



## Study Protocol on Availability and Accessibility of Personal Protective Equipment: Fears of Acquiring COVID-19 Among Nurses and Midwives Attending to Women at the Women and New Born Hospital and First Level Hospitals, in Lusaka, Zambia

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### Abstract

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**Background:** COVID-19 emerged from Wuhan city, Hubei province of China and was declared a pandemic by the World Health Organization in January, 2020. Pregnant women have not been spared from this pandemic thereby putting at risk the nurses and midwives who take care of such women considering the close proximity of care especially during delivery. At the heart of the pandemic, fear is heightened among nurses as frontline workers due to unavailability of personal protective equipment. This study aims to assess the availability and accessibility of personal protective equipment and fears of acquiring COVID-19 among nurses and midwives attending to women at the Women and New Born Hospital and First Level Hospitals, in Lusaka, Zambia.

**Methodology:** Nurses and midwives (n = 384) attending to women in maternity wards at the Women and Newborn Hospital and five (5) first level health facilities in Lusaka, Zambia will answer a monkey survey whose link will be sent via a WhatsApp group. They will answer questions on the socio demographic variables, availability and accessibility of PPEs and will be assessed for anxiety levels using the Form Y State-Trait Anxiety Inventory. Data will be analysed using the Statistical Package for Social Sciences version 25.0. Chi-square will be used on nominal and ordinal level variables and Pearson correlation will be used on interval and ratio level variables to determine the association between availability and accessibility of personal protective equipment and the levels of anxiety and depression.

**Conclusion:** The findings from this study may be key for information on accessibility and availability of personal protective equipment use during the COVID-19 pandemic. Information on levels of anxiety among nurses and midwives will guide stakeholders on the need of mental health wellness among the caregivers.

**Keywords:** *availability; accessibility; personal protective equipment; COVID-19; pandemic*

## INTRODUCTION

The novel COVID-19 also known as Coronavirus emerged from Wuhan City, Hubei Province of China and was reported to the World Health Organization office on 31<sup>st</sup> December, 2019 [1]. Zambia, just like any other country, has not been spared from COVID-19. The first two cases of Coronavirus in Zambia were reported on the 18<sup>th</sup> of March, 2020 [2]. As of 20<sup>th</sup> June, 2020, Zambia had recorded a total of 6,228 laboratory confirmed cases of COVID-19 and 165 deaths [3]. Pregnant women have not been spared of this pandemic. There is a risk of infection by health workers who are taking care of patients with infectious conditions such as the novel COVID-19 [4, 5]. In order for the nurses and midwives to be protected from the risk of contracting COVID-19 from their patients, they require Personal Protective Equipment and those who are nursing asymptomatic patients should always wear a mask [6].

Personal protective equipment protects the worker from risks that cannot be eliminated for more effective safety [7]. The International Council of Nurses urges nurses to keep themselves safe from the COVID-19 infection by wearing personal protective equipment [8]. Effective Personal Protective Equipment is vital in preventing the spread of infectious diseases [9]. The emergence of COVID-19 has brought a major challenge among nurses, midwives and other health workers as working without appropriate Personal Protective Equipment puts them at a high risk of being infected [10, 11]. The type of Personal Protective Equipment to be used in nursing patients infected with COVID-19 ranges from gloves, face masks, air-purifying respirators, goggles, face shields, respirators and gowns [10]. COVID-19 is one of the diseases which is likely to lead to emotional distress and trauma [12].

A study conducted in the Middle East on Coronavirus epidemic impact on health workers' risk perceptions, work and personal lives reported that more than 80 percent of the health care staff expressed high anxiety levels of contracting the disease and transmitting it to their families [13, 14]. There is evidence stating that nurses, midwives, and other health care providers have lost their lives and got infected with COVID-19 from the same patients whose lives they were trying to save [15]. Some studies recommend mental health care to be incorporated in the fight against COVID-19 [16]. Another study conducted in the Anhui Province of China to investigate emotional responses and coping strategies

revealed that nurses and nursing students showed higher levels of anxiety in females compared to the male nurses. In the same study, participants from the urban areas exhibited more anxiety compared to the ones from the rural areas [17].

A number of countries faced and are still experiencing challenges in the provision of personal protective equipment for the nurses [18]. This includes well developed nations such as the United States of America where they ran out of the high filtration N-95 masks and had to reuse them; Italy equally ran out of intensive care unit beds and ventilators and had to make critical decisions on the type of patients who needed to be prioritized to receive medical care [19]. Zambia, a developing nation, is not spared in this predicament. Despite the cumulative number of infected people which is less in most of the developed countries, anecdotal reports state that the midwives in maternity do not have sufficient personal protective clothing and they have to reuse the N-95 masks. The midwives have expressed fear and anxiety of contracting the Virus and infecting their families. Despite the magnitude of the problems being encountered by these midwives, no counselling services are being offered to them.

The study therefore aims to assess the availability and accessibility of Personal Protective Equipment and anxieties of acquiring Covid-19 among nurses and midwives attending to women at the Women and Newborn Hospital and the first level hospitals in Lusaka Zambia.

### General objective

To assess the availability and accessibility of personal protective equipment and fears of acquiring Covid-19 among midwives attending to women at the Women and Newborn Hospital and the first level hospitals in Lusaka, Zambia.

### Specific objectives

1. To determine the availability of personal protective equipment for Covid-19 at the Women and Newborn Hospital and first level hospitals in Lusaka, Zambia.
2. To determine the anxieties exhibited by nurses and midwives as they render care to women at the Women and Newborn Hospital and first level hospitals in Lusaka, Zambia.
3. To ascertain the counselling services offered to nurses and midwives at the Women and Newborn Hospital and first level hospitals in Lusaka, Zambia.

## METHODS AND MATERIALS

### Design and setting

The study will be analytical cross-sectional. The University Teaching Hospital, first level hospitals, Chilenje, Kanyama, Chipata, Matero and Chawama and the maternity wards were chosen as these cater for the majority of maternity cases and Women and Newborn Hospital is a referral centre for complicated maternity cases for the entire country, thereby having increased risk of receiving and caring for women who may be symptomatic but undiagnosed for COVID-19. The maternity wing at the Women and Newborn Hospital has 13 wards, 1 COVID-19 isolation ward, 1 labour ward, 1 special observation unit, 3 postnatal wards, 1 fee paying ward catering for both antenatal and postnatal mothers, 3 gynaecology wards, 1 neonatal intensive care unit, 1 neonatal outpatient Department, and 2 theatres, 1 for COVID-19 cases and the other one for general cases. The first level hospitals all have a Maternal and Child Health Department, a labour ward and an antenatal and postnatal ward.

### Sampling technique

The University Teaching Hospital and the first levels hospitals will be selected purposefully including the participants.

### Sample size

The sample size was calculated using the prevalence formula:

$$P = 50\%$$

$$N = \frac{Z^2 P (100 - P)}{d^2}$$

as the population of nurses and midwives in Lusaka district could not be arrived at. A sample of 384 participants was arrived at.

### Participants

All nurses and midwives who will have worked for two weeks or more and will consent will be recruited in the study. Nurses and midwives who will have worked for less than two weeks will be excluded in the study because they may not have familiarized themselves with the ward routine.

### Procedures

Consenting midwives will have a link to an online survey monkey shared on the WhatsApp group [20]. The group administrators will add the participants on to the WhatsApp group and will explain the purpose of the study. The participants will be subjected to a self-administered questionnaire that will have three parts. The first part will focus on the socio-demographic details, the second on availability, accessibility of personal protective equipment, anxiety levels and

the last part will be on the availability of counselling services. The section of the self-administered questionnaire to assess the availability and accessibility of personal protective equipment will only be answered by the charge nurse. Fears and anxieties exhibited by midwives will be measured using Form Y State-Trait Anxiety Inventory. Twenty (20) items will be used to assess trait anxiety and the other 20 for state anxiety. All items will be rated on a 4-point scale.

### Data analysis

Data will be analyzed using the Statistical Package for Social Sciences version 25.0 for Windows. Demographic characteristics of the participants will be analyzed using measures of central tendency. In addition, Chi-square will be used on nominal and ordinal level variables and Pearson correlation will be used on interval and ratio level variables to determine the association between availability and accessibility of personal protective equipment and the levels of anxiety.

## DISCUSSION

The aim of the study is to assess the availability and accessibility of personal protective equipment and anxieties of acquiring Covid-19 among nurses and midwives attending to women at the Women and Newborn Hospital and first level hospitals in the maternity units in Lusaka, Zambia. The impact of COVID-19 is likely to affect the economic status of many countries, Zambia inclusive [21]. Additionally, Zambia has not adhered to most of the stringent measures to combating the COVID-19 pandemic such as international travel ban or lock down thus making her and the medical staff vulnerable to the infection without adequate protective equipment [22].

This study is timely as it will provide information on the inner feelings that the nurses and midwives have as they manage women seeking maternity services. The study will further provide an insight as to whether the personal protective equipment are accessible and available thus being informative to the policy makers and making the equipment available in areas where there are deficiencies. Zambia, a developing nation with a weak health care system [23] is a very important destination for such studies as the findings will help the health sector to solicit for funds in order to mitigate the impact of the Pandemic. Identifying counselling needs will help to link the nurses to a psychologist or a psychiatrist as these services are not being provided for as at now. This will cater for an

aspect which is taken for granted where the “carer” is not being supported. Nurses and midwives attending to women offering maternity services have to be in close contact as they have to take comprehensive history and the procedures such as deliveries require them to be in close proximity with the client thus putting them at a higher risk of acquiring COVID-19.

There are some limitations in this proposed study. First of all, a self-administered interview schedule is a self-reporting instrument including the Form Y State-Trait Anxiety Inventory. The researchers have no means of verifying if the given information is correct or not. The above effects will be mitigated by explaining to the participants to only give information which is true and relevant according to the interview schedule and the Form Y State-Trait Anxiety Inventory. The participants will be told that their responses will be anonymous and it will be difficult to tell who has said what. Since the research team will not be in contact with the participants, it will be difficult to assess the orientation of the participants. Additionally, the study sites are all in the urban setting. The findings on the availability and accessibility of personal protective equipment might not reflect the same picture in the rural set up which are very far from the Ministry of Health which is the source. Recommendations on extending the study to a larger scale will be given depending on the findings.

### Conclusion

There is paucity of data on the availability and accessibility of personal protective equipment and fears exhibited by nurses and midwives during the COVID-19 pandemic. This is because few studies have been conducted in Zambia, the disease emerged recently and the epidemiology is still not very clear. Most of the studies being undertaken have not yet been published or the focus is on the patients or clients and not on the caregivers. In order to integrate mental health into maternal health, there is need for screening for levels of anxiety among the nurses and midwives taking care of mothers throughout the perinatal period during this pandemic.

### DECLARATION

**Contributors** S.M developed the idea and participated in literature review, K.M wrote the introduction, M.Z participated in literature review, D.N.M wrote on the study setting and read through the document for accuracy, L.M wrote the methods and P.M.K wrote the problem and

justification why the study should be conducted and read the final document and made necessary alterations.

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**Competing interests** None declared.

**Patient consent** Not required.

**ethics approval** Ethical approval will be obtained from the University of Zambia Biomedical Research Ethics Committee. Participants will be informed of their right to withdraw from the study without any prejudice. They will be also allowed to skip questions that they may deem personal or otherwise. Participants will be informed and assured of the confidentiality and anonymity of the information they will volunteer. Participants who may become emotional during the study will be encouraged to get in touch with the research team for counselling services. The findings will be disseminated to the Ministry of Health by writing a report and through a seminar once the Covid-19 cases are over.

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