PPE use. She presented a study she carried out that was aimed to determine the prevalence of SSIs post caesarean section among postnatal mothers, to assess the knowledge of health care providers on (IPC) measures at MNMH, to establish the factors contributing to increase in SSIs post caesarean sections and also to evaluate the practices on IPC measures among health care providers in the maternity unit. A retrospective cohort study done on postnatal mothers who had caesarean section, nurses and doctors working in maternity units such as labor ward, theatres and postnatal wards revealed a significant increase in SSIs post caesarean section among postnatal mothers. The study confirmed lack of knowledge on IPC measures among postnatal mothers and health care providers. Lack of compliance on IPC measures among postnatal mothers and health care providers was also noted.

Chan (2017) conducted a study to examine the relationship on knowledge, attitude and practice levels of operating room staff towards the standard precautions and transmission-based precautions. The results of the study were characterized by relatively poor knowledge, negative attitudes and practices. Tailoring interventions to fit specific groups of the operating room staff was needed to improve compliance with the standard and transmission-based precautions. This study clearly profiles knowledge regarding use of personal protective equipment among midwives.

Gupta et al (2017) conducted a study to assess the knowledge and practice of staff nurses on infection control measures and the relationship between knowledge and practice, authors concluded that there is a positive relationship between knowledge and practice. This indicates that with improved knowledge, we can also improve the practice, which should be of major concern in the present-day health care scenario. Hence, this study will clearly contour knowledge regarding use of personal protective equipment among midwives.

2.4 Attitudes of midwives regarding use of personal protective equipment

Attitude is the way you think, feel and behave about something, in this case, attitude towards infection prevention and control (Oxford Dictionary,2016). Despite the knowledge that dirty hands play a significant role in the spread of health-care related pathogens, and that hand hygiene decreases the spread of these organisms, health-care worker's adherence with hand hygiene is poor (Dixit and Forgie, 2012). Paediatric residents' compliance with hand hygiene was influenced by role modeling, balancing hand hygiene with other competing factors and the drive for self-protection and personal cues. According to Lemass (2017), staff attitude towards use of PPE are the most important vehicles of cross-infection. Furthermore, hands of patients can also carry microbes to other body sites, equipment and staff. Hand hygiene is one of the most effective means of preventing nosocomial infections (Lemass, 2016).

In a study by McGaw and Waters (2017), 87.5% of respondents believed that use of appropriate PPE would confer adequate protection for health care workers in labor ward. Half of respondents reported that PPE use was inconvenient, while 21.2% believed that PPE use would interfere with patient care. As to behaviors of PPE use, about 21% of respondents reported that their colleagues often forgot to use PPE during patient care, while a similar proportion reported themselves to forget to change PPE between patients.

According to Lombardi et al (2009), proper donning and doffing of PPE has been identified as key in reducing mu-co-cutaneous injuries and contact with Blood Body fluid splash. The use of PPE is essential in infection control and protects HCWs from acquiring dangerous infection and diseases of epidemic proportion. However, compliance with universal precautions amongst HCWs is poor even in the face of high-risk clinical situations. Lack of comfort/fit, and fogging of eyewear and the need to scratch as well as young age and lack of safety training has been reported as the main hindrance to use of PPE. Furthermore, a large proportion (76%) of HCWs think the barrier to PPE use relates to inadequate training in the use of PPE (Kotwal and Taneja, 2010). Being too busy to wear PPE and that PPE may offend patients, and discomfort in PPE use, were reported to be a barrier to PPE use amongst the nurses compared to doctors (Kotwal and Taneja, 2010).

Negative attitude towards use of PPE can promote transmission of infection from one point to another. According to Ward (2016), nursing students generally observed a bad approach towards PPE from qualified staff. Besides IPC was considered to be an added job load as different to a central feature of patient safety and excellent care. Surgical operations provide opportunities for the transmission of infection between patients and HCWs. This risk may increase in underdeveloped and developing countries by low compliance with infection control policies and precautions (McGaw and Waters, 2017). In contrast, positive attitude towards use of PPE can reduce the rate of Hospital acquired infections. A study to assess knowledge and attitude of HCWs and patients on health care associated infections in the central regional hospital in Ghana, Ocran and Tagoe (2014) indicated that attitudinal change is the best means to prevent and control infection.

Liability for hospital-acquired infections (HAIs) depends on whether the hospital has introduced and implemented best practice infection control measures (Mathur,2016). Alternatively, will be vicariously liable for negligent or intentional failures by staff to comply with infection control measures implemented, like wearing proper PPE (Mathur, 2016). Few studies have been done on attitudes regarding use of personal protective equipment among midwives, hence the need to do this study.

2.5 Practices of midwives towards use of personal protective equipment

According to the Oxford dictionary (2016), to practice is to do something regularly as part of your normal behaviour which in this case is infection prevention and control practices. It is, therefore, important that all health workers strictly adhere to infection control guidelines, especially nurses because they spend more time with the patients.

In the developing countries, the health care workers are at greater risk due to sub-optimal infection control practices like lack of equipment, training, compliance with universal precautions (Sagoe-Moses et al, 2001). A study amongst health care workers in rural health care facilities showed that proportion exposed to blood and body fluids was 37.1% and 63.2% respectively (Kermode, 2015). In one study, health care workers cited various reasons for not using the PPE and emergencies were the reason cited by most of them (91.43%). The following were cited as other reasons for noncompliance to PPE use, non-use of PPE by co-workers (67.14%), busy schedule (37.14%), risk of offending the patient (27.14%), discomfort (24.29%) and difficulty in carrying out the job (18.57%) (Med, 2014).

Rocha (2014) conducted a study to evaluate the practice of hand washing, use of gloves and the handling and disposal of needle sticks and other sharp objects among nursing and medical

students. Compliance with the use of sterile and non-sterile gloves, and handling and disposal of needle sticks and other sharp objects was higher than the knowledge of these procedures among nursing students. In addition, a statistically significant difference was observed with regards to sterile glove usage. Regarding medical students, there was no statistical difference between knowledge and practice. Performance of both groups in terms of knowledge of hand hygiene showed a dichotomy between the teaching and the practices of these standard precautions. The authors concluded that there was a deficiency in the teaching-learning process for the other measures evaluated.

According to Lemass (2017), practice staff should make a risk assessment of planned procedure/action and select PPE depending on the nature of the procedure, the risk of exposure to blood, body fluids, mucous membranes, and non-intact skin as well as the risk of contamination. Furthermore, glove use does not remove the need to comply with hand hygiene. Thus, this study clearly contoured practices regarding use of personal protective equipment among midwives.

2.6 Summary

This chapter presented the literature review of the studies which described the knowledge, attitudes, and practices regarding use of personal protective equipment among nurses and midwives. It is against this background that the researcher has seen the need to embark on this research. In the next chapter the research methodology was highlighted.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter addresses the research methodology that was used to determine the knowledge, attitudes and practices regarding use of PPE among midwives working in labour ward. The research design, research instrument and pre-testing of the research instrument were highlighted. population and sampling procedures. Data collection procedure, data analysis methods, dissemination of study results and ethical considerations were also addressed.

3.2 The Research Design

The research design is defined as a plan or blueprint of how you intend to conduct the research (Bryman, 2012). The research design is also defined as the overall plan for addressing a research question, including specifications for enhancing the study's integrity. According to Frankel (2013), there are two types of research designs as far as data collection is concerned, these are quantitative and qualitative. A quantitative descriptive research design was used in this study. Through statistical analysis, one can derive important facts and valuable insights from data that is exclusively numerical in nature.

3.3 Study setting

The study setting was a clinical environment of a government Mbuya Nehanda Maternity Hospital situated in Harare Zimbabwe.

3.4 Study population

Creswell (2013) defines population as the total number of units from which data can be collected such as individuals, artifacts, events or organizations. In this study population were midwives. The target population for the study included midwives working in the labour ward at Mbuya Nehanda Maternity Hospital.

3.4.1 Inclusion Criteria

Inclusion sampling criteria are the characteristics that the subject or element must possess to be part of the target population (Burns and Groove, 2011). The inclusion criteria of this research were midwives working at Mbuya Nehanda Maternity Hospital labour ward.

3.4.2 Exclusion Criteria

The midwives who do not work in in the labour ward at Mbuya Nehanda Maternity Hospital were excluded from this research.

3.5 Sampling procedure

Creswell (2013) defines sampling as to the taking of a representative portion of the population or universe as representative of that population or universe. There are a wide range of sampling methods a researcher can use in conducting a research study. However, the key question that guides the researcher is how representative is the sample in relation to the target group. Sampling methods are classified as probability or non-probability. The investigator employed census sampling method as a specific type of non-probability sampling method. Census sampling method is a statistical method of enumeration where all members of the population

are studied. In this study all the 34 midwives working in Mbuya Nehanda Maternity Hospital labour ward were included in the study.

3.6 Research Instruments

Research instruments are techniques or methods used for data collection. According to Creswell (2012), research instruments are tools to be used by the researcher designed to measure variables, characteristics or information of interest, often a behavioural or psychological characteristic. For the purpose of this study, the investigator used self-administered questionnaires. Saunders (2009) defines a questionnaire as a general term including all data collection techniques in which each person responds to the set of question in a predetermined order. In this study a self-administered questionnaire with four sections namely, demographics, knowledge, attitudes and practices were used. The questionnaire had closed and open-ended questions. In view of the current COVID-19 epidemic, self-administered questionnaire was the most appropriate research instrument to use since it minimizes direct verbal interaction and maintains social distance to avoid spreading the virus. In order to collect accurate and reliable data, the investigator explained to the participants about the ethical considerations which include the anonymity, privacy and confidentiality.

3.7 Data collection procedures

Burns and Grove (2011) define data collection as the identification of subject and the precise, systemic gathering of information (data) related to the research purpose or the specific objectives. To comply with the requirement of the Africa University, the investigator requested permission from the Africa University Ethical Review Committee (AUREC) to carry out the research study. A letter was sent to the hospital, introducing the student and seeking permission for her to be allowed to carry out an educational research project at Mbuya Nehanda Maternity Hospital. Questionnaires were used to collect information. The questionnaires were distributed

by the investigator to all the 34 midwives who participated in the research and were collected after five days thus gave the participants ample time to complete the questionnaires. The investigator collected the completed questionnaires in person to increase the response rate of the participants. Unfortunately, the response rate was 94%. The investigator checked for completeness of the questionnaires and kept them in a locked cupboard to ensure safety of the documents.

The investigator and the participants observed the COVID-19 recommended protocols. The investigator and the participants were putting on facial masks correctly covering the noses and mouths, hands were sanitized using alcohol-based solution before and after issuing and receiving the questionnaires. Social distance was maintained while the investigator was talking to the participants.

3.8 Data analysis and presentation

Data analysis is the process of examining data sets in order to find trends and draw conclusions about the information they contain (Stadman,2020). The investigator used descriptive inferential statics to analyse the collected data. The process involved coding of the questionnaires to enable raw data summarized and collected into meaningful categories ensuring numbers obtained made intuitive sense. Statistical Package for the Social Sciences (SPSS) was used to analyse the data. **C**ollected data was presented in the form of frequency tables, pie charts and bar graphs followed by narratives.

3.9 Dissemination of Data

Data dissemination is the process of communicating information through defined channels and media in order to reach various target groups (e.g., national policymakers, researchers, health professionals, or consumers (CDC, 2020). Dissemination is essential for uptake and use of research findings. It is crucial for the success and sustainability of practice-based research networks. The dissemination of this research study results were given as soft copies to the following:

- College of Health Agriculture and Natural Sciences at Africa University
- The Africa University Library
- The Clinical Director of Parirenyatwa Group of Hospitals
- Nursing management and administration at Mbuya Nehanda Maternity Hospital
- Sister in Charge and midwives in labour ward at Mbuya Nehanda Maternity Hospital

3.10 Ethical considerations

It was found that the study has to be ethical so as to guarantee authentic, valid and reliable of the research. Permission to conduct the study was obtained from the clinical Director of Parirenyatwa Group of Hospital. An ethical approval was also sought from Africa University Research Ethical Committee (AUREC), a body that protects study participants. Informed consent was obtained from the participants after the investigator has explained the purpose and benefits of the research. Participation in the research was voluntary, the participants were free to withdraw from the research any time they wished without any victimisation. Confidentiality, privacy, anonymity and no coercion were observed throughout the research study.

Summary

This chapter presented the research methodology that was used to determine the knowledge, attitudes and practices regarding use of PPE among midwives working in labour ward. The

research design, research instrument and pre-testing of the research instrument were highlighted as well as the population and sampling procedures. Data collection procedure, data analysis methods, dissemination of study results and ethical considerations were also addressed. The next chapter presented and analysed the knowledge, attitudes, and practices regarding use of personal protective equipment (PPE) among midwives working in labour ward at Mbuya Nehanda Maternity Hospital, Zimbabwe. This chapter focused on analysis, presentation and interpretation of data collected from questionnaires.

CHAPTER 4
DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

The previous chapter outlined the data collection procedure together with the research instruments. This chapter presents and analyses the knowledge, attitudes, and practices regarding use of personal protective equipment (PPE) among midwives working in labour ward. This chapter focuses on presentation, analysis, and interpretation of data collected from the questionnaires. The results of the study were presented in accordance with its objectives. From the target sample population of 34 participants, 32 questionnaires were returned representing a response rate of 94%.

4.2 Demographic data of participants

Table 4.1: Demographic data of participants

N = 32

Demographic Characteristic	Description	Frequency n = 32	Percentage (%)
Age (years)	20-30	8	25%
	31-40	14	44%
	41-50	7	22%
	Over 51 years	3	9%
Gender	Male	9	28%
	Female	22	69%
Marital Status	Married	19	59%
	Single	13	41%
Level of Education	Certificate	0	0%
	Diploma	23	72%
	Degree	6	19%
	Master's Degree	3	9%
Working Experience as midwife	0-2	3	9%
	3-5.	9	28%
	6-10.	7	22%
	Above 10	13	41%

Table 4.1 above shows the demographic characteristics of the participants. The results show that 14 (44%) participants were aged between 31 – 40 years, and 22 (69%) participants were female. In addition, the results showed that 19 (59%) participants were married, and 13(41%) participants were not married. Twenty-three (72%) respondents had diploma level of education and 6 (19%) participants had degree level of education. 13 (41%) participants had more than 10 years working experience as a midwife.

4.3 Knowledge on use of personal protective equipment

The research results demonstrate that all the participants 32 (100%) have heard about PPE.

The research results also indicates that all the participants 32 (100%) agree that PPE is important.

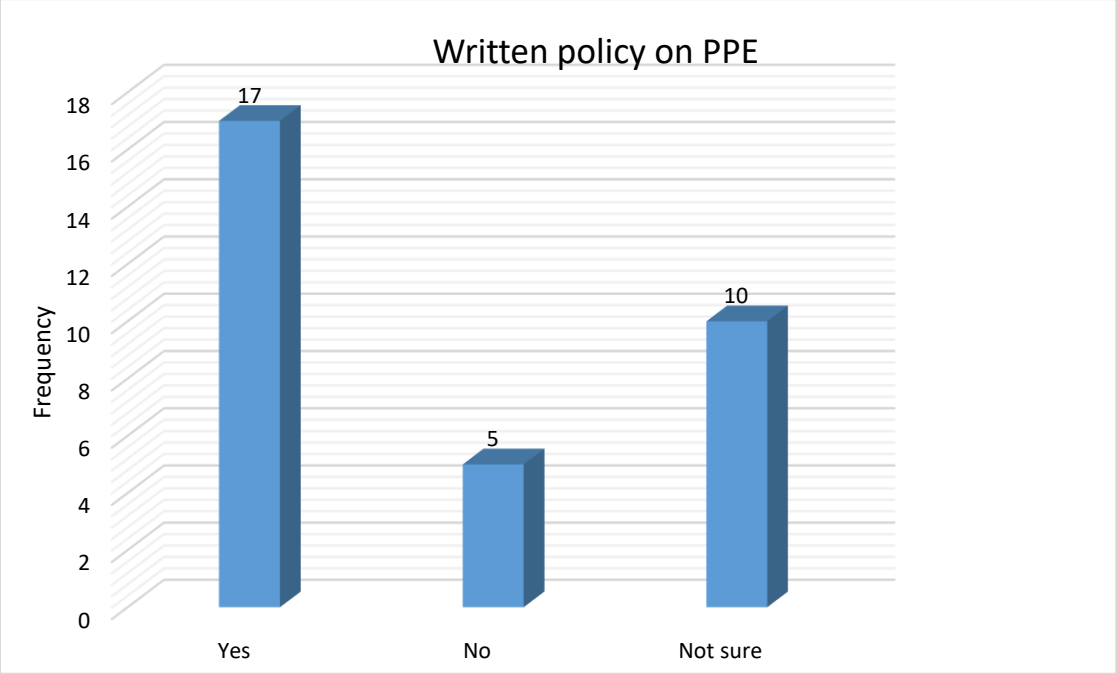

Figure 4.1 – The hospital has written policy for health staff on PPE use

The results in figure 4.3 show that 17 (53%) participants agree that the Hospital have a written policy or procedure for health staff on PPE use.

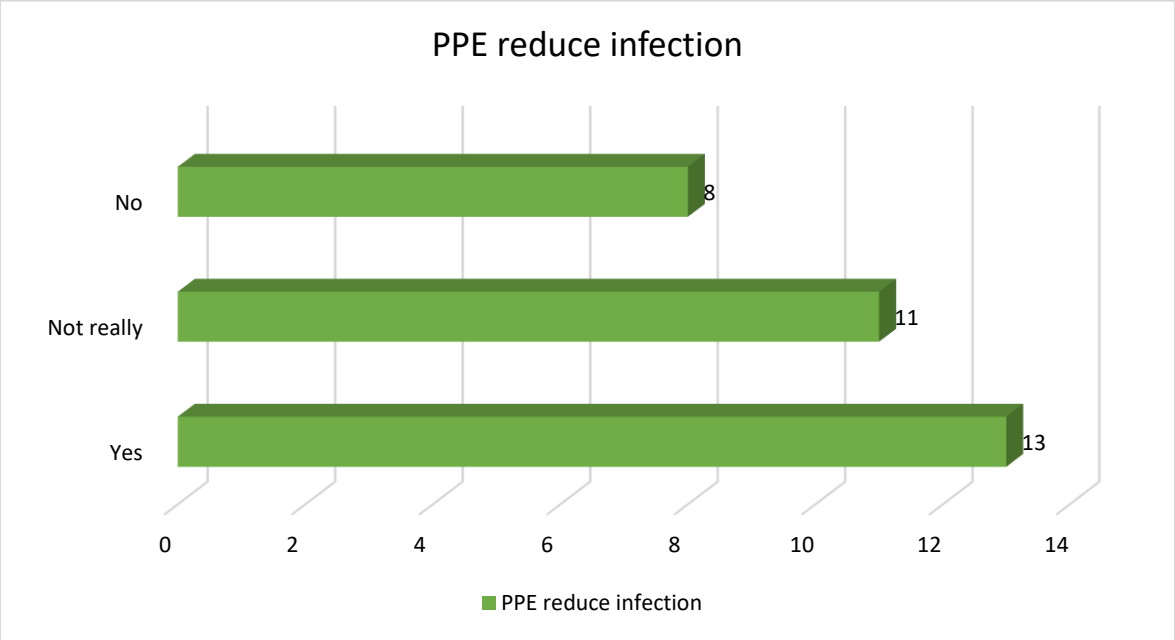

Figure 4.2 – PPE help in reducing infection

Figure 4.2 represents responses on whether PPE reduce infection. Nineteen (59%) disagree that PPE reduce infection.

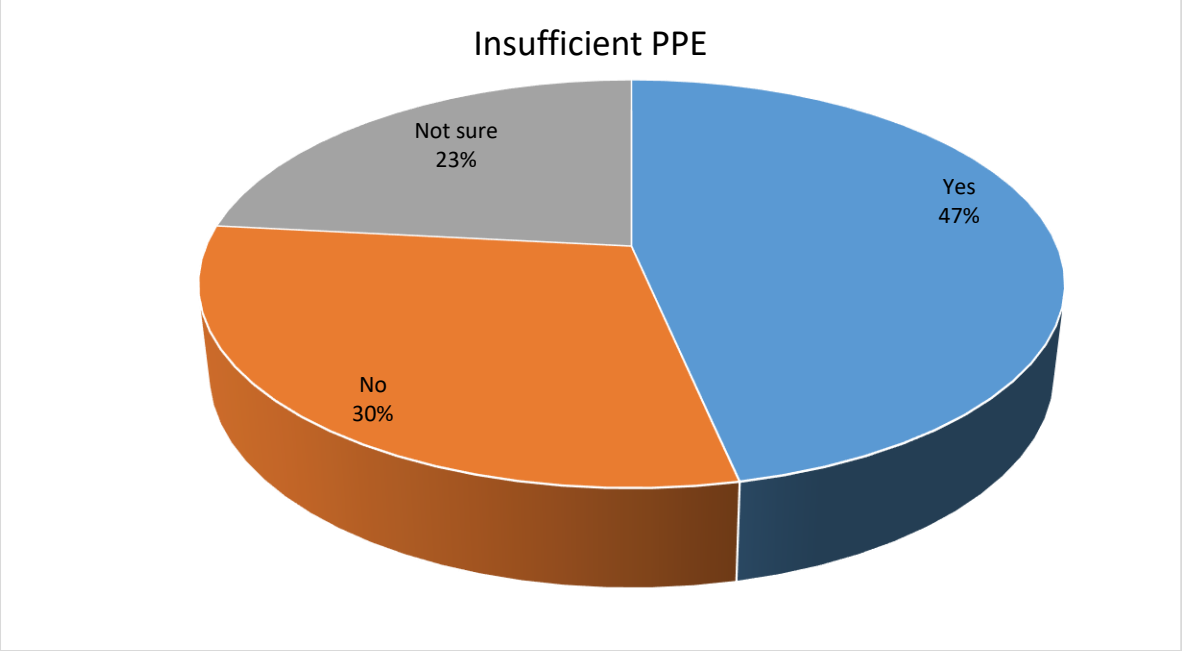

Figure 4.3 - Lack of PPE influence infection exposure

The results in figure 4.3 illustrates that 15 (47%) participants cited that insufficient PPE could influence infection exposure.

Study results also clearly revealed that 32 (100%) participants know how to wear and remove PPE.

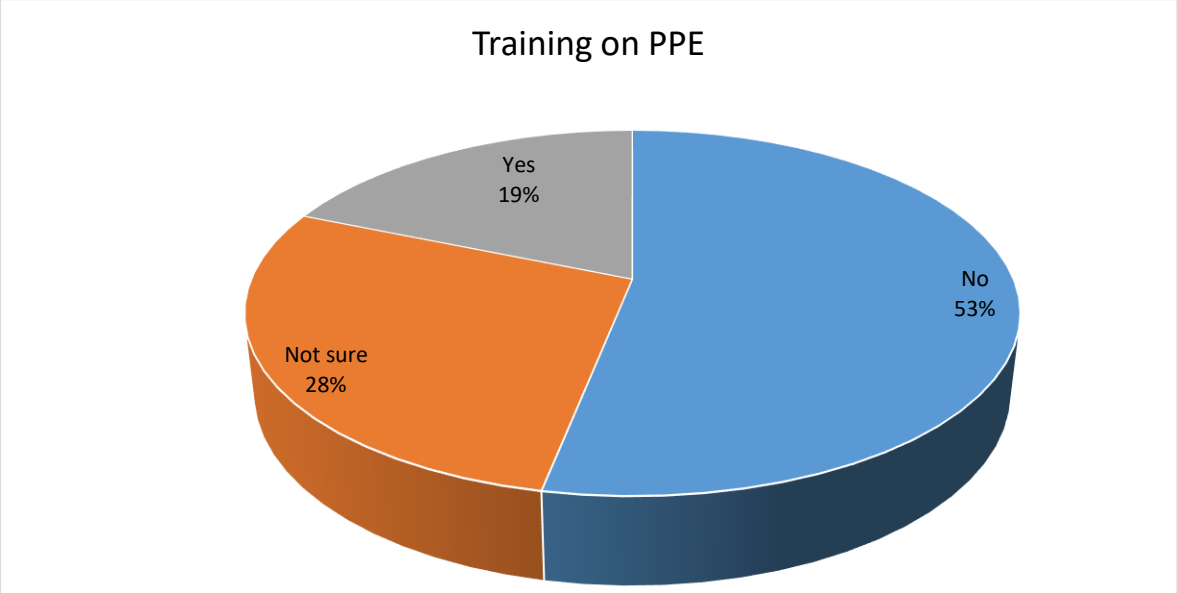

Figure 4.4- Labour ward has regular on-going training for staff o PPE

Twenty-six (81%) participants mentioned that there were no regular trainings for staff on PPE.

4.4 Attitudes on use of personal protective equipment

Table 4.2 – Attitude on personal protective equipment use

	Attitude		**1 (SA)**	**2 (A)**	**3 (N)**	**4 (D)**	**5 (SD)**
1	Infection prevention guidelines are important to this maternity hospital	**n = 32**	21	11	0	0	0
		%	66%	34%	0%	0%	0%
2	I should attend in-service training/workshop related to PPE regularly.	**n = 32**	11	14	4	3	0
		%	34%	44%	13%	9%	0%
3	PPE is important in my day-to-day work.	**n = 32**	8	12	7	5	0
		%	25%	38%	22%	16%	0%
4	PPE makes me uncomfortable.	**n = 32**	10	11	3	8	0
		%	31%	34%	9%	25%	0%
5	The workload affects my ability to apply to wear PPE at all times.	**n = 32**	14	9	2	4	3
		%	44%	28%	6%	13%	9%
6	I do not wear PPE in emergency	**n = 32**	7	12	3	6	4
		%	22%	38%	9%	19%	13%

Table 4.2 reveals responses of midwives on attitude regarding PPE use. The table illustrates that 32 (100%) participants agree that infection prevention guidelines are important to this maternity hospital. 20 (63%) participants agree that PPE is important their day-to-day work and 21 (65%) participants agree that PPE makes me uncomfortable. In addition, 23 (72%) participants agree that the workload affects their ability to apply or wear PPE at all times and 19 (60%) participants agree that they do not war PPE in emergency

Table 4.3 – Practice on personal protective equipment use

	Practice		**Yes**	**No**
1	I always put on a mask and glasses during labour	**n=32**	21	11
		%	66%	34%
2	I attend in-service training/workshop related to infection prevention and control yearly.	**n=32**	14	18
		%	44%	56%
3	Knowledge of infection prevention and control are being monitored in the maternity hospital.	**n=32**	19	13
		%	59%	41%
4	PPE equipment are always accessible in my ward	**n=32**	5	27
		%	16%	84%
5	Infection prevention does improve patient outcome.	**n=32**	17	15
		%	53%	47%
6	The use of PPE is promoted in our ward.	**n=32**	23	9
		%	72%	28%
7	I use PPE all the time when indicated	**n=32**	18	14
		%	56%	44%

Table 4.3 illustrates the response of midwives on practices on PPE. It shows that 21 (66%) wear googles while conducting deliveries. Eighteen (56%) participants had not attended within a year in service training/workshop related to IPC yearly. In addition, 19 (59%) participants stated that knowledge regarding IPC among midwives was monitored in the labour ward. Twenty-seven (84%) disagreed that PPE is always accessible in the labour ward and 17(53%) cited that infection prevention improves patient outcome. Twenty-three (72%) participants mentioned that the use of PPE was prompted in their labour ward and 18(56%) used PPE all the time when indicated.

4.6 Summary

This chapter presented and analysed the collected data in line with the research objectives and questions. The next chapter presents the discussion, conclusions, and recommendations.

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Data presentation, analysis and interpretation of data collected from questionnaires were done in the previous chapter. This chapter addresses discussion of the study findings, summary and recommendations. Its main thrust is to establish whether the gathered data and responses supplied answered the problem questions. The summary addresses the major findings per each research objective with the recommendations being put forward.

5.2 Discussion

The purpose of the research was to determine the knowledge, attitudes, and practices regarding use of personal protective equipment among midwives working in the labor ward.

Knowledge of midwives n PPE

The study results showed that all the participants had heard about PPE and knew that PPE is important in labour wards. Lack of standard precautions adherence is primarily due to the lack of awareness and knowledge. The findings further indicated that more than half (53%) participants stated that the hospital has a written policy or procedure for health staff on PPE use. The findings were in line with a study by Dodzo (2017) which indicated that that there is an urgent need to implement a programme to improve standard precautions adherence among nurses and midwives and to increase supply of hand washing and drying materials in labour wards.

The findings showed that substantial number (41%) participants agree that PPE reduce infection. Failure to apply infection control measures leads to transmission of infection and

health-care settings can act as amplifiers of disease in the course of outbreaks with a bearing on both hospital and public health (WHO Update, 2014). In addition, (47%) participants agreed that insufficient PPE could influence infection exposure. The findings concurred with a report by WHO (2016) which indicated that failure to use PPE in labour ward favours the transmission of pathogens and health-care settings can act as amplifiers of disease during epidemics, with a bearing on both hospital and public health.

Attitudes of midwives regarding PPE

The findings were in line with Lemass (2017) who said that staff attitude towards use of PPE are the most important vehicles of cross-infection in labour ward. Big number (63%) participants agree that PPE is important in their day-to-day work. In a study by McGaw and Waters (2017), 87.5% of participants believed that use of appropriate PPE would confer adequate protection for health care workers in labour ward. Half of participants reported that PPE use was inconvenient, while significant number (21%) participants believed that PPE use would interfere with patient care. This attitude towards PPE use in labour wards put patients and neonates at risk of contracting infection during the process of labour.

Negative attitude towards use of PPE can promote transmission of infection from one point to another as indicated by more than half (56%) participants who agreed that they do not attend in-service training/workshop related to infection prevention and control yearly. In contrast, positive attitude towards use of PPE can reduce the rate of Hospital acquired infections. In addition, the results showed that many (66%) participants agree that they always put on a mask and glasses during labour, probably stimulated by the need for COVID 19 protection, which is also good for the prevention of transmission of other diseases.

Practices of midwives regarding PPE use

The findings demonstrated that most of the participants agree that PPE makes them uncomfortable, and majority (72%) participants agree that the workload affects their ability to apply or wear PPE at all. These findings supports the results in a study by Lombardi et al (2009), that lack of comfort/fit, and fogging of eyewear and the need to scratch as well as young age and lack of safety training has been reported as the main hindrance to use of PPE. Being too busy to wear PPE and that PPE may offend patients and discomfort in PPE use, were reported to be a barrier to PPE use amongst the nurses compared to doctors (Kotwal and Taneja, 2010). The results showed that high proportion (66%) participants agree that they always put on a mask and glasses during labour, probably stimulated by the need for covid 19 protection, which is also good for the prevention of transmission of other diseases.

Majority (60%) participants stated that they do not wear PPE in emergency, which put both patients, newborn babies and staff at high risk of contracting infections during labour. These findings also concur with another study where health care workers cited various reasons for not using the PPE and emergencies were the reason cited by most of them (91%). The following was mentioned as other reasons for noncompliance to PPE use and non-use of PPE by co-workers (67%); busy schedule (37%), risk of offending the patient (27%), discomfort (24%) and difficulty in carrying out the job (19%) (Med, 2014).

In addition, more than half 19 (59%) participants agree that knowledge of infection prevention and control are being monitored in the maternity hospital. In the developing countries, health care workers are at greater risk due to sub-optimal infection control practices like lack of equipment, training, compliance with universal precautions (Sagoe-Moses et al, 2011). The findings also indicated that majority of the participants disagree that PPE equipment is always accessible in the maternity ward. The findings were in line with a study by Rocha (2014) which

indicated showed that most maternity wards in developing countries lack adequate PPE such that patients had to fork out their money.

Moreover, the findings also indicated that most of the participants agree that the use of PPE is prompted in their ward and 56% participants use PPE all the time when indicated. According to Lemass (2017), practice staff should make a risk assessment of planned procedure/action and select PPE depending on the nature of the procedure, the risk of exposure to blood, body fluids, mucous membranes and non-intact skin as well as the risk of contamination. Compliance with PPE use in maternity ward is important in the maternity ward in infection prevention and control.

5.3 Implications in nursing

Nursing practice

The findings reveal that most of the participants agree that PPE makes them uncomfortable, and majority (72%) participants agree that the workload affects their ability to apply or wear PPE at all. This shows partial lack of knowledge on the importance of use of PPE. Many (60%) participants agree that they do not wear PPE in emergency, which put both patients, newborn babies and staff at high risk of contracting infections during labour. There is need to strengthen use of PPE in nursing practice and nursing management need to ensure that there is adequate PPE in labour wards and that midwives are continuously monitored especially during the COVID 19 pandemic

Nursing education

Negative attitude towards use of PPE can promote transmission of infection from one point to another. Many (56%) participants who said that they do not attend in-service training/workshop related to infection prevention and control yearly. Continued nurse education on IPC and PPE use should be facilitated to empower midwives with knowledge hence develop a positive

attitude, maximise PPE use in the labour wards and reduce contraction of infection during the labour process and development of neonatal sepsis.

Nursing research

Nursing research should be carried out to reveal hidden barriers to the effective management of PPE at public health facilities especially during this COVID 19 pandemic. Unavailability of PPE can be attributed to wastages of resources as majority of the participants agree that the use of PPE is promoted in their ward and only (56%) participants use PPE all the time when indicated. There is no information on how the other substantial number (44%) participants use PPE, which need to investigation.

5.4 Limitations of the study

This study was limited to a sample of Mbuya Nehanda Maternity Hospital. The tightening of research to only one hospital in instead of conducting the study at macro-level will be also a major limitation as this implies that findings may not be generalizable. Lastly, despite a high response rate, the sample size of participants was small, due to time and financial constraints and one could argue that a bigger sample size might have given different results to the not statistically significant results.

5.5 Conclusion

The study analysed the knowledge, attitudes, and practices regarding use of personal protective equipment among midwives working in the labor ward. The study's overall knowledge hearing about PPE and that PPE is important was very high. Lack of PPE use adherence is primarily due to the lack of awareness and knowledge. A significant number of participants agreed that PPE reduce infection. All the participants agree that PPE use is important in labour wards. Staff attitude towards use of PPE are the most important vehicles of cross-infection in labour ward. In addition, most of the participants indicated that PPE makes them feel uncomfortable and most participants agree that the workload affects their ability to apply or wear PPE at all. Negative attitude towards use of PPE promote transmission of infection from one point to another. The findings of the study indicated that PPE equipment is not always accessible in the maternity ward. Moreover, the results showed that use of PPE is promoted in the maternity ward.

5.6 Recommendations

Based on the research findings, the following recommendations were made:

1. There is need for continuous training by Parirenyatwa School of Midwifery and School of Nursing for all midwives and nurses in the maternity ward on PPE use. There should be in-service training/workshops related to infection prevention and control yearly and all nurses should attend related attend in-service training/workshop related to PPE regularly. These assists improve knowledge, attitude and practice of PPE use.
2. The health facilities need to be equip the maternity wards with adequate human resources to help reduce workload, which affects one's ability to apply to wear PPE at all, times.

3. It is important that continuous monitoring by the infection control department, of nurses' practice on infection prevention guidelines be implemented, with penalties available for those who display ignorance.
4. It is critical that the hospital equips the maternity wards with adequate PPE resources. This helps in removing lame uses among nurses towards PPE use and is crucial in improving the compliance with infection control standard precautions
5. In the current study, midwives only participated in the study determine knowledge, attitude and practices regarding use of PPE in the labor ward. Future researchers need to conduct interviews with different experts and patients to investigate their knowledge, attitude and practices towards IPC guidelines.
6. This study was limited to knowledge, attitude and practices regarding use of PPE in the labor ward. It would be interesting for a future study to conduct a more detailed observational study on this topic to reveal hidden barriers to the effective management of PPE at public health facilities, especially during the COVID-19 pandemic.

5.7 Summary

The aim of the research was to determine the knowledge, attitudes, and practices regarding use of personal protective equipment among midwives working in labour ward at Mbuya Nehanda Maternity Hospital. There were a significant percentage of babies delivered vaginally at Mbuya Nehanda Maternity Hospital who developed neonatal sepsis from 2018-2020. Out of the 6134 vaginal deliveries conducted, 261(5%), developed neonatal sepsis. The neonatal sepsis could be attributed to poor IPC practices including use of PPE among midwives in labour ward.

Infection prevention and control (IPC) as an integral component of nursing care delivery in any setting to reduces risks for morbidity and mortality in patients and care givers at all levels. The use of personal protective equipment is one of the principles of infection prevention and

control**.** A quantitative, descriptive survey research design was used in this study. A census sampling method was used to select study participants. All midwives working in the labour ward were selected to participate in the study. Self-administered questionnaires with sections namely, demographic data, knowledge of midwives on use of PPE, attitudes of midwives on use of PPE and practices midwives regarding use of PPE were used to collect data.

The findings showed that all the participants had heard about PPE and they knew that PPE is important. All the participants agree that infection prevention guidelines are important in maternity hospital. This indicates that the study population have adequate knowledge on use of PPE.

The finding also revealed that most of the participants have negative attitude towards use of PPE. Negative attitude towards use of PPE can promote transmission of infection from one point to another as indicated by 56% participants who agreed that they do not attend in-service training/workshop related to infection prevention and control yearly. In contrast, positive attitude towards use of PPE can reduce the rate of Hospital acquired infections. In addition, the results showed that 66% participants agree that they always put on a mask and glasses during labour, probably stimulated by the need for COVID 19 protection, which is also good for the prevention of transmission of other diseases. Most of the participants (65%) indicated that PPE makes them feel uncomfortable and majority of the participants (72%) agree that the workload affects their ability to apply or wear PPE. A significant number (60%) do not wear PPE in emergencies. PPE use is prompted in the labour ward as agreed by many (72%) and most of the participants (66%) put on gloves and glasses during labour. Minority of the study population, (16%) indicated that PPE is always accessible in the maternity ward therefore need the facility to be equipped with adequate PPE. It was recommended that there is need for continuous training for all midwives in the maternity ward on PPE use. There is a need for the maternity facility to be equipped with adequate human resources and PPE.

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Appendices

Appendix 1: Informed Consent Form

My name is Lucia Vimbisai Masuka, a final year Bachelor of Nursing Science student at Africa University. I am carrying out a study on the determining knowledge, attitudes and practices regarding use of personal protective equipment (PPE) among midwives working in labour ward at Mbuya Nehanda Maternity Hospital, Zimbabwe. I am kindly asking you to participate in this study by filling in the questionnaire.

The purpose of the study is to determine the knowledge, attitudes and practices regarding use of personal protective equipment (PPE) among midwives at Mbuya Nehanda Maternity Hospital.

Procedures and duration

If you decide to participate, the questionnaire will take about 30 – 40 minutes to complete. You will participate in the research with other thirty-three midwives working in the labour ward at Mbuya Nehanda Maternity Hospital. You have been selected to participate in the study because you are a midwife, and you work in the labour ward at Mbuya Nehanda Maternity Hospital.

Risks and discomforts

There are no foreseeable risks and discomforts participating in this study.

Benefits and/or compensation

There are no material or monetary benefits to you as a participant. The research will benefit and other midwives and nurses in gaining knowledge regarding use of PPE which will offer you and patients protection from hospital acquired infections.

Confidentiality

Confidentiality of your answers will be assured via use of code numbers on the questionnaires. All the responses will be analysed as group data without identification of individual responses. Completed questionnaires will be stored in a locked box, in no particular order to assure the participants remain anonymous and will be destroyed after analysing them. Names and any other identification will not be asked for in the questionnaires.

Voluntary participation

Participation in this study is voluntary. If participant decides not to participate in this study, his or her decision will not affect any future relationship. If you choose to participate, you are free to withdraw their consent and to discontinue participation without penalty.

Offer to answer questions

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

Authorization

If you have decided to participate in this study please sign this form in the space provided below as an indication that you have read and understood the information provided above and have agreed to participate.

---------- ----------

Name of Research Participant (please print) **Date**

Signature of Research Participant or legally authorized representative

If you have any questions concerning this study or consent form beyond those answered by the researcher including questions about the research, your rights as a research participant, or if you feel that you have been treated unfairly and would like to talk to someone other than the researcher, please feel free to contact the Africa University Research Ethics Committee on telephone (020) 60075 or 60026 extension 1156 email aurec@africau.edu

Name of Researcher ----------

Appendix 2 –Self –administered Questionnaire

Study topic: Knowledge, attitudes and practices regarding use of personal protective equipment (PPE) among midwives working in labour ward at Mbuya Nehanda Maternity Hospital, Zimbabwe.

Instructions to participants

- Please answer as many questions as you can.
- Do not write your name on any form.
- Indicate your answer a tick or writing in the spaces indicated.

Section A – Socio-Demographic Characteristics of midwives

1. What is your age

2. What it is your gender? (a)Male

   (b)Female

3. What it is your marital status? (a)Single

   (b)Married

   (c)Other(specify)……

   .....

4. What is your level of Education?

(a)Diploma in Nursing and Midwifery [ ]

(a)Degree in Nursing and Midwifery

(c)Other(specify)…….....……

……

5. What are your years of practice as a nurse-midwife?

(a) 0 – 2 years

(b) 3 – 5 years

(c) 6 – 10 years

(d) above 10 years

6. What is your employment status? (a)Full-time

(b)Contract

Other(specify)……

……

Section B - Knowledge of midwives on use of personal protective equipment

7. Have you ever heard about PPE? (a)Yes

(b) No

8. Do you think PPE is important in your day-to-day work? (a)Yes

(b)No

9. Does the Hospital have a written policy or procedure for staff on using PPE such as what equipment to use and when it is to be used? (a)Yes

(b) No

(c)I do not know

10. Do you think that an absence of PPE among midwives in labour ward can cause blood and body fluids exposure? (a)Yes

(b)No

(c)I do not know

11. Does PPE help in reducing spread of infection? (a) Yes

(b)No

12. If you have insufficient PPE, do you think that it could influence infection exposure?

(a)Yes

(b)No

(c)I do not know

13. Do you know how to wear and remove a PPE? (a)Yes

(b)No

(c)I do not know

14. Does the labour ward have regular on-going training opportunities for staff on PPE with periodic refresher courses?

(a) Completed training

(b)Complete training with no refresher courses

(c)Some training

Section C – Attitudes of midwives regarding use of personal protective equipment

Strongly Agree **(SA)** Agree **(A)** Neutral **(N)** Disagree **(D)** Strongly Disagree **(SD)**

	Variable - Attitude	1 (SA)	2 (A)	3 (N)	4 (D)	5 (SD)
15	Infection prevention guidelines are important to this maternity hospital					
16	I should attend in-service training/workshop related to PPE regularly.					
17	PPE is important in my day-to-day work.					
18	PPE makes me uncomfortable.					
19	The workload affects my ability to apply to wear PPE at all times.					

20. Do you feel that PPE works? (a)Yes

(b)No

(c)I do not know

Section D – Practices of midwives regarding use of personal protective equipment

Answer by ticking Agree, Disagree or N/A

Item #	Variable – Practice	YES	NO	N/A
21	I always put on a mask and glasses during labour.			
22	I attend in-service training/workshop related to infection prevention and control yearly.			
23	Knowledge of infection prevention and control are being monitored in the maternity hospital.			
24	PPE equipment are always accessible in my ward			
25	Infection prevention does not improve patient outcome.			
26	The use of PPE promoted on our ward.			
27	I use PPE all the time when indicated			

Thank you for participating in this study.

Appendix 3: Request for permission to carry out a study

Appendix 6: Request for permission to carry out a study

Westlea Extension
Harare

01 March 2021

The Medical Superintendent
Mbuya Nehanda Maternity Hospital
P.O. Box 152
Harare

Dear Sir

REF: REQUEST TO CARRY OUT A STUDY AT MBUYA NEHANDA MATERNITY HOSPITAL

I am a final year student at Africa University and am hereby seeking your permission to carry out a study at your hospital on the knowledge, attitudes and practices regarding use of personal protective equipment among midwives working in labor ward at Mbuya Nehanda Maternity Hospital. This is in partial fulfilment of the Bachelor of Science in Nursing programme.

Your response in this regard is greatly appreciated.

Yours sincerely

Lucia Vimbisai Masuka

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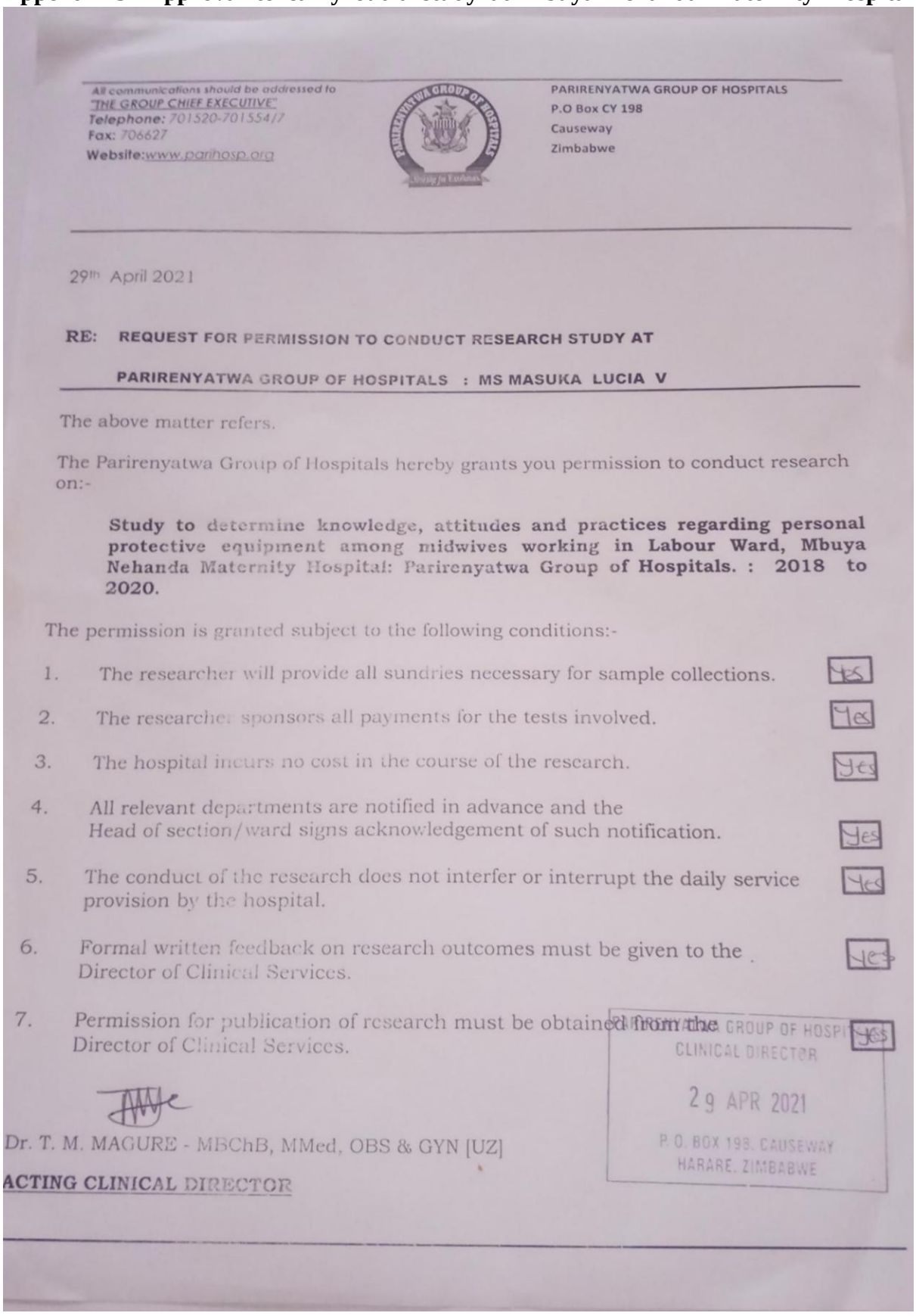
Appendix 3- Approval to carry out a study at Mbuya Nehanda Maternity Hospital



All communications should be addressed to
"THE GROUP CHIEF EXECUTIVE"
Telephone: 701520-7015547
Fax: 706627
Website:www.parihosp.org

PARIRENYATWA GROUP OF HOSPITALS
P.O Box CY 198
Causeway
Zimbabwe

29th April 2021

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH STUDY AT

PARIRENYATWA GROUP OF HOSPITALS : MS MASUKA LUCIA V

The above matter refers.

The Parirenyatwa Group of Hospitals hereby grants you permission to conduct research on:-

Study to determine knowledge, attitudes and practices regarding personal protective equipment among midwives working in Labour Ward, Mbuya Nehanda Maternity Hospital: Parirenyatwa Group of Hospitals. : 2018 to 2020.

The permission is granted subject to the following conditions:-

1. The researcher will provide all sundries necessary for sample collections. Yes
2. The researcher sponsors all payments for the tests involved. Yes
3. The hospital incurs no cost in the course of the research. Yes
4. All relevant departments are notified in advance and the Head of section/ward signs acknowledgement of such notification. Yes
5. The conduct of the research does not interfer or interrupt the daily service provision by the hospital. Yes
6. Formal written feedback on research outcomes must be given to the Director of Clinical Services. Yes
7. Permission for publication of research must be obtained from the Director of Clinical Services. Yes

PARIRENYATWA GROUP OF HOSPITALS
CLINICAL DIRECTOR
29 APR 2021
P. O. BOX 198, CAUSEWAY
HARARE, ZIMBABWE

Dr. T. M. MAGURE - MBChB, MMed, OBS & GYN [UZ]
ACTING CLINICAL DIRECTOR

Appendix 4- Approval from AUREC

AFRICA UNIVERSITY
A United Methodist-Related Institution
Investing in Africa's future

AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC)

P.O. Box 1320 Mutare, Zimbabwe, Off Nyanga Road, Old Mutare-Tel (+263-20) 60075/60026/61611 Fax: (+263 20) 61785 website: www.africau.edu

Ref: AU2084/21 15 May, 2021

Lucia Masuka
C/O CHANS
Africa University
Box 1320
Mutare

RE: KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING PERSONAL PROTECTIVE EQUIPMENT (PPE) AMONG MIDWIVES WORKING IN LABOUR WARD AT MBUYA NEHANDA MATERNITY HOSPITAL FROM 2018 TO 2020

Thank you for the above titled proposal that you submitted to the Africa University Research Ethics Committee for review. Please be advised that AUREC has reviewed and approved your application to conduct the above research.

The approval is based on the following.

a) Research proposal
b) Data collection instruments
c) Informed consent guide

- **APPROVAL NUMBER** AUREC 2084/21
  This number should be used on all correspondences, consent forms, and appropriate documents.
- **AUREC MEETING DATE** NA
- **APPROVAL DATE** May 15, 2021
- **EXPIRATION DATE** May 15, 2022
- **TYPE OF MEETING** Expedited
  After the expiration date this research may only continue upon renewal. For purposes of renewal, a progress report on a standard AUREC form should be submitted a month before expiration date.
- **SERIOUS ADVERSE EVENTS** All serious problems having to do with subject safety must be reported to AUREC within 3 working days on standard AUREC form.
- **MODIFICATIONS** Prior AUREC approval is required before implementing any changes in the proposal (including changes in the consent documents)
- **TERMINATION OF STUDY** Upon termination of the study a report has to be submitted to AUREC.

AFRICA UNIVERSITY
RESEARCH ETHICS COMMITTEE (AUREC)
APPROVED
P.O. BOX 1320, MUTARE, ZIMBABWE

Yours Faithfully

MCHINZOU

MARY CHINZOU – A/AUREC ADMINISTRATORFOR CHAIRPERSON, AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE