THE EXPERIENCES OF PREGNANT WOMEN AND THEIR HEALTHCARE PROVIDERS DURING THE COVID-19 PANDEMIC IN NIGERIA: A QUALITATIVE DESCRIPTIVE SINGLE CASE STUDY

Minika Ohioma

Department of Family Medicine

McGill University, Montreal

March 2023

A thesis submitted to McGill University in partial fulfilment

of the requirements of the degree of Master of Science in

Family Medicine

DEDICATION

This thesis is dedicated to my mother, who remained a constant source of inspiration, encouragement, and strength. She continually provided moral, spiritual, emotional, and intellectual support throughout the program. Thank you for being my cheerleader and making me see this "adventure" through to the end. I am genuinely thankful for having you in my life.

TABLE OF CONTENTS

| ABSTRACT |
|--|
| LIST OF ABBREVIATIONS |
| LIST OF FIGURES |
| ACKNOWLEDGMENTS |
| CHAPTER ONE |
| 1.0 INTRODUCTION |
| 1.1 Background |
| 1.2 Statement of the problem |
| 1.3 Justification |
| CHAPTER TWO |
| 2.0 LITERATURE REVIEW |
| 2.1 COVID-19 and Maternal Health |
| 2.2 Health care and public health measures to control the pandemic |
| 2.3 COVID-19 and health care providers |
| 2 A Health Care Managers 34 |
| 2.4 Headh Cure Managers |
| 2.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders |
| 2.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders |
| 2.4 Health Care Muningers 34 2.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders 35 2.6 Knowledge gaps 38 2.7 Research question 38 |
| 2.4 Health Cure Muningers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE39 |
| 2.4 Health Cure Multigers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE393.0 RESEARCH PLAN39 |
| 2.4 Health Cure Multigers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE393.0 RESEARCH PLAN393.1 Setting39 |
| 2.4 Health Cure Multigers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE393.0 RESEARCH PLAN393.1 Setting393.2 Study Duration41 |
| 2.4 Health Cure Multigers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE393.0 RESEARCH PLAN393.1 Setting393.2 Study Duration413.3 Study Participants41 |
| 2.4 Health Cure Multigers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE393.0 RESEARCH PLAN393.1 Setting393.2 Study Duration413.3 Study Participants413.4 Methods for collecting data43 |
| 2.4 Health Cure Multigers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE393.0 RESEARCH PLAN393.1 Setting393.2 Study Duration413.3 Study Participants413.4 Methods for collecting data433.4.1 Semi-structured Interviews43 |
| 2.4 Health Cure Multigers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE393.0 RESEARCH PLAN393.1 Setting393.2 Study Duration413.3 Study Participants413.4 Methods for collecting data433.4.1 Semi-structured Interviews433.4.2 Direct observation44 |
| 2.4 Health Cure Multigers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE393.0 RESEARCH PLAN393.1 Setting393.2 Study Duration413.3 Study Participants413.4 Methods for collecting data433.4.1 Semi-structured Interviews433.4.2 Direct observation443.4.3 Review of documents in the hospital44 |
| 2.4 Health Cure Multigers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE393.0 RESEARCH PLAN393.1 Setting393.2 Study Duration413.3 Study Participants413.4 Methods for collecting data433.4.1 Semi-structured Interviews433.4.2 Direct observation443.5 Methods for analysing data44 |
| 2.4 Heam Cure managers342.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders352.6 Knowledge gaps382.7 Research question38CHAPTER THREE393.0 RESEARCH PLAN393.1 Setting393.2 Study Duration413.3 Study Participants413.4 Methods for collecting data433.4.1 Semi-structured Interviews433.4.2 Direct observation443.5 Methods for analysing data443.6 Trustworthiness of qualitative findings46 |

| CHAPTER FOUR |
|---|
| 4.0 RESULTS |
| 4.1 Theme 1: |
| Diverse acceptance of COVID-19 control measures put in place in the hospital |
| 4.2 Theme 2: Mixed views of the effects of the pandemic on participants |
| 4.2.1 Theme 2 Subtheme I: Positive effects of COVID-19 |
| 4.2.2 Theme 2 Subtheme II: Negative effects of COVID |
| 4.2.2.1 General challenges experienced by all participants |
| 4.2.2.2 Specific challenges of participants in each group |
| 4.3 Theme 3: Views about COVID-19 Vaccine |
| 4.4 Theme 4: The COVID-19 pandemic exposed other underlying problems |
| 4.5 Theme 5: Solutions to perinatal care challenges mentioned by participants |
| CHAPTER FIVE |
| 5.0 DISCUSSION |
| 5.1 Limitations of the study |
| 5.2 Strengths of this study |
| 5.3 Future research |
| 5.4 Conclusion |
| REFERENCES |
| APPENDICES |
| Appendix I: Consent Form |
| Appendix II: Topic Guides 105 |
| Appendix III: Table showing codes and themes |
| Appendix IV: Screen shots of data 112 |
| Appendix V:Tables containing quotes for different themes |
| Appendix VI: Ethical approvals |

ABSTRACT

Severe acute respiratory syndrome coronavirus 2 (COVID-19) is a disease that has affected all countries and has overstretched health care systems globally, including those of low-income countries like Nigeria. Healthcare Providers (HCP) who are integral to the fight against COVID-19 are at increased risk of contracting the disease and possibly transmitting it to others including their families. They are also burdened with grief from watching patients, colleagues, and loved ones die from the disease. During the global crisis, health policies focused on COVID-19 control. Providing adequate perinatal care was, therefore, one of the essential health care needs that were compromised with potential adverse outcomes, including worsening the already high maternal mortality rate in the country.

This study aimed to describe pregnant women's, their healthcare providers' views about their perinatal care experiences during the COVID-19 pandemic in Nigeria, and to make recommendations for improved care. This aim was achieved by undertaking a qualitative description single-case hospital-based study. Nineteen semi-structured in-depth interviews with participants were conducted in a tertiary hospital in North-Central Nigeria between May and August 2021. Participant selection was purposive, and the data was analyzed by Thematic analysis using an inductive coding approach. In addition to this, complementary data were collected including pictures, review of hospital records, participant observation, an in-depth interview with a top management staff and field notes. These were used for triangulation.

The findings of the study were grouped into 5 themes: I. Divergent views of COVID-19 control measures put in place in the hospital. II. Mixed views of the effects of the pandemic on participants. III. Views on COVID-19 Vaccine, including reasons for vaccine acceptance and

hesitancy. IV. COVID-19 exposing underlying issues like brain drain. V. Solutions to Perinatal care challenges mentioned by participants.

The study showed how the pandemic affected perinatal health care delivery, particularly access to services, availability of some services, patient and staff avoidance of services, and delays in delivery of optimum care. Most of the findings, like challenges of health care providers regarding availability of PPE, lack of incentives, and an increased level of mental health issues like fear, have been documented in studies done in other countries. However, this study highlights new findings, for instance, challenges pregnant women experienced in using the masks. Also, the divergent views between the health care management staff and HCPs in meeting the expectations of HCP were seen. Also highlighted in the study was the high level of vaccine hesitancy among participants, including health care providers. The most common reasons are concern about the efficacy and safety of the vaccine, mistrust in the government, effect of religion, and misinformation on the vaccines, particularly on social media.

Participants suggested several solutions for the challenges with perinatal healthcare delivery, including providing essential equipment for healthcare providers to work effectively, a review of their hazard allowances and continuous training. In addition, there is also a need for COVID-19 point-of-care universal testing for all pregnant women attended to by healthcare providers and better strategies to retain staff to reduce brain drain. To solve the problem of vaccine hesitancy, trust-building measures such as community engagement, including the involvement of religious and community leaders (whom the people trust), are needed to boost confidence in government policies. Also, non-traditional communication strategies like using social media to disseminate health information and vaccination campaigns maybe helpful in improving vaccine uptake among Nigerians.

These findings can be used to inform policy, develop perinatal and primary care practice guidelines, and help identify and target interventions for perinatal health care workers and pregnant women in Nigeria.

7

RÈSUMÈ

Le coronavirus 2 du syndrome respiratoire aigu sévère (COVID-19) est une maladie qui i a touché tous les pays et qui a surchargé les systèmes de santé à l'échelle mondiale, y compris ceux de pays à faible revenu comme le Nigeria. Les travailleurs de la santé qui font partie intégrante de la lutte contre la COVID-19 courent un risque accru de contracter la maladie et de la transmettre à leur famille. Ils sont aussi accablés par le deuil de voir des patients, des collègues et des proches mourir de la maladie. Pendant la crise mondiale, les politiques de santé ont mis l'accent sur le contrôle de la COVID-19. Fournir des soins périnataux adéquats était donc l'un des besoins essentiels en matière de soins de santé qui a été compromis par des résultats potentiellement négatifs, y compris l'aggravation du taux de mortalité maternelle déjà élevé dans le pays.

Cette étude visait à décrire le point de vue des femmes enceintes, de leurs fournisseurs de soins de santé et des gestionnaires de soins de santé sur leurs expériences de soins périnataux pendant la pandémie de COVID-19 au Nigéria. Cet objectif a été atteint en entreprenant une description qualitative d'une étude de cas unique en milieu hospitalier. Dix-neuf entrevues semi-structurées en profondeur avec les participants ont été menées dans un hôpital tertiaire du centre-nord du Nigeria entre mai et août 2021. La sélection des participants était ciblée, et les données ont été analysées par une analyse thématique au moyen d'une approche de codage inductif. En plus de cela, des données complémentaires ont été recueillies, notamment des photos, l'examen des dossiers hospitaliers, l'observation des participants, une entrevue avec un membre de la haute direction et des notes de terrain. Ceux-ci sont utilisés pour la triangulation.

Les résultats de l'étude ont été regroupés en cinq thèmes : I. Mesures de contrôle de la COVID-19 mises en place à l'hôpital. II. Effets positifs et négatifs de la pandémie sur les participants, tels que des problèmes de transport, de finances et de santé mentale. De plus, il y avait des défis spécifiques liés à chaque groupe de participants qui sont décrits en détail au chapitre 4. III. Opinions sur le vaccin COVID-19, incluant les raisons de l'acceptation du vaccin et l'hésitation. IV. Des problèmes sous-jacents révélés par la COVID-19 comme l'exode des compétences et les inégalités en santé mondiale. V. Solutions aux défis des soins périnataux mentionnés par les participants.

L'étude a montré comment la pandémie a affecté la prestation des soins de santé périnatale, en particulier l'accès aux services, la disponibilité de certains services, l'évitement des services et les retards dans la prestation de soins optimaux. La plupart des constatations, comme les défis des fournisseurs de soins de santé concernant la disponibilité de l'équipement de protection individuelle, le manque d'incitatifs et un niveau accru de problèmes de santé mentale comme la peur, ont été documentées dans des études menées dans d'autres pays. Toutefois, cette étude a mis en lumière de nouvelles constatations, comme les défis uniques des gestionnaires des soins de santé qui tentent de répondre aux attentes des patients, du personnel, du gouvernement et de leurs responsabilités en tant que gestionnaires ont également été découverts. L'étude a également mis en évidence le niveau élevé d'hésitation à se faire vacciner parmi les participants, y compris les travailleurs de la santé. Les raisons les plus courantes sont le manque de confiance dans l'efficacité et l'innocuité du vaccin, la méfiance envers le gouvernement, la désinformation sur les vaccins, en particulier sur les médias sociaux, et l'effet de la religion.

Plusieurs recommandations ont été formulées, y compris la fourniture d'équipement essentiel pour que les travailleurs de la santé puissent travailler efficacement et un examen de leurs indemnités de risque et de leur formation continue. Il est également nécessaire de mettre en place des tests universels au point de service pour toutes les femmes enceintes traitées par les fournisseurs de soins de santé et de meilleures stratégies pour retenir le personnel afin de réduire l'exode des cerveaux. Pour résoudre le problème de l'hésitation à se faire vacciner, il faut prendre des mesures de renforcement de la confiance, comme l'engagement communautaire, y compris la participation des chefs religieux, afin de renforcer la confiance dans les politiques gouvernementales et les stratégies politiques non gouvernementales de communication traditionnelles comme les médias sociaux pour diffuser les campagnes de vaccination et améliorer son adoption parmi les Nigérians. Ces résultats peuvent être utilisés pour éclairer les politiques, élaborer des lignes directrices sur la pratique des soins périnataux et primaires et aider à identifier et cibler les interventions pour les agents de santé périnatals et les femmes enceintes au Nigeria.

LIST OF ABBREVIATIONS

| CTG: Cardiotocography |
|--|
| COVID-19: coronavirus disease 2019 |
| HELLP syndrome: Hemolysis, Elevated Liver enzymes and Low Platelets syndrome |
| HCP: Health Care Provider |
| ICU: Intensive Care Unit |
| LMIC: Low- and Middle- income countries |
| PPE: Personal Protective Equipment |
| PCR: Polymerase chain reaction |
| SARS: Severe acute respiratory syndrome |
| End-SARS: End-Special Anti-Robbery Squad of the Nigerian Police |
| NCDC: Nigerian Centre for Disease Control |
| WHO: World Health Organization |

LIST OF FIGURES

- Figure 1: Labour ward showing the reduction in the number of beds.
- Figure 2: Picture showing gloves and hand sanitizer provided in the labour ward.
- Figure 3: A poster on the wall of the labour ward with information about the Coronavirus and preventive measures.
- Figure 4: The sink in the labour ward with sanitizing materials provided.
- Figure 5: Insufficient seats for social distancing.
- Figure 6: Health education information posted on the wall at the antenatal clinic.
- Figure 7: Patients waiting in the corridor in front of the antenatal consulting rooms to be attended to.
- Figure 8: Patients being attended to at the reception desk of the clinic.
- Figure 9: Participants' satisfaction with COVID control measures in the hospital.
- Figure 10: Number of participants who had tested positive for the COVID PCR test.
- Figure 11: Number of births at the labour ward over 19months including the pre-pandemic and pandemic period.
- Figure 12: Top Government officials receiving the first batch of COVID vaccines in Nigeria.
- Figure 13: Media coverage of the arrival of the vaccines at the international airport.
- Figure 14: A nurse receiving the COVID vaccine at the launch of the vaccination campaign.
- Figure 15: Front line workers receiving the vaccine.
- Figure 16: Percentage of participants who had taken the vaccine and those willing to take the vaccine in future.
- Figure 17: Picture of the author taking the vaccine.
- Figure 18: Ethical approval from McGill IRB
- Figure 19: Ethical approval from Ethical committee in Nigeria
- Figure 20: Evidence of study completion from McGill IRB
- Figures 18-20 are in the appendix

LIST OF TABLES

- Table1: Sociodemographic characteristics of participants.
- Table 2: Themes derived from analysis of the data.
- Table 3: Measures used in the hospital to control the spread of COVID-19.
- Table 4: Compliance with COVID-19 control measures in the hospital.
- Table 5: Participants' satisfaction with COVID control measures in the hospital.
- Table 6: Psychosocial and Mental Heath challenges faced by participants.
- Table 7: Coping mechanism used by participants.
- Table 8: Socioeconomic effects of the pandemic on participants.
- Table 9: Challenges perceived by pregnant women.
- Table 10: Challenges perceived by health care providers.
- Table 11: Challenges perceived by management staff.
- Table 12: Reasons for vaccine hesitancy amongst participants.
- Table 13: Suggestions made by participants for the problems identified.
- Tables 3-13 are in the appendix.

ACKNOWLEDGMENTS

First, I am thankful to God Almighty for giving me the strength, knowledge, ability, and opportunity to undertake this study and complete it satisfactorily. I feel very fortunate to have undertaken this post-graduate program at McGill University, and there are many people to thank for the part they played in my success and to whom I feel indebted.

My sincere thanks go to my principal supervisor Dr. Roxana Behruzi who believed in me and accepted to supervise me during the MSc program. I thank you for your continuous guidance and advice throughout all the stages of the project, your generosity with your expertise and precious time, the countless hours of reflecting, reading, and encouraging, and your patience throughout the entire process.

I also thank my co-supervisor, Dr. Kathleen Rice, for her incredible support, guidance, and helpful feedback not only during the writing of this thesis but over the entire course of my time at McGill. I am deeply grateful to Dr. Charo Rodriguez, a member of my Thesis Advisory Committee for her guidance, support, and her insightful questions and comments. I gained a lot from her wealth of experience. I feel very fortunate to have such a strong committee, as their contributions have been invaluable.

I would like to express my deepest appreciation to the Department of Family Medicine for the multiple funding awards given towards my tuition and to my supervisors for the financial support given to me throughout the program. I thankfully acknowledge the support of the MSc Director, Dr. Isabelle Vedel, the departmental librarian, Genevieve Gore, and the administrative staff of the Department of Family medicine for their support. I am indeed grateful.

My special thanks go to those in the Hospital in Nigeria where this study was conducted. Dr. Korede Durojaye, who supervised the study on the field, and all other hospital staff who supported me in different ways while conducting the study. I also thank all the study participants for their openness and contributions which made the project go smoothly.

I would also like to specifically thank the following individuals, Dr. Temi Omole, Dr. Ogenekevwe Ekerebe, and Dr. Olawale Dudubo, for the healthy conversations and various contributions they made towards the completion of this work. I also would like to thank my colleagues, other students in my cohort, and former graduate students for their advice and support and the inspiration I got from their shared experiences.

Finally, I would like to thank my Husband, Ehimeme, for the prayers and selfless sacrifice to support me in this journey. I thank Isimeme and Ohireme, our children, for those little things they did, like bringing dinner to me while I worked late at night or setting their alarm clocks to wake me up to study.

Unfortunately, I am unable to thank every single person by name. However, I want you to all know that if not for your sincere love and help, I would never have completed this thesis. So, thank you all very much.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Nigeria is a multi-ethnic and culturally diverse country made up of 36 states and the Federal Capital Territory (also called Abuja). It is Africa's most populous country with a population of over 211 million people (WorldBank 2021) and a GDP per capita of US\$ 2,085.00 (WorldBank 2021). The Healthcare Spending Per Capita is US\$71 which is 3.03% of its GDP (WorldBank 2019). It is considered to be a lower middle-income country even though it is Africa's largest economy (WorldBank 2021, International.Monetary.Fund 2022). As of 2020, 40% of Nigerians (83 million people) lived below the poverty line of US\$ 381.75 per year (WorldBank 2020).

The health care system in Nigeria is run by both public and private health providers. The public health facilities are broadly grouped into 3 levels i.e., tertiary, secondary, and primary health facilities which are under the responsibility of the three tiers of the government: the Federal, State, and Local governments respectively (Severe.Malaria.Observatory 2020). Health care funding is mostly out-of-pocket with individuals bearing the cost of health services received in both the private and public health facilities. This is because the National Health Insurance Scheme (NHIS) in existence does not cover most of the population. It covers only 3% of the population (USAID 2013).

Nigeria's health outcome indicators are still unacceptably high, despite modest improvements. The maternal mortality ratio is 917 per 100 000 (WHO 2019)thus constituting to up to 23% of global maternal deaths (WHO 2019). A significant disparity in health status exists across states and geopolitical zones as well as across rural-urban divide, and according to level of

educational attainment and social status (Titus, Adebisola et al. 2015). Socioeconomic inequalities and geographical inaccessibility across both urban and rural communities have caused unequal healthcare delivery and use across the country (Eze, Okpala et al. 2014, Titus, Adebisola et al. 2015, Shaibu and Ibrahim 2017). The poor maternal health index has been attributed to several factors like poor political will, weak health systems and lack of access to proper maternal child health services (Yerger, Jalloh et al. 2020). Also, only about 41% of women in Nigerian women give birth in health care facilities where they are supported by skilled birth attendants. The remaining 59% deliver at home and in informal birthing centres (Bolarinwa, Fortune et al. 2021). Women who deliver at home are more likely to be less than 20-year-old, to live in rural areas or in north-eastern Nigeria, to be uneducated, Muslim, and to be poor (Bolarinwa, Fortune et al. 2021).

In most health care facilities, the majority of the maternal health care providers are community health providers (in primary health centres), nurses and midwives. However, general practitioners, family physicians and obstetricians also offer perinatal care in the secondary and tertiary health facilities. As at 2017, the country had about 968 obstetricians, which is about one obstetrician for every 182 000 people (Agboghoroma and Gharoro 2015). Even then, most of them are located in secondary and tertiary health centres in the big cities, with some states in the northern part of the country having only a few (Agboghoroma and Gharoro 2015). In many health facilities, especially government-owned facilities, health care management staff and chief executive officers are trained health care professionals like experienced physicians who are appointed to manage the health facility.

Family physicians are doctors with specialised training who manage a broad range of clinical conditions and pathologies. In Nigeria, family physicians may be found at district hospitals

(secondary health facilities) and tertiary health care facilities (Oseni, Salam et al. 2021). Also, in the secondary and tertiary hospitals that offer residency training, resident family physicians manage obstetric and gynaecology cases during their clinical rotations (Udonwa, Aj et al. 2011, West.African.College.of.Physicians accessed 2023).

COVID- 19 Pandemic in Nigeria

On February 27th, 2020, Nigeria confirmed her first index case of the coronavirus (also known as SARS-CoV-2 infection or COVID-19 disease) infection, in a 44-year-old man who had arrived in Lagos from Italy. Initially most positive cases in the country were travelers from overseas, but in a short time, the disease gradually progressed to community transmission (Okoroiwu, Ogar et al. 2021). By March 2020, the World Health Organization (WHO) declared the coronavirus disease 2019 (COVID-19) a pandemic due to its rapid worldwide spread (Cucinotta and Vanelli 2020). One year later (March 2021), there were 161,074 confirmed cases with 2,018 deaths in Nigeria. As of June 2022, there were 256000 cases and 3144 deaths (NCDC 2022).

At the initial stage of the COVID-19 outbreak in Nigeria, the major aim of the government was to contain its spread. This was done by aggressive case investigation, contact tracing, and prompt isolation and treatment of every single confirmed case in designated centers (Dan-Nwafor, Ochu et al. 2020). The isolation centers were staffed by health care providers drafted from their primary duty posts (Okediran, Ilesanmi et al. 2020). They were mostly inexperienced in the care of such a highly infectious disease (Okediran, Ilesanmi et al. 2020). Other public health measures like social distancing and lockdowns were adopted (Dan-Nwafor, Ochu et al. 2020). The lockdown was enforced in two states and in Abuja, the Federal Capital Territory, and it lasted for 6 weeks from March 27th to May 4th, 2020, (Mbah 2020, Shodunke 2022). Another public health

measure adopted in the country was vaccination. By May 2021, the COVID-19 vaccine was gradually becoming available in the country. AstraZeneca and Johnson & Johnson brands of the vaccine were the first set of vaccines available (Usigbe 2021). However even though COVID-19 vaccination was safe during pregnancy, its use among pregnant women in Nigeria had been low (Iliyasu, Perkins et al. 2022).

The COVID-19 pandemic put many health systems under pressure and tested their resilience, particularly in lowand middle-income countries like Nigeria (Tessema.Kinfu.Dachew.et.al 2021). The country faced its share of both the socioeconomic and health care effects of the pandemic. The lockdown and border closure impacted several economic activities and caused a decline in export and remittance. Gross Domestic Product fell by 23% during the lockdown, while the Agricultural food system fell by 11% owing to restrictions on food services (Andam, Edeh et al. 2020, Okoroiwu, Ogar et al. 2021). The socio-economic impact has been devastating as millions of people risk losing their jobs and slipping into extreme poverty (WHO 2020). The health effects included disruptions in health service delivery and restrictions in the movement and importation of medical supplies, which caused disruptions in the medical supply chain (WHO 2020).

Previous research on the Ebola epidemic in West Africa has indicated that epidemics can affect the provision and utilisation of maternity health services in LMICs mainly because of a shortage of resources, mistrust of healthcare systems, and fear (Delamou, El Ayadi et al. 2017, Yerger, Jalloh et al. 2020). Modelling studies on several countries including Nigeria, predicted that the indirect effects of COVID-19 on maternal health in low- to middle- income countries (LMICs) could be severe, with an estimated 8.3–38.6% increase in maternal deaths per month (Delamou, El Ayadi et al. 2017). Such theoretical figures translate into real concern in LMICs like

Nigeria, where the pandemic may halt or even reverse the progress made in maternal health care delivery (Riley, Sully et al. 2020).

The COVID-19 pandemic also caused a lot of fear and increased anxiety for the public. Public health measures like border closures, travel bans, quarantine measures, and physical distancing (Dan-Nwafor, Ochu et al. 2020) also caused an increased level of isolation with a reduction in human interaction and social support networks. For example, social events and religious gatherings of more than 50 people were banned (News.Agency.of.Nigeria 2020, The.Cable 2020). Markets days were restricted to fewer days in the week and for shorter hours (The.Guardian 2020). There was news of some hospitals turning away patients and even shutting down units, including some maternity units, (Onyedika-Ugoeze 2020) after exposure to staff or patients that were infected with COVID or as a social distancing measure. All these factors caused more stress, anxiety, and loneliness in the general public and for pregnant women who already have an added level of concern about their own health and the protection of their unborn baby (Nwafor, Okedo-Alex et al. 2021)

Despite these problems, maternity health care providers have remained committed to their role in caring for women and their babies (Leung, Olufunlayo et al. 2022). However, the pandemic has placed extreme demands on these healthcare providers as they are at risk of contracting the infection and even transmitting it to their families. They have had to manage higher-than-normal numbers of patients with high mortality rates in a high-pressure environment (Chersich, Gray et al. 2020, Okeke 2021). They faced the challenge of delivering care with strict infection control measures even when the recommended personal protective equipment (PPE) was not available. There was even a strike action by physicians working in government institutions concerning these problems (Aljazeera 2020).

1.2 Statement of the problem

The COVID-19 pandemic brought about many health, social and economic effects (Tremblay, Castiglione et al. 2021). Public health strategies like social distancing also had important consequences for people and there may be wider implications for pregnant and postpartum women (Blake, Gupta et al. 2021, Kolker, Biringer et al. 2021) particularly in a country like Nigeria which already had underlying problems with maternal healthcare delivery described above.

During the early days of the pandemic, a study estimated between 8.3% to 38.6% maternal deaths per month across 118 low-income and middle-income countries because of disruptions in service provision and access (Roberton, Carter et al. 2020, Semaan, Banke-Thomas et al. 2022). There is also evidence from a systematic review of an increase in stillbirths and maternal deaths in low- and middle-income (Chmielewska, Barratt et al. 2021) mostly as a result of the lockdown measures causing disruptions in the provision of antenatal and postnatal care services in low and middle-income countries.

Studies in other countries show how the pandemic had a lot of psychological and social effects on frontline health care providers and patients (Billings, Ching et al. 2020). However not may studies have paid attention to understanding the effect of the pandemic from the perspectives of these health care providers and pregnant women particularly in the context of a LMIC like Nigeria.

1.3 Justification

The COVID-19 pandemic affected the utilization of maternal and newborn child health services in Nigeria. However, the contextual factors, perceptions and views of perinatal stakeholders (pregnant women, health care providers) of the maternal health care service delivery have not been investigated in Nigeria (Akaba, Dirisu et al. 2022). Understanding how COVID-19 has shaped access to maternal health care in Nigeria and the factors attributable to these changes is crucial for the development of policies and interventions that will assist the country in sustaining the achievements made over the past few years toward improving maternal health services even in the pandemic.

Several studies which focus on women and HCPs' experiences during COVID-19 and the impact of the pandemic on HCPs' well-being and mental health mostly refer to psychological scale measurements to provide quantifiable information (Biber, Ranes et al. 2022, Mental.Health.America 2022). While these are useful in assessing the scale of the problem, such quantitative measures are insufficient in capturing the breadth of HCPs' experiences, including factors that impact such experiences. A qualitative study will have the added value of understanding these unique experiences (Chemali, Mari-Sáez et al. 2022), as qualitative approaches are well-suited to exploring, describing, and explaining how changes that came with the pandemic affected people. Qualitative studies also provide useful information that can help develop policies which will address the needs of these perinatal stakeholders. The findings of the study could also be used to as a template for the development of a framework that will aid in the development of interventions that will improve perinatal health care delivery as was done in the study by Renfrew et al (Renfrew, McFadden et al. 2014).

HCP are integral to the delivery of maternal health care services and the fight against the COVID-19 pandemic. Therefore, understanding their role and experiences during this pandemic is arguably more important now than it has ever been (Olateju, Olufunlayo et al. 2022). Furthermore, most of the existing research that has been published are from high-income countries (Mascayano, van der Ven et al. 2022). This study will be one of the first to explore the underresearched effects of COVID-19 on perinatal care in Nigeria by describing the challenges and experiences of pregnant women and their health care providers during the COVID-19 pandemic, and possibly find solutions to these challenges.

In summary, the COVID-19 pandemic has caused a problem in perinatal health care delivery in Nigeria. Even though current knowledge about the issue at stake mostly concerns the effects of the pandemic on patients' and health providers' mental health, we do not know about their other experiences during the pandemic. Understanding how COVID-19 has shaped access to maternal health services in Nigeria and the contextual factors attributable to these changes is crucial for the development of policies and interventions that will assist the country in sustaining the achievements made over the past few years. It will also help towards improving maternal services, even during the pandemic. This study will describe the views of perinatal health care stakeholders (i.e., pregnant women, health care providers) in Nigeria about their experiences with perinatal care delivery during the COVID-19 pandemic.

This thesis is written in five chapters. After this introductory Chapter 1, Chapter 2 contains information on current literature about the problem, knowledge gaps, and the research question. Chapter 3 refers to the research plan used for the study including a description of the case under study, the methods used to collect data, and the analysis that was performed. Chapter 4 includes the research findings while the final chapter, Chapter 5, contains a discussion of the research findings, limitations, and contributions of the study to the advancement of knowledge in perinatal care at different healthcare levels, and its implications for practice in Nigeria and similar healthcare contexts.

CHAPTER TWO

2.0 LITERATURE REVIEW

COVID-19 is an infection caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Common symptoms of the disease include cough, muscle pain (myalgia), headache, fever, and chest pain. However, its clinical presentation may range from completely asymptomatic features to acute respiratory distress syndrome which can lead to death (Lumbreras-Marquez, Campos-Zamora et al. 2020). After The WHO declared COVID-19 to be a pandemic on March 11, 2022, different countries implemented various public health and social distancing measures to reduce the spread of the disease. In many health care centres, health care services were modified and provided in a way that focused on managing COVID-19 cases. For example, non–COVID-19 services were reduced with more emphasis on COVID-19-positive cases, health emergencies, and essential health services (Ameh, Banke-Thomas et al. 2021).

2.1 COVID-19 and Maternal Health

During the pandemic, reproductive, maternal, and newborn health services were likely to be heavily impacted particularly in low-and middle -income countries (Ameh, Banke-Thomas et al. 2021). This is what happened in previous infectious disease pandemics like Ebola in Sierra Leone, Liberia, and Guinea (Elston, Cartwright et al. 2017). A systematic review of the impact of the Ebola outbreak from 2014 to 2015 reported how health systems collapsed in affected areas because of the overwhelming demand directly linked to the outbreak, death of health care providers, diversion of resources, and closure of healthcare facilities. All these factors contributed to affecting access to essential health services, particularly maternal and child health services. For example, the study in those West African countries reported an 80% reduction in maternal health care delivery and an increase in maternal morbidity and mortality during the Ebola outbreak (Elston, Cartwright et al. 2017). In 2020, during the COVID-19 pandemic the World Health Organization (WHO) stated that, "It was reasonable to anticipate that even a modest disruption in essential health services could lead to an increase in morbidity and mortality from causes other than COVID-19 in the short to medium and long-term" (WHO 2020).

At the beginning of the pandemic, even though early studies in developed countries showed that mortality rates for COVID-19 in women of reproductive age were relatively low, the numbers may be disproportionately affected by the disruption of routine health services, particularly in low-income and middle-income countries (LMICs) (Souza and Amorim 2021). A study across 118 LMICs which was published in *The Lancet* by Roberton et al., in 2020 estimated that there would be additional maternal and under-5 child deaths resulting from the potential disruptions of health systems and decreased access to food due to the pandemic. They modelled three scenarios and estimated the additional maternal and under-5 child deaths under each scenario over 6 months using the Lives-saved tool. Their findings showed that the least severe scenario (where health coverage was reduced by $9\cdot8-18\cdot5\%$) would result in 12 200 additional maternal deaths, while the most severe scenario (where coverage was reduced by $39\cdot3-51\cdot9\%$) would result in an additional 56 700 maternal deaths. These additional deaths represent $8\cdot3-38\cdot6\%$ increase in maternal deaths per month, across the 118 countries (Roberton, Carter et al. 2020).

Although these scenarios are hypothetical, they reflected real-world possibilities and there are records of these deaths in some countries. For example, between February 26, 2020, (the date of the first COVID-19 case in Brazil) and May 7, 2020, a study by Takemoto et al., identified 20 COVID-19-related maternal deaths, of age range 20–43 years in Sao Paolo, the first epicenter of COVID-19 in the Brazil (Takemoto, Menezes et al. 2020, Takemoto, Menezes et al. 2022).

Barriers in accessing healthcare services, differences in pandemic containment measures in the country, and high prevalence of concomitant risk factors for COVID-19 severe disease were identified as factors that contributed to the observed disparity in maternal outcomes in that country compared to worldwide reports (Takemoto, Menezes et al. 2022). These findings were very similar to data from a Brazilian Group of studies available on the Sistema de Informações de Vigilância Epidemiológica da Gripe (Influenza Epidemiological Surveillance Information System), of the Ministry of Health in Brazil which showed that of 978 pregnant and postpartum women who were diagnosed with Severe Acute Respiratory Syndrome (SARS) due to COVID-19, 124 died (lethality rate of 12.7%). Even though they found an association between these COVID-19-related deaths and co-morbidities such as obesity, diabetes, and cardiovascular diseases, what gave this study a lot of attention was that it highlighted serious failures of care like the lack of access to ventilatory assistance or intensive care (Takemoto, Menezes et al. 2020). Another study in Mexico showed how the maternal mortality ratio increased by 56.8% of which 22.93% were confirmed COVID-19 cases and 4.5% were unconfirmed cases (Mendez-Dominguez, Santos-Zaldívar et al. 2021). In Iran, a study reported 7 deaths amongst 9 pregnant women with severe COVID-19 disease with 1 of the 9 women still critically ill and on ventilatory support as a the time of the report (Hantoushzadeh, Shamshirsaz et al. 2020).

When compared to studies from more high-income countries like the USA, Sweden, Belgium and France, COVID-19 infected pregnant women in these developed countries had an increased risk of complications and ICU admission, and a greater need for mechanical ventilation. However, in these countries, maternal death did not occur as it did in Brazil and Mexico because of the availability of the required health care needs. Therefore, the maternal deaths recorded worldwide seemed to be more frequent in low- and middle-income countries due to serious health system failures (Souza and Amorim 2021, Takemoto, Menezes et al. 2022). This finding is similar to what was published in a large multinational study by Villa and colleagues (done in 18 countries including Nigeria) to assess the maternal and newborn symptoms and complications due to COVID-19 in pregnancy. The study showed that women with COVID-19 diagnosis, were at substantially increased risk of severe pregnancy complications like preeclampsia, eclampsia, HELLP syndrome (Hemolysis, Elevated Liver enzymes and Low Platelets), Intensive care unit (ICU) admissions, referrals to a higher level of care, complicated infections requiring antibiotics, preterm birth and low birth weight compared with pregnant women without COVID-19. In that study, the risk of maternal mortality was 1.6%. This mortality was 22 times higher in the group of women with COVID-19 diagnosis. Unfortunately, these deaths were concentrated in institutions from less developed low-income countries (Villar, Ariff et al. 2021).

In the early phases of the pandemic, the public health measures (which shall be explained further in this chapter) and lack of clarity about the precise extent of the risks in pregnancy were affecting the mental health of some pregnant women. Studies reported cases of mental health challenges such as depression in some women (Davenport, Meyer et al. 2020, Wu, Zhang et al. 2020). These mental health challenges are understandable given because during the COVID-19 pandemic there were a lot of disruptions to healthcare provision following the largescale public health measures implemented by countries which included lockdowns, curfews, and transport restrictions (Villar, Ariff et al. 2021).

Before the pandemic, Nigeria already contributed to about 13% of the estimated global maternal deaths annually and had an estimated maternal mortality ratio (MMR) of 917 per 100,000 live births (WHO 2019). Within the context of the COVID-19 pandemic, there was the possibility that the pandemic would significantly impact health systems in the country, affecting access,

availability, and quality of health services, particularly for mothers and their newborns. Pregnant women are uniquely vulnerable to the community spread of COVID-19 infection because of physiological changes that lower their immunity and their inability to postpone hospital visits or interactions with healthcare providers and other pregnant women receiving obstetric care during the crisis (Souza and Amorim 2021).

Reported pregnant women's experiences with COVID-19

Concerning the health care experiences of pregnant women, a study in the United Kingdom by Karavadra and colleagues provided significant insight into the perceived barriers to seeking healthcare during this pandemic amongst pregnant women (Karavadra, Stockl et al. 2020). Some of the reasons mentioned were that there was a lack of wider support from healthcare providers, the negative influence of the media, concerns about the quality and acceptability of virtual clinics for antenatal care, restrictions on the presence of partners at birth, problems with the way information was communicated, and the rapid changes in the way services were provided (Karavadra, Stockl et al. 2020). In Nigeria and some other low-income countries, fears about contracting the disease at health care facilities and problem with transportation were mentioned as the reasons behind poor access and utilization of maternal health services at that time (Ahmed, Ajisola et al. 2020, Roberton, Carter et al. 2020, Ameh, Banke-Thomas et al. 2021).

2.2 Health care and public health measures to control the pandemic.

In most countries, several measures were taken to contain the spread of the COVID-19 infection both at the health facility and the community level. These recommendations were generally similar for pregnant women and the general public even though some countries like the United Kingdom, categorized pregnant women as a vulnerable group and applied stricter measures

for them (Semaan, Audet et al. 2020). In the early phase of the pandemic, the WHO published guidelines and made regular updates for managing COVID-19 cases and for providing essential health services. Health care facilities also made many changes to the way health care was delivered and, in some cases, even suspended certain aspects of care (Semaan, Audet et al. 2020).

In some health facilities, changes to the provision of maternal health services included shorter visiting hours, asking partners to leave shortly after the birth (Rice and Williams 2021), fewer visitors, screening visitors for symptoms of COVID-19, or banning visits completely. In some centers, the number of labour companions allowed was reduced to only one person or none. Some facilities enforced physical distancing in waiting areas and reduced the number of seats or beds in the wards/units. Some provided separate birthing rooms including separate theatre rooms meant for only COVID-19-infected patients and the length of stay in the hospital after childbirth was shortened. Non-essential procedures were postponed or canceled altogether, while routine antenatal care was either restricted to high-risk patients or appointments were extended in a way such that the total number of visits were reduced. In a multi country online cross-sectional study of health professionals providing maternal care which was done in 11 languages, antenatal visits were reduced from an average of about 10-12 visits to only 4 visits throughout the pregnancy (Semaan, Audet et al. 2020). Also, group activities such as health education session were canceled. Some centers leveraged on technology by shifting some services like antenatal care, post-natal care, and breastfeeding counseling to virtual platforms to reduce face-to-face contact. Most studies that reported a switch to telemedicine were in high-income countries (Semaan, Audet et al. 2020). All these changes caused concern and affected the quality of care provided.

Apart from measures taken in health care facilities, many countries all over the world used other measures to contain the spread of the disease in the community. They included international

travel bans, border closures, stay-at-home orders, curfews and lockdowns. In Nigeria, similar measures were taken. Also, public health education and campaigns on coronavirus started after the first index case of COVID-19 was reported. It was done using conventional mass media and social media. The Nigerian Centre for Disease Control (NCDC) also provided regular updates on the outbreak and data on the number of infected cases, discharged cases and deaths from different states (Amzat, Aminu et al. 2020, NAN 2020, NCDC 2022). The first strategy used in the country after the index case was contact tracing. However, this was faced with a lot of challenges such as poor cooperation from the returnees from overseas, some of whom gave fake contact addresses and phone numbers at the airports on their arrival (Amzat, Aminu et al. 2020).

Another strategy used in Nigeria was a lockdown enforced in two states (Lagos and Ogun) and the Federal Capital Territory, Abuja. It started on March 30th, and initially lasted 4 weeks but was extended till 6 weeks. This lockdown and stay-at-home directive had adverse effects on peoples' livelihoods particularly for those who worked in the service industry and those who rely on daily income. Unfortunately, a large proportion of Nigerians work in the informal private sector and survive on these sorts of jobs. Thus, while the lockdown was critical for disease containment, the measure had a lot of direct and indirect effects on health sector and other sectors (UNDP 2021). The literature review on these effects will be explored later in this chapter.

2.3 COVID-19 and health care providers

Healthcare providers were at the forefront of executing COVID-control measures and guidelines (Balogun, Banke-Thomas et al. 2022), and were essential for the provision of optimal perinatal care. However, providing quality health care in the pandemic posed unique challenges for the health care workforce. For example, they were especially vulnerable to contracting the virus and could also become vectors for further transmission of the disease (Ilesanmi and Afolabi 2020,

Ilesanmi, Afolabi et al. 2021). Studies have shown occupational exposure to infections like Hepatitis among HCP's (Sepkowitz and Eisenberg 2005) and there are reports of health care providers in some countries who got infected and who died from the COVID-19 infection, especially in the first wave of the pandemic (NewsLife 2020, EuroNews July 2020).

Semaan and colleagues conducted a survey on 714 health providers from 81 countries from 24 March to April 10, 2020 (Semaan, Audet et al. 2020). They found that respondents from lowand middle-income countries (LMIC) were more worried about issues like lack of access to evidence on COVID-19 in pregnancy, and low perceived knowledge of COVID-19 care in pregnant women. This also showed a low number of institutions providing relevant COVID-19 training, and low availability of maternal COVID-19 guidelines in LMIC. In addition, almost four in ten respondents reported a high stress level, and concerns about staff safety (Semaan, Audet et al. 2020). Even though the sample size for the study per country was small, the study provided a snapshot of the preparedness, the response of various health systems, and the effect of the COVID-19 pandemic in the initial phase of this evolving outbreak from the healthcare providers' perspective.

Issues concerning the availability of PPE, training, and mental/ psychosocial health are prominent in the literature. In Nigeria, for example, one study found that HCPs were concerned about their vulnerability to COVID-19 infection. Reasons for this included poor knowledge of infection prevention measures for COVID-19, inadequate supply of personal protective equipment (PPE), poor political will, and inadequate health facility management support (Ilesanmi, Afolabi et al. 2021). Regarding PPE, in several studies health care providers complained about a shortage of PPEs especially at the beginning of the pandemic when the demand for PPE surpassed the supply. In Lagos, Nigeria for example, one study showed how up to 97% of maternity health care

providers were concerned about the sufficiency of PPE (Ameh, Banke-Thomas et al. 2021). Another study even showed how Health facility leaders had to use innovative ideas to provide PPE such as direct purchases or donations by politicians and philanthropists (Balogun, Banke-Thomas et al. 2022) (Balogun, Banke-Thomas et al. 2022). Regarding training, in the study by Seeman mentioned above, many healthcare providers commonly resorted to personal searches and informal networks to get information on the pandemic. In that study, only one-third of HCPs had received training on COVID-19 from their health facility and nearly all searched for information online. The problem with this was that there was the risk of finding unreliable information related to COVID-19, especially on social media (Cinelli, Quattrociocchi et al. 2020, Li, Bailey et al. 2020). However, in that study, the authors also argued that facility-specific creation and distribution of guidelines for managing maternity patients was lagging behind despite frequent updates by the Ministries of Health and professional associations in the country.

Regarding mental and psychosocial health, some authors have reported how many health providers mention having higher stress and anxiety levels. This has been the case even in previous disease outbreaks (Wilson, Ravaldi et al. 2021). The stress levels in Low income countries were comparable to those in high-income-countries (Semaan, Audet et al. 2020). Several factors like staff shortages causing higher workloads and burnout were mentioned as contributory factors. Insufficient PPE also intensified the fear in these workers. In some facilities, PPE supplies were only provided to staff directly involved with the treatment of COVID-19-positive cases and the PPEs were not provided to providers in other parts of the hospital like maternity wards. However, even though PPEs are essential, WHO recommends that their use is rational due to global shortages (WHO 2020). Of those health care providers who had access to the PPEs some of them said that the PPEs made them feel "dehumanized" while others felt the donning and doffing of PPEs delayed the process of providing emergency care (Semaan, Audet et al. 2020).

Psychological distress such as anxiety, insomnia, depression or post-traumatic stress disorder is known to be prevalent amongst health care providers even during previous pandemics (Tam, Pang et al. 2004, Ali, Maguire et al. 2020). In many studies, female staff, nursing staff and, staff who are younger in age and experience, appeared to be at the highest risk of mental health problems (Pappa, Ntella et al. 2020, Si, Su et al. 2020). For example, a rapid systematic review of 55 studies (38 of which focused on the COVID-19 pandemic) explored the psychological impact of the outbreak on healthcare providers facing epidemics or pandemics. The authors reported that fear of the unknown or fear of being infected was prominent amongst their findings. Other prevailing issues included a heightened state of vigilance, as well as the impact of physical symptoms caused by long hours in personal protective equipment (PPE) (Muller, Hafstad et al. 2020). Resource rationing, resuscitation decisions, and remote communications with relatives are also implicated (Muller, Hafstad et al. 2020).

Reported coping mechanisms of health care providers.

Despite all the negatives mentioned above, health providers continued to address the influx of patients including those infected with the virus. Studies have shown how even though HCPs experienced an increase in mental health problems, several coping mechanisms were adopted to alleviate these mental and psychosocial problems. They include undergoing training on COVID-19 response and guidelines (Ameh, Banke-Thomas et al. 2021), focusing on the fact that the outbreak would end one day, acknowledging that one is human and cannot do everything, and improving the atmosphere and mood of those around them helped them to cope (Grailey, Lound

et al. 2021). For others, psychological and social support provided in their facility was helpful (Ameh, Banke-Thomas et al. 2021).

2.4 Health Care Managers

In Nigeria, the management of government hospitals is usually done by usually physicians (Ojo and Akinwumi 2015). These health care management staff are saddled with the responsibility of leading at the frontline of the COVID-19 response. While they have the responsibility of implementing global and national guidelines within their facilities, they also had to come up with new ideas and adapt to innovative facility-driven strategies to address the direct and indirect effects of COVID-19 in their health facilities. For example, in the early phase of the pandemic, a study in Nigeria showed how managers were faced with making decisions about scaling down or discontinuing some services, moving staff and modifying rosters to cover services that managed COVID-19 patients while still maintaining health care service for other non-COVID-19 problems amid these disruptions (Balogun, Banke-Thomas et al. 2022).

Nevertheless, just like other health care providers, these managers also face mental health issues that came with the unpredictable nature of the pandemic. There are reports of health facility leaders in Nigeria who had experienced heightened levels of fear, anxiety, and stressors, especially during the early phase of the pandemic (Balogun, Banke-Thomas et al. 2022, Balogun, Dada et al. 2022). They also had genuine concerns about exposing their family members to the virus and yet they also had to manage other health care providers who were afraid for their lives and reluctant to work particularly when there were local outbreaks amongst health care providers. They had to put in extra effort to encourage and motivate their staff to continue to work at their best despite the circumstances (Balogun, Dada et al. 2022).

This study by Balogun and colleagues stated that the managers were motivated to continue rendering services during the crisis because of their passion, calling, their commitment to the Hippocratic oath, and support from the government. Their findings were similar to another study by Moyo et al., who interviewed Nurse Practitioners in Limpopo, South Africa. That study revealed that during the pandemic, nurse managers experienced human resource-related challenges worsened by the fact that vacant posts were frozen with no possibility of recruitment even though this was required. The managers also experienced a shortage of essential material resources, and this affected patient care. The respondents indicated that COVID-19 brought a lot more administrative duties in addition to their routine duty of patient care and revealed that those who contracted COVID-19 experienced stigma and discrimination from fellow colleagues, HCP and managers, in other units or facilities (Moyo, Mgolozeli et al. 2021)

2.5 Other effects of the COVID-19 Pandemic on perinatal stakeholders

Apart from being a health crisis, the COVID-19 pandemic had substantially affected other aspects of human life both directly and indirectly. The unprecedented scale of containment measures imposed by the governments of various countries across the globe such as the lockdowns, border closures, and travel bans further compounded the problem affecting different sectors of society. It led to economic, social, ethical, moral, educational, religious, security and health consequences which were not limited to those who contracted the infection (Souza and Amorim 2021). Unfortunately, previous pandemics have shown that the indirect effects persist long after the disease has been contained (Semaan, Audet et al. 2020) and some authors believe that the pandemic's indirect effects will surpass its direct effects, particularly in women and children who are the more vulnerable population (Semaan, Audet et al. 2020, Vora, Sundararajan et al. 2020).

Even though several studies point out the negative effects of the COVID-19 pandemic, evidence demonstrates that there are positive aspects of the pandemic amongst pregnant women (Ajayi, Wachira et al. 2021) and in other aspects of society. In one publication, many surprisingly unexpected positive effects were described. For example, an author in the USA mentioned that in the pandemic " *The skies are bluer, fewer cars are crashing, crime is falling, and some other infectious diseases are fading from hospital emergency departments*" (Nelson 2020). Another study also showed how highway collisions reduced significantly during the pandemic (Yasin, Grivna et al. 2021), and there were reports of fewer respiratory admissions amongst children due to less air pollution, decreased electricity demand, reduced global demand for coal fuel, reduced gas emissions(Stone 2020), better water quality and reduced traffic congestion (Anjankar Ashish, Anjankar Vaibhav et al. 2020). There was also greater use of information and communication technology causing a reduction in unnecessary travel and physical meetings.

Regarding the health aspects, a Dermato-verenologist, at the University of Lisbon predicted a reduction in the number of sexually transmitted diseases because people had begun to question their priorities and protect their lives and those of their loved ones more due to the raised awareness about their health in the pandemic. He felt this influenced the desire for healthier habits (Nelson 2020). A study in Canada reported how some participants enjoyed being alone with their babies without visitors (Rice and Williams 2021), another study reported how some pregnant women felt the pandemic made it possible to increase breastfeeding frequency (Igundunasse, Messigah et al. 2022)while another study reported that it enhanced family life (Cárdenas 2020) even though this is debatable because of reports of an increase in cases of domestic violence by other authors (Bourgault 2021, Kourti, Stavridou et al. 2021, Piquero, Jennings et al. 2021). One significant positive effect of the pandemic was the greater investment in health facilities particularly in
developing countries like Nigeria. More molecular laboratories were established, ventilators provided and several other infrastructures which were generally lacking before the pandemic were made available (Babatunde, Aborode et al. 2020).

As stated earlier, the negative effects of the pandemic are more prominent in the literature. Many studies highlight the pandemics effect on both the health and non-health sectors. For example, it affected economic activities, health care, subjective well-being, and mental health in different groups of people (Sudo 2022). Regarding the economy, a study in Nigeria showed how the pandemic affected household consumption, investment, government purchases, and export (Nweze and Hubs 2021). It also influenced the global demand for commodities which caused an increase in the fiscal deficits of many countries (Engebretsen and Anderson 2020, Padhan and Prabheesh 2021). In Nigeria, the price of crude oil dropped to about \$26 a barrel as of April 2021, whereas Nigeria's budget assumed a price of \$57 per barrel. This caused a lot of shortfalls especially as Nigeria depends heavily on crude oil export which makes up nearly 90 percent of the country's exports. This steep decline in oil prices associated with the pandemic resulted in the Nigerian government cutting back on capital spending (Chukwuka Onyekwena 2020) and since then the country has seen a persistent drop in the value of the naira (the Nigerian currency), and inflation long after the lockdown restrictions were lifted.

Regarding the negative effects on health, as in other pandemics, COVID-19 highlighted challenges in the countries' preparedness to face outbreaks, amplified by weak systems such as the lack of protection of healthcare providers leading to disruptions in staffing, increased risk of nosocomial transmission, increased stress among service providers (McMahon, Ho et al. 2016, Cipriano 2018), limited capacity for public health surveillance and the resulting reduced utilization of healthcare services (Sochas, Channon et al. 2017, Nuzzo, Meyer et al. 2019, Semaan, Audet et

al. 2020). As for its effect on maternal health services, the movement restrictions prevented access to health care services as well as limited the supply of healthcare commodities like contraceptives, vaccines, and essential medications (Aly, Haeger et al. 2020). There was also the issue of individuals avoiding proper health facilities for fear of exposure to COVID-19 infection in the process. These safety concerns made some pregnant women resort to giving birth to their babies at home in the absence of skilled birth attendants, bringing about the risk of complications and possible death as mentioned previously.

2.6 Knowledge gaps

While the available studies on COVID-19 pandemic are showing that the disease has severe adverse consequences on maternal health while also affecting health care providers, there are still several gaps. First, most of these studies are largely limited to high-income countries and so there is limited knowledge of the magnitude of the pandemic's effects in lower-income countries like Nigeria. Secondly, the studies that have assessed the potential effects of the COVID-19 pandemic on maternal health and that of health care providers in low-income and middle-income countries used modelling approaches and quantitative methods which cannot describe the experiences and context of their respondents.

2.7 Research question

The research question that drove this empirical investigation was: "What are the views of perinatal stakeholders about their experiences with hospital maternal care amidst the COVID-19 pandemic in Nigeria?"

This will help to identify areas for improved service delivery and/or care of healthcare providers and also provide evidence to inform policy changes regarding perinatal care in the pandemic.

CHAPTER THREE

3.0 RESEARCH PLAN

The research design used for this study was a qualitative descriptive holistic singlecase study as described by Robert Yin (Yin 2017). The choice of this study design was because of the need to give an extensive in-depth description of the problem highlighted in Chapter 1. The 'case' was the process of perinatal healthcare delivered in the maternity section of a government hospital in Nigeria during the COVID-19 pandemic. The case study design is also unique in that it uses a variety of data collection methods. In this study, interviews, observation, photographs, and review of documents/charts were used to gather information about the real-world experiences of participants within a government hospital in North- central Nigeria.

3.1 Setting

This study was conducted in a large tertiary 400-bed hospital in North-Central Nigeria (Nationalhospital 2022). The centre was selected because of its location in the central part of Nigeria. This had the advantage of attracting people from diverse backgrounds, including a wide range of Nigerian ethnicities and religious sects. The hospital was also at the forefront of COVID-19 control in the country and had continued to offer services to patients including those in the maternity unit during the crisis.

During the pandemic, a COVID-19 isolation and treatment centre was created from three large wards in the hospital, and it served as a referral centre for other peripheral hospitals within that locality. However, as the pandemic evolved, more isolation centres were created by the government at other locations in the city and suburbs. Thus, the large COVID isolation centre was reduced to a smaller more specialized, infectious disease unit. Apart from the isolation ward, this study site also had a free COVID-19 testing unit and the centre was one of the first vaccination centres in the country when the vaccines arrived in May 2021. In addition, the author (MO), has a longstanding relationship with this hospital, which facilitated access. All these factors made it an ideal choice to conduct the study.

The maternity section of the hospital is under the Department of Obstetrics and Gynaecology (O and G) and is made up of 7 units: antenatal clinic, postnatal clinic, Labour ward, labour ward theatre, postnatal ward, lying-in-ward (used to admit pregnant women with other ailments or complications) and the emergency unit. The Antenatal and postnatal clinic open from 8am till 4pm, Mondays to Fridays. All other units run a 24-hour service. The staff of that department is mainly made up of doctors and nurses. However, it has some support staff from other departments (administration, medical records, sonographers, accounts, security) working in the different units. The department has a staff strength of 77 doctors, 72 nurses (matrons, midwives, and registered nurses), and 14 hospital attendants/orderlies. The doctors include 14 consultant obstetricians/gynecologists, 17 senior residents' obstetricians, 23 resident obstetricians, 2 medical officers and 18 house officers. There were also 3 family medicine residents on rotations in the department at the time of the study. Doctors typically work in teams. Each team is made up of all the cadre of physicians and headed by 2 or 3 consultant obstetricians. Each team had specific days dedicated to running clinics, ward rounds or theatre. Nurses ran shifts in the different units they were posted to.

Before the pandemic, an average of 60 women were attended to at the antenatal clinic and 30 women in the postnatal clinic daily. The labour ward recorded between 130 to 240 births per month. These numbers dropped significantly during the pandemic and have been described in more details in the results section.

3.2 Study Duration

The field visits took place over 4 months, from May to August 2021. During this time, events that occurred from the onset of the pandemic in February 2020 until August 2021 (spanning a total of 18months) were reviewed.

3.3 Study Participants

Eligible participants included 3 groups of people: (i) Adult pregnant women or women who had just given birth, up to six-week post-partum (ii) Health care providers (iii) Management staff.

3.3.1 Eligibility criteria

Inclusion criteria

- All participants were aged 18 years and above and had no mental or cognitive ailment that could affect their ability or capacity to give informed consent to participate in the study.
- Pregnant women attending antenatal care at the hospital (usually seen at the antenatal clinic, or labour ward).
- New mothers up to 6 weeks post-delivery (in the labour ward, postnatal ward, neonatal ward mothers' room, postnatal clinic or immunization clinic).
- Hospital staff involved in the care of these women including doctors (medical officers, obstetricians), nurses, and midwives (those who attend to patients in the antenatal clinic, postnatal clinic, and wards) records staff, and vaccinators.
- Managers such as top management staff including the Director of Clinical Services or deputies; Head of department or head of units.

Exclusion criteria

> Participants who are not able to speak or read English.

3.3.2 Participant recruitment and Sampling

Sampling was done using purposive sampling with the aim of maximizing the representation of the variety of views across the case. Interviews were conducted until saturation was achieved. A total of 19 respondents were interviewed. This included ten pregnant women who were receiving perinatal in the different units of the obstetrics department (antenatal clinic, labour ward, postnatal clinic); nine health care providers from different units of the maternity with varying work experiences, cadre, rank, and occupation. In addition, one top-level management staff was also interviewed. This served as supplementary data and was used for triangulation along with other qualitative data like field notes, photographs, review of hospital records and observations. All the data were collected by the author/ primary researcher, Minika Ohioma (MO) under extensive supervision and support of the research process by Dr Roksana Behruzi (RB), and Kathleen Rice (KR).

RB is an assistant professor at McGill, a senior midwife and clinician researcher with PhD in public health, while KR is professor at McGill and a PhD medical anthropologist with extensive research experience in the areas of pregnancy, childbirth, midwifery, gender, and clinical ethnography.

3.4 Methods for collecting data.

This research utilized multiple types of qualitative data collection methods, specifically semistructured interviews, direct observation, photographs, and a review of relevant documents and records in the hospital. The interviews were the main source of data while the other complementary material were used as triangulating sources of data to foster the credibility of the study, confirming and enriching the themes developed from the interviews.

3.4.1 Semi-structured Interviews

The interviews followed a semi-structured interview guide. The interview topic guide was developed based on study aims, existing literature, and discussion with the research team. It included closed-ended questions on their biodata and sociodemographic information, and openended questions about their knowledge about the COVID 19 pandemic, their views about the pandemic and what they had experienced while offering or receiving perinatal care, coping/adaptive mechanisms that helped them manage the challenges they had faced, their views on perinatal care services in the hospital, changes that had been made in the hospital regarding the pandemic, the on-going COVID-19 vaccination exercise, areas that they felt needed improvement, and suggestions on how to prevent or solve the problems that were mentioned.

Before conducting the study at the study site, the interview guide was tested in a different hospital. One pregnant woman and one midwife were interviewed. The data from that pilot study was not included in the main data analysis of this study. For the main study, data collection was done in person using face-to-face semi-structured interviews using the interview guides (See appendix II and III).

The interviews were conducted at different locations in the hospital depending on where the participant was located but were also dependent on their preference and convenience in terms of location and time. They were carried out in places that would offer sufficient privacy, with little or no distractions. Before the interview, a written informed consent was taken, and the interviewer (MO) administered a verbal questionnaire to capture participants' socio-demographic data. The interviews were conducted in English, audio-recorded, and transcribed verbatim. They lasted approximately 30–100 minutes. All the data was anonymized for confidentiality reasons. Transcripts were cross-checked for accuracy by K.R and RB

3.4.2 Direct observation

During fieldwork, the author (MO) adopted the role of a participant observer (Cooper, Lewis et al. 2004, Kawulich 2005). All observations were written in a notepad and formed the field notes of the study. It included observations about the environment, interactions amongst staff and between staff and patients in the different units, 'corridor conversations', and short questions from the author to other staff and patients that were not interviewed e.g., at the laboratory, COVID testing centre, and other units of the maternity section of the hospital. These were written in the field notes. Some photographs of observations were also taken by the author. These images were used as they had a great potential to assist in describing better the data from different sources and facilitating the visualization of the information.

3.4.3 Review of documents in the hospital

The author went through the hospital website, charts in antenatal clinic and labour ward, hospital treatment guidelines/standard operating procedures, posters, and news articles relevant to the study.

3.5 Methods for analysing data.

All the transcripts from the interviews were analyzed using thematic analysis as described by Clarke and Braun (Clarke, Braun et al. 2015). The process of thematic analysis involved careful identification of themes achieved through familiarization and immersion in the data. The process of identifying themes highlighted contextual situations that underpin perceptions and experiences expressed in the data This consisted of seven stages of analysis: Transcription; familiarization with the interview; coding; developing a working analytical framework; applying the analytical framework; charting data into the framework matrix and interpreting the data.

An inductive approach was used. The data from the transcripts were coded and the codes were grouped into subthemes and themes. This was managed using QSR NVivo 12 and a codebook was generated. Apart from MO, two members of the thesis committee (KR and RB) also familiarized themselves with the data and independently coded some transcripts by reading the transcripts line by line and applying a paraphrase or label (a 'code'). Codes were compared between MO, KR, and RB and summarized in the early stages of the analysis process to ensure consistency within the team. Higher-level codes within each theme were refined by grouping lower-level codes found in the data.

For the field notes, data from the document review and pictures taken during the study, a textual-visual thematic analysis using the framework described by Gabriela Trombeta and Susan M. Cox (Trombeta.andCox 2022) was done in 3 phases. For the first phase, a thematic analysis was done just like that of the interviews as described above. It involved familiarizing oneself with the data, followed by distinguishing, sorting, clustering, and describing themes, then refining and conceptualising themes. This process was not linear but rather a complex process of continuously going back and forward to understand patterns of data in a meaningful way. The key process was seeing how the textual and visual data were interconnected and could be combined. The second phase of analysis involved the analysis of the images and integrating them with the interviews.

The third phase of the analysis involved reporting the images, field notes, data from document reviews and the interview relationships.

3.6 Trustworthiness of qualitative findings

While quantitative studies use validity, objectivity, and reliability to ensure the trustworthiness and rigor of quantitative findings, qualitative studies employ transferability, dependability, credibility, and confirmability to maintain the trustworthiness and rigor of qualitative findings (DeJonckheere and Vaughn 2019). For this study, the credibility (whether the findings accurately and fairly represent the data), transferability (whether the findings can be applied to other settings and contexts), confirmability (whether the findings are biased by the researcher) and dependability (whether the findings are consistent and sustainable over time) (DeJonckheere and Vaughn 2019) of the study was ensured in various ways. For example, transferability was done by giving a detailed description of the research process and justification of the data collection methods used. Confirmability was ensured by conducting semi-structured interviews among different perinatal stakeholders. The credibility of the findings was enhanced by using multiple qualitative methods with different participants. Dependability was ensured by the principal researcher/author and supervisors evaluating the qualitative data multiple times to ensure the trustworthiness of recommendations and interpretations of the findings.

Reflexivity

Being a physician who did their family medicine residency training at the study site, the author (MO) could relate to some of the issues mentioned by the participants. As a familiar face in the hospital, there were no serious restrictions approaching key informants for information. Participants were comfortable speaking about their experiences, even regarding sensitive topics like the conflicts between staff and management. Being a Nigerian who was in the country during the pandemic, the author had also experienced some of the challenges mentioned by the participants.

This "insider" position was an advantage because one could understand the context of the data collected. However, the author was mindful of the risk of imposing personal values and beliefs; and of biases as described by Drake, 2010 in Berger, 2015 (Berger 2015). There was also the risk of participants withholding information they assumed to be obvious to the researcher as stated by Daly 1992 in the article by Berger (Berger 2015). The author was conscious of this insider position, and while on the field, constantly reflected on how to shape the interviews and observations and regularly consulted with the supervisors (RB and KR). A lot of effort was made to remain open to hearing the participants views.

3.7 Ethical Statement

Ethical approvals for this study were obtained from the McGill University Institutional Review Board (IRB) and from the Ethics Committee of the study site (see Appendix VI). Written informed consent was obtained before the interviews. The study participants were assured of their privacy and confidentiality of the information obtained from them. To ensure that confidentiality is maintained, the data was collected in such a way as to conceal the identity of the participants; for example, serial numbers with letters were used rather than names. Photographs were modified to cover facial features that may reveal the identity of people. The study adhered to the Declaration of Helsinki and Good Clinical Practice guidelines. No known harm or injury was inflicted on study respondents because of participating in this study.

Participation in the study was voluntary and all participants were free to accept or decline participation at any time. They also had the freedom to withdraw from the study at any time. By

signing the consent form, (see appendix I) the participants were not abandoning their rights and did not liberate the investigator from legal or professional responsibilities. Each participant was given a copy of the consent form for their records.

The signed consent form, audio recordings, transcripts, and all other documents from the study were kept in locked cabinets or computer files which were password protected and accessible only to the principal investigator (MO). However, if required, the IRB or Ethics committee would have access to the data to ensure proper adherence to the study protocol. They will be destroyed after 7 years of finishing the project. No name will be displayed in any publication.

CHAPTER FOUR

4.0 RESULTS

Twenty participants were interviewed (10 pregnant women, 9 healthcare providers, 1 management staff) most of whom were women (18 out of 20). They were aged between 22 and 56 years and all but one of the interviewees were Christian. The physicians interviewed included a consultant, and senior resident obstetrician, a resident family physician, and a house officer. The nursing staff interviewed included a matron (the senior midwife in charge of the unit), two senior midwives, and midwives. A summary of their demographic characteristics is displayed in table 1. The actual designation and positions of the management staff and HCP have been omitted for confidentiality reasons.

| Table1: Sociodemographic characteristics of particip | oants |
|--|-------|
|--|-------|

| Participant group | Participant | Gender | Age | Occupation | Years of |
|-------------------|-------------|--------|-----|---------------------------------|------------|
| | | | | | experience |
| Management staff | M1 | Male | 50 | Physician | 23years |
| HCP | H1 | Female | 26 | Physician | 8 months |
| HCP | H2 | Male | 39 | Medical health Records staff | 3years |
| HCP | H3 | Female | 41 | Registered Nurse/Midwife | 8years |
| HCP | H4 | Female | 42 | Registered Nurse/Midwife | 16years |
| HCP | H5 | Female | 30 | Registered Nurse/Midwife | 3years |
| HCP | H6 | Female | 35 | Registered Nurse/Midwife | 7years |
| HCP | H7 | Female | 40 | Registered Nurse/Midwife | 3years |
| HCP | H8 | Female | 55 | Community health worker/ COVID- | 20years |
| | | | | 19 Vaccinator | - |
| HCP | H9 | Female | 35 | Physician | 5years |
| Pregnant woman | P1 | Female | 22 | Student | |
| Pregnant woman | P2 | Female | 30 | Physician | 1 year |
| Pregnant woman | P3 | Female | 43 | Public servant | |
| Pregnant woman | P4 | Female | 46 | Civil servant | |
| Pregnant woman | P5 | Female | 30 | Fashion designer | |
| Pregnant woman | P6 | Female | 33 | Housewife | |
| Pregnant woman | P7 | Female | 39 | Housewife | |
| Pregnant woman | P8 | Female | 55 | Businesswoman | |
| Pregnant woman | P9 | Female | 42 | Architect | |
| Pregnant woman | P10 | Female | 39 | Teacher | |

(M - Management staff, P - pregnant woman, H- Health Care Provider)

Five themes were developed from the analysis of the data as shown in Table 2 (see the end of this chapter). They are:

Theme 1: Diverse acceptance of COVID-19 control measures put in place in the hospital. Theme 2: Mixed views of the effects of the pandemic on participants

Subtheme 1: Positive Effects

Subtheme 2: Negative Effects

- General challenges of participants
- Specific challenges of each participant group

Theme 3: Views on COVID-19 Vaccine

Theme 4: COVID-19 exposed other underlying problems.

Theme 5: Solutions to perinatal care challenges mentioned by participants.

4.1 Theme 1:

Diverse acceptance of COVID-19 control measures put in place in the hospital

There were several COVID-19 control measures in place in the hospital these included the provision of hand sanitising material (Figure 2), face masks, social distancing measures, and the creation of a COVID-19 isolation centre. For the obstetrics department, there was a special COVID-19 response team to oversee issues related to COVID in the department. The number of pregnant women allowed in the antenatal clinic per day was reduced from 60 to 16, thus many appointments were cancelled or prolonged. Also, the number of beds in the labour ward was reduced to half its capacity to allow for more space between patients (see Figure 1) and there was also a separate ward dedicated to isolating pregnant women in labour suspected to have the virus.

Relatives and visitors were restricted from the wards. These trends are exemplified by the

following statements:

'We had to reduce the number of appointments we could book in a day because of social distancing rules now'. - Medical health Record staff.

"Relatives were not allowed into the labour ward.....There was a security staff permanently stationed at the main door to ensure that unauthorized persons did not get into the ward". -Field notes at the labour ward

More quotes from respondents are displayed in Table 3 of appendix VII.



Figure 1: Labour ward showing the reduction in the number of beds.

Even though there were several measures in place, some participants believed the measures were not necessarily done properly (See quotes in Table 4 of appendix VIII). While many of the pregnant women were satisfied with the measures in place, most of the health care providers were of a different opinion and were generally not satisfied. Some HCPs mentioned how some staff were not following instructions as simple as wearing face masks and had become relaxed over time. Some participants also felt that there was not sufficient social distancing in the clinics because the seats were not enough.

"They [nurses] usually give health talks very early in the morning before the doctors come in for the clinic....... But to be honest with you, there are still some loopholes. Recently I noticed they are not very strict compared to what they were doing in the past. So, it is not always that these things are done. -P2 Pregnant Physician

Pictures from the author's observation are shown in figures 2 to 8. The observations made by the author confirm that there were hand sanitizing materials for staff in the units (Figure 2). However, even though measures like masks were used by many patients and staff, there were many times when the masks were used improperly or not at all. This was seen even among staff (see figure 8). Some overcrowding was observed in the clinics because of insufficient seats (figure 7). Also, even though one physician had mentioned the availability of COVID-19 guidelines, one of the nurses had countered this claim. The author was also unable to see any COVID-19 guideline or standard operating procedure (SOP) too, as there was non available in the units except for the poster on general health information pasted on the walls at the clinic and labour ward (figures 6 and 3).



Figure 2: Picture showing gloves and hand sanitizer provided in the labour ward. The picture also shows three doctors clerking two pregnant women in the labour ward



Figure 3: A poster on the wall of the labour ward with information about the Coronavirus and preventive measures



Figure 4: The sink in the labour ward with hand sanitizing materials provided



Figure 5: Insufficient seats for social distancing. With some patients seen standing while in the waiting area of the medical-out-patient-department which is next to the antenatal clinic.



Figure 6: Health education information posted on the wall at the antenatal clinic



Figure 7: Patients waiting on the corridor in front of the antenatal consulting rooms to be attended to.



Figure 8: Patients being attended to at the reception desk of the clinic. Notice the crowding and inappropriate use of face mask. The two ladies on the right (red arrows) are staff (a nurse and an admin staff) they are not using any masks.

4.2 Theme 2: Mixed views of the effects of the pandemic on participants

The participants described their views on their experiences with perinatal care and other aspects of their lives. These views were grouped into two broad subthemes: the positive and the negative effects. The negative effects were further grouped into general and specific effects for each participant group. Even though three of the participants mentioned some positive experiences, all twenty participants had negative experiences with the COVID-19 pandemic.

4.2.1 Theme 2 Subtheme I: Positive effects of COVID-19

The positive experiences mentioned by a few participants include having more family time, time to rest or sort out pending issues, and the emergence of new business opportunities. Some of these positive things were not directly related to health but had a positive effect on their family life and well being. For instance:

"Because of the travel restrictions, my husband could not travel and was forced to be at home....The lock down made him notice several things about the family, like things about his children...He was forced to take up new activities with his son like playing tennis. I would say it helped improve the family bonding" - P10 Teacher

"I enjoyed the lock down. I was able to sleep well and rest. The entire lockdown I rested. I ate and rested well. I slept very well". -P7 Housewife

"The lockdown gave my husband time since there was no work. He had time to be at the construction site of our new home and complete the work... P7 Housewife

"There is a new move of a new batch of people that have also found a new source of revenue due to COVID. I know people whose lifestyles have changed for the better because of COVID. For them, it was a blessing in disguise for them. -P9 Architect Formatted: Font: Not Bold

Formatted: Font: Not Bold

4.2.2 Theme 2 Subtheme II: Negative effects of COVID

The most common experiences mentioned by participants were negative. These are grouped into general challenges experienced by all the participant groups and specific challenges that were peculiar to each participant group.

4.2.2.1 General challenges experienced by all participants.

The study showed the many challenges that participants faced with perinatal health delivery. For example, there was a reduction in attendance at various units like the antenatal clinic and a reduced number of hospital births (Figure 11). The HCP felt and talked about working in fear under suboptimal conditions. There was also the diversion of resources for other health care needs towards COVID-19-related matters. Sadly, there were three mortalities recorded at the hospital which were directly linked to these problems.

The most common experiences mentioned by participants were the negative effects of the pandemic These challenges were grouped into general challenges experienced by all the participant groups and specific challenges that were peculiar to each participant group.

4.2.2.1 General challenges experienced by all participants.

The study showed the many challenges that participants faced with perinatal health delivery for example, there was a reduction in attendance at various units like the antenatal clinic and a reduced number of hospital births (Figure 11). The HCP felt and talked about working in fear under suboptimal conditions. There was also the diversion of resources for other health care needs towards COVID-19-related matters. Sadly, there were three mortalities recorded at the hospital which were directly linked to these problems.

Effect of the COVID pandemic on maternal health care delivery

The pandemic had several effects on health care including maternal and child health care delivery such as low attendance, overworked staff, and staff working in fear with insufficient essential materials such as protective equipment for their safety. The COVID-19 pandemic also caused a diversion of available resources from other health care needs to that of COVID-19 control. Some mortalities directly linked to the crisis were also reported. Some of the excerpts from the interviews and field notes are included below.

Low turn out of patients

One reason for the low turnout which was mentioned by participants was the avoidance of the hospital because of the fear of contracting the virus since the hospital was known to treat COVID-19-positive patients and had an isolation ward created for COVID-19 patients. The second reason was because of the social distancing measures in place at the antenatal clinic, where the intake of new patients and appointments had been reduced from 60 to 16 women to reduce the crowd in the clinic. The third reason was because of some of the lockdown measures that were enforced in the first wave and which restricted movement which prevented some patients from going to the hospital.

"[On a typical day, we attend to] up to 60 antenatal patients. Sometimes up to 70 or 80 patients. But it dropped to 16 now that we have this COVID pandemic...in fact there was a time we were seeing only 6 to 10 women only. But the Hospital management recently increased it to 16". - H4 Nurse

"[Attendance has been lower than usual] because they didn't want to get infected. Once people hear that COVID patients are treated in a particular hospital, there was a tendency to avoid such hospitals". - H9 Physician

"Initially there was the lockdown but even after the lockdown was eased, many patients took time to come back to the hospital for their care". - M1 Management staff

A review of the labour ward record of the number of deliveries between 2019 and 2021 showed a

significant decline in the number of births. For example, there was a drop from 240 births in

October 2019 (before the pandemic) to 126 births in October 2020 (during the pandemic). During

the pandemic the highest number of births (154) was recorded in the month of March 2020 when the lockdown was enforced. After this period, the number of births in the hospital generally declined and remained lower than this value.



Figure 11: Number of births at the labour ward over 19months including the pre-pandemic and pandemic period.

Overworked staff

Some of the health care providers interviewed mentioned how they felt overworked during the crisis. This was because some staff had resigned, taken leave or had been moved to other units. Also, the challenge of colleagues getting infected with the virus and going on isolation further increased the workload.

"We needed extra hands before the pandemic. But the pandemic worsened it.". - H2 Records Staff

Staff working in fear:

Many of the health care providers described how they worked in fear as quoted below:

"I lived with the fear. Because it got to a point [where] the COVID cases we were seeing were so many and it was cutting across different departments. Some of our senior doctors took leave, like the senior registrar in my unit went on leave because of the situation. There was a time I had a cough. I feel it was just a simple cough and catarrh. There was no fever, but I was very scared. The first thing that came to my mind was that I had caught COVID!". – H1 (Physician)

Contracting COVID-19 infection

Three of the participants reported testing positive to the COVID virus at some point (Figure 10).

It is possible that the numbers of participants who had contracted the infection were more. This is

because of the initial unavailability of the COVID-PCR tests at the beginning of the pandemic.

Also, many people, including health care providers were refusing to do the COVID test even when

the PCR test was available and there was a COVID-19 testing centre within the hospital premises.

"I had to rely on my God for divine protection oh. There were some of the staff that had the symptoms of COVID and refused to be tested. They were afraid. I won't lie, even me I feel ill at some point, and I had an odd feeling that I had caught the infection. I do not know if it was just psychological. I didn't do the test. I just could not sum up enough courage for that test....". - H7 Midwife

Observations were made by the author during multiple visits to the COVID-19 testing unit during

the study. Even though the tests were free, the turn of people for the test was very low. Consider

the following fieldnote extract from the COVID-19 testing unit. It was a dialogue between MO

(interviewer) and one of the staff at the testing centre (interviewee):

M.O. (Interviewer): "Why is the turn out for testing low?"

Interviewee: "I feel it is just a peculiar issue with the testing centre in this hospital. Because I have worked in another hospital [name with held], and we attend to far larger number of people there even though it is a smaller hospital.".

M.O.: "Really? Why is it so?"

Interviewee: "I feel the management here is not proactive about people getting tested. In the other hospital I told you about, patients are required to do the test before they have any elective procedure. Also, the hospital encourages staff to get tested. I do not see that drive here. If you ask me, I think the management is being careful. Because if staff get tested and are found to be positive, they have to go on isolation. Already they have been staff shortages, so the management does not want to send more staff home."

Scarcity of resources to work with

Many health care providers complained about the lack of materials and equipment needed to do

their work - especially PPE. But also, there were challenges with broken-down equipment that

were yet to be replaced or repaired:

"PPE is extremely restricted. Even the shift I covered in the emergency, it was still not given to everyone. They only give it to you when they see that the patient is frankly positive with all the COVID symptoms".-H4 Nurse

Diversion of resources from other health care needs

There were cases of resources meant for other health care issues being used for COVID-19

purposes. For example, funds were spent to buy PPE and wards meant for the treatment of other

health problems were converted to COVID-19 isolation ward:

"They closed down some in-patient wards to be able to create an isolation centre. In fact, that whole in patient ward on the new block that houses the paediatric ward, female ward, male ward were all converted to an isolation centre". -H8 Vaccinator

Increased Perinatal Mortality/Morbidity

Three mortalities were recorded in the labour ward (one COVID-19-positive pregnant woman and

two newborn babies of COVID-19-suspected pregnant women whose test eventually turned out to

be negative). In all three cases, there were delays in obtaining results and in definitive treatment.

"In the peak of the first wave we had some mortalities. But there were up to 5 or more women I am aware of, that we suspected to have an infection. Out of these, 2 were confirmed positive. I remember one of them

was very ill. She was confirmed to be positive. She had other issues apart from COVID.... Diabetes. She was delivered through caesarean section, but she did not make it.... She died". H7 Midwife.

"The results were taking long to come out. It was a serious problem and I remember we had 2 mortalities of the babies because of these delays".-H9 Physician

Psychosocial and mental health issues

Fear was the commonest mental health challenge experience by participants. This was followed

by the feeling of being stressed, bored, lonely, or overworked. For example:

"I was really afraid of contacting the virus. We keep requesting for PPEs but they [hospital management] didn't give us anything. It was just a few face masks and a few bottles of hand sanitizer that were given to us to share. Those gowns and N95 masks were not there"- H6 Midwife

"Everyone was afraid. Even the patients stopped coming to hospital ... Physician

Coping mechanisms

The commonest coping mechanism used by participants was religious activity, like prayer. Other

mechanisms included obeying social distancing measures, relying on support from their families,

using social media, or avoiding social media. Some used the period to learn a new skill online

(Table 7) as shown in the following quotes:

"... [As for my coping mechanism] ... I would say it is mostly praying.... Because sometimes these things are beyond us. You don't even know how something come about. We can only hope in God...". -P2 Pregnant woman/Physician

"...I switched to Watching Gospel 332. I made it my favorite. Otherwise, before now I liked watching news channels- P3 Public servant.

Apart from the challenges with perinatal care, participants also described the socioeconomic effects of the pandemic on them such as financial constraints, difficulties with transportation, and the effect of the pandemic on their families like their children being out of school.

Socioeconomic and other effects of the pandemic on participants

Many participants (particularly the pregnant women) complained about the financial burden they experienced because of the pandemic (Table 8 of appendix VII). This is because there was no bailout fund or subsidy provided by the government. Participants also complained about the effect of the pandemic on their families. Transportation was also a problem for both HCPs and pregnant women. This was because the public health measures in the city enforced a reduction in the number of passengers allowed in commercial vehicles, yet no extra vehicles were provided. It caused a sudden doubling of transport fares with the scarcity of vehicles available to transport people. Also, during the lockdown, a task force composed of different security agencies was formed to restrict the movement of people around the city. There were barricades on major roads making it impossible for health care providers and patients to get to the hospital. These experiences were recounted as shown below:

Because we are short staffed, we get so drained at work we cannot even do much for our children when we get home because of lack of strength. After work one is already so tired and exhausted". - H3 Nurse

"I am aware of families that split during the pandemic. Because in Africa where the responsibility of taking care of the family falls on the man and the man may not have the means to meet up with these responsibilities. The pandemic accentuated little things that could have been ignored, Normally if people are going about their daily jobs, little issues that come up may be resolved or ignored because the couple is only together for a short time. But in this pandemic, couples were forced to be home together for longer than usual. For some people it had its negative consequences" -P10 Teacher

"This COVID-19?...It made me broke! It made me not to have cash! I was spending money on things that I would not normally spend on like transport to work. - H5 Midwife

"I observed that some women could not pay their bills. People lost their jobs. -H7 Midwife

"During the lock down it was very difficult for the pregnant women to find transportation to get to the hospital. Those [pregnant women] that were even able to come could not find transportation to go back home after the clinic visit...Even those that had cars could not get fuel because filling stations were not selling fuel. So, a lot of them couldn't even come to the hospital". -H3 Nurse.

"...The transport I have to pay to come for my clinic was also much...The vehicles have to reduce the number of passengers they could carry by half. So, for example. If before a taxi could take 6 people, now the same taxi can only take 3 passengers. So, passengers were also getting stranded because there were not enough vehicles". -P4 Civil servant.

4.2.2.2 Specific challenges of participants in each group

There were challenges experienced by the participants of each group that were different form the other groups (Table 6, 7 and 8 of appendix VII) as described below.

4.2.2.2.1 Pregnant women's challenges

Some of the pregnant women interviewed complained about the discomfort with wearing face masks. Two of them who had contracted the COVID-19 infection during their pregnancy linked this infection to threatened miscarriages and other health effects, like low blood pressure. Also, because of the reduced number of appointments, a lot of pregnant women were turned back even after arriving at the hospital. Some of them had travelled long distances coupled with the transportation problems that came with the lockdown. Some others resorted to leaving their homes very early to get transportation to the hospital before the lockdown enforcement personnel resumed work, while some women had to stay back in the hospital even after they had been attended to because there was difficulty in getting transportation back home. This made them spend longer hours in the hospital. A few complained about the rules that restricted their visitors. All these added an extra layer of stress for them (Table 9 in appendix VII). One of such statements was:

"I know a few women complained because they wanted to have access to their visitors after having their babies. But it was not allowed"-Midwife

4.2.2.2.2 Health care providers challenges

Even though the pandemic affected the work of participants, the majority of the comments about work were from the health care providers. They include working without adequate protective gear

in a risky situation and the lack of incentives for the extra risks they were taking (Table 10 of

appendix VII). Some of these views were narrated as:

"For those who had little children at home, day care and schools were closed yet we had to come to work when everyone else was on lock down. -H2 Records staff

"A lot of us got sick and had to go on isolation. It put a lot of strain on those who were working. So many people got scared, others got infected as well. It just made work a little harder". -H9 Physician

"....Not much was done to encourage staff who were risking their lives to work despite the challenge and reality that they could get infected. In fact promotion arrears have not been paid even as I speak not to talk of welfare package because of COVID".-H3 Midwife

4.2.2.2.3 Management staff Challenges

For the management staff who was interviewed, there were challenges with meeting the expectations of staff (like providing PPEs and incentives), the expectations of patients (like providing extra comfort for them while on admission in the COVID isolation centre), the expectations of the government (like directives of the ministry but also protecting their image and political interests. There was also the challenge of fulfilling the role of a management staff like generating revenue for the hospital and paying bills. Yet, there were personal challenges with the pandemic such as fear, stress, and the feeling of lack of appreciation for the efforts made (Table 11). Unfortunately, despite all the effort made by management, many of the health providers interviewed were not satisfied with what had been done by the management of the hospital. This view is represented by this quote:

[&]quot;The staff who worked in that period really feel that the management and government as a whole should have done more. Unfortunately, those people who did not work in isolation and did not have contact with COVID patients feel that those who worked in Isolation were rewarded handsomely. These types of comments can be painful. However, as a management staff, it is difficult to go about mentioning to people all over the place that nothing extra was given to those who cared for COVID patients. I mean you cannot expect people to work from July last year [2020] until now [August of 2021] for instance and not even a little stipend to say well done for the extra work. But I always tell people though that its not all about money. They good thing done on the management's side is that the management gave letters of commendation to the staff that managed COVID patients. This is a huge plus. I think it is worth more than a million and they should cherish it. You know not everything has to do with money and they should treasure that. I feel the hospital management did well". -M1 management staff

4.3 Theme 3: Views about COVID-19 Vaccine

While conducting the study, the COVID-19 vaccines became available in Nigeria. Coincidentally, the study site was one of the first centres to receive the vaccine in the country. There was a lot of media coverage of the process (Figures 12-15). From when the vaccines arrived at the airport, the Minister of Health's reception of the vaccine along with top Government officials, to the administration of the vaccine to the first set of Nigerians (health care providers).



Fig 12: Top government officials including the Minister for Health (centre) receiving the first batch of COVID vaccines in Nigeria.

https://healthpolicy-watch.news/nigeria-receives-covaxs-largest-shipment-yet-of-covid-vaccines-but-still-not-enough-for-africas-most-populous-country



Figure 13: Arrival of the vaccines at the international airport https://www.afro.who.int/news/covid-19-vaccines-shipped-covax-arrive-nigeria

(Notice the crowd (big arrow) and lack of social distancing and absence of face masks (small arrow) among airport staff and media personnel even at the airport where the Minister of Health was present to receive the vaccines).



Fig 16: A nurse receiving the COVID vaccine at the launch of the vaccination campaign.

The study site was one of the first vaccination centres in the country. http://www.xinhuanet.com/english/africa/2021-03/05/c_139787852.htm



Figure 17: Front line providers receiving the vaccine. https://theconversation.com/nigeria-at-sixes-and-sevens-on-covid-19-vaccine-rollout-156757

4.3.1 Vaccine hesitancy amongst participants

When the first dose of the vaccines arrived, frontline health care providers were given priority to receive the vaccines. However, when the turnout was unexpectedly low, the public was invited to receive the vaccines. During the interviews, it was interesting to know if the participants had received the vaccines (Figure 16) and their experiences and opinion about the vaccination exercise. At the time of the study, none of the pregnant women interviewed had received the vaccine and only two were willing to take the vaccine after giving birth. The only management staff interviewed had received the vaccine, however, of the 9 HCP interviewed, only 4 had received the vaccine (shown in red) and only 1 person was contemplating taking the vaccine in near future (dark red).

There were several reasons for vaccine hesitancy (table 12) including psychological factors like mistrust and fear, external factors like religion, concerns about the vaccines like their safety, and information issues like conspiracy theories.



Figure 18: Percentage of participants who had taken the vaccine and those willing to take the vaccine in the future.

Table 12: Reasons for vaccine hesitancy among participants

| THEME | SUBTHEMES |
|-----------|--|
| Vaccine | Psychological factors |
| hesitancy | (Fear, Lack of trust in Government, Lack of trust in health care system) |
| | External factors |
| | (Influence of Religion, Influence of Family, Perceived political undertone, International Travel requirement |
| | Concerns with vaccine |
| | (Concerns about vaccine Efficacy, Concerns about safety and side effects, Speed of release of vaccine) |
| | Information issues |
| | Lack of knowledge on mechanism of action of vaccine, Influence of social media, Conspiracy theories, Perceived political |
| | undertone or personal gain) |

Psychological factors

The lack of trust in the health system and the Government was prominent among the reasons why

people were hesitant about taking the vaccine. Another reason was fear of the unknown especially

as it was a new vaccine. An example of this is shown in this quote:

"A lot of us do not trust people anymore. They feel government has not been sincere. People don't trust that the government....., they don't trust the politicians, they don't trust anybody. Even after we [senior
management staff] had taken the injection [the vaccine], and posted pictures of us taking the vaccines, some people were still thinking that the injections we took were water for injection. That we didn't take the real thing". - M1 Management staff

Concerns about vaccine safety

Many people expressed their concern about the safety of the vaccine and the effectiveness since

there were reports of people still getting infected even after taking the vaccines. As follows:

"... even if you take the vaccine, it does not protect you from COVID. You can still get the infection. Also, I know some people that took the vaccine and reacted to it...in fact one of our staff in this unit had to be admitted at emergency after she took the vaccine". - H2 Health Records staff

"... I will take it when they bring Pfizer. This AstraZeneca that they are giving us, I don't trust it" - H9 Physician

External factors

There were participants who gave reasons like their family members or pastors asking them not to

take the vaccine or reasons like international travel requirements made them take it. For example:

"...I only took the vaccine because I will soon be relocating out of the country, and I know I will need to have taken it before I can fly"-H7

Information issues

Another reason identified was widespread misinformation, particularly from fake news and conspiracy theories on social media. There was also the issue of poor knowledge about how vaccines work and relatively insufficient publicity and health education from public health agencies to encourage people to come forth for the vaccines. This is exemplified by the quote

below:

[&]quot;...There was a lot of propaganda behind the vaccines...from the media. Social media. You know initially when the vaccine came, there were many stories about the COVID vaccination. Some of the stories are that they [the Western world/ high-income countries] want to wipe out Africans.Our political elites like some Governors came out to warn their people not to take the vaccines. Some clergy have also come out to tell their followers and members not to collect the vaccines. All these brought a lot of discouragement to some people". - H8 (COVID -19 Vaccinator).



Figure 17: Picture of author taking the COVID-19 vaccine.

The personal experience of the author, MO, with the vaccine exercise was similar to what was mentioned by many of the participants. MO had received the vaccine in the first three days of its arrival in Nigeria and circulated a picture showing when the vaccine was administered (figure 19) among friends and family. Thereafter several calls came in from people asking if there were any side effects and a few wanted to get directions on how to get theirs. Generally, people were skeptical and hesitant even among the author's social networks.

4.4 Theme 4: The COVID-19 pandemic exposed other underlying problems

The study revealed how the pandemic had exposed other underlying problems in the country. Some of those mentioned were the problem of brain drain, widespread mistrust in the government, underlying inadequacies in the health care system, and fragile economy resulting in inflation and financial hardship. At the same time, Nigerians were dealing with problems of insecurity from widespread kidnappings and terrorist attacks across the country. There was several

months of nationwide strike actions first by resident doctors, then by Nigerian university lecturers and much later, public protests such as the "End SARS protest" against the Nigerian police that led to the unjust shooting and killing of protesters in Lagos State. The Pandemic also exposed global health inequalities where for example, high-income countries had better access to vaccines compared to lower income countries like Nigeria. Some excerpts from the interviews are highlighted below.

Brain-drain

Some health providers mentioned a growing problem in the Nigerian health sector where many health providers continue to resign from their jobs and move overseas in search of jobs in health care and other sectors. This was one of the causes of staff shortages mentioned earlier in this chapter This trend can be seen along the lines of these quotes:

"We needed extra hands before the pandemic. But the pandemic worsened it... lot of nurses have left the country for the UK and Saudi Arabia and other places. Take our clinic for example: how many nurses can you see working.... since morning? Normally there should be at least 4 or more nurses on duty ...but today you can see there are only 2 of them". -H2 Records staff

"This issue of brain drain is a problem oh... In fact, even we that are remaining we are in the pipeline to go out" [we will soon leave the country too]-H3 Nurse

Fragile health system with Lack of equipment and materials to work with.

Some participants complained about many broken down equipment and absence of essential equipment they needed work as follows:

"Some of the equipment in the hospital are not working. Especially diagnostic equipment. Like in the Laboratory now, there are a lot of reagents that are out of stock. I hear its because they could not import reagents because of the lock down...... People have to go to out of the hospital to get results done at other hospitals or laboratories...... It adds to extra stress for the pregnant women -H2 Records staff

"The CTG machine [cardiotocography machine used to monitor the fetal heartbeat and the uterine contractions during labour]has not been working "-H5Midwife

Fragile economy

Some participants also complained about the general hardship in the country including recent hike

in prices of commodities and inflation that resulted during the pandemic in this way:

"There is hunger everywhere ... everything is expensive the price of garri [a staple food] has doubled." The government should at least give us some money to help. I have been living on my little savings ". - P3 Public servant

"..Compared to my last pregnancy, I will say with this one the challenge has been with money. Things are expensive and there is no money... It is the money kept for other things that I have used to buy the things for my baby's delivery." P7 Housewife

The high level of mistrust in the system

Some participants spoke about the general lack of trust in the government and health care system. An example of this was:

"A lot of us do not trust people anymore.". - M1 Management staff

Underlying systemic issues in the country

There were other unresolved problems that become even more evident when the pandemic happened. For example:

"We do not have unique identifiers the way you can have it in the developed countries. We do not have accurate data for births, death etc. Elsewhere people use these unique identifiers to plan and provide services and bail out for citizens. We are just trying to start ours in the country". -P10 teacher

Inequalities in Global health

A few participants talked about how with the pandemic exposed inequalities in health particularly

regarding the production and distribution of vaccines. As follows:

"Why can't we develop our own vaccines. Why do we always wait for the developed countries to take the lead and wait for donations. If it is a gift... how ever it came we have no choice". - P10 Teacher

4.5 Theme 5: Solutions to perinatal care challenges mentioned by participants.

Many participants made suggestions about things the hospital management and the Nigerian government could do to improve the challenges in perinatal care mentioned earlier. They included providing sufficient PPE and other essential equipment; maintenance of available equipment; regular staff reminders/ training; and the creation of better communication channels

between the management and staff (Table 13 in appendix VII). Some examples of what was said

are shown below:

"They need someone we could report back to them [the hospital management] on the different issues. What I see is that everybody is trying to sort himself our individually and we just continue to work like that. It is not encouraging. People are getting used to it."-HI Physician

"They should increase the Hazzard allowance paid to staff. You won't believe I am only paid 5000 [a little over 10 dollars] for the kind of risk we are taking. Ut does not make any sense". -H5 Nurse

"Government needed to provide bail out funds for people and organizations that lost jobs and revenue. Pregnant woman

"For the Government, generally the government should find a way to make things "soft" and a little easier for the citizens. If someone like me who has a government job and earns a regular salary is feeling the effect like this and complaining, then you can imagine how it will be for those who is unemployed or someone who lost his job this period". -P4 Civil Servant

| THEMES | | | SUBTHEMES | |
|---|-----------------------------|--------------------|--|---|
| THEME 1 | Diverse accepta hospital | ance of COVID - | 19 control measures put in place in the | Local COVID control measures adopted in the hospital Compliance with COVID-19 prevention measures Participants' Satisfaction with measures put in place by the hospital |
| THEME 2 | POSITIVE | | Positive effects of COVID | Positive effects of COVID |
| Mixed views | NEGATIVE | General | General challenges experienced by all participants | Mental and Psychological Effects Coping Mechanisms Socioeconomic effects of the pandemic Effect of Pandemic on work Effect of the pandemic on the family Effects of Pandemic on Maternal and child health care |
| about the effect of the Pandemic on participants | Specific | Specific | Challenges perceived by pregnant women | The use of masks was a challenge Added stress on pregnancy Pandemic effect on maternity services Overlapping effect of covid and pregnancy on health Pandemic effect on fertility Effect of covid on work in health care Lack of materials to work with |
| | | | Challenges perceived by Management staff | Gross understaffing Got infected with infection Managing/ meeting up to the expectations of staff Managing/ meeting up to the expectations of patients |
| | | | | Managing/ meeting up to the expectations of the public Managing/ meeting up to the expectations of the Government Meeting up with the expectations of a manager Dealing with the personal effects of the pandemic as an individual |
| THEME 3 | Views on COVID-19 vaccine | | Vaccine Acceptance | Has taken the vaccine |
| | | | Vaccine Hesitancy | Reasons for vaccine hesitancy |
| | | | Challenges with vaccination exercise | Challenges faced by health providers in the vaccination unit |
| THEME 4 | COVID expose | ed underlying issu | es | Double standards Brain drain Wide spread high level of mistrust in the system A fragile economy Global health inequalities |
| THEME 5 | Solutions tp ch | allenges mentione | ed by participants | Ensure proper protection of staff Provide require equipment Provide adequate communication channels Improve incentives Health Education Avoid delays with COVID test results and treatment Social distancing measures |

Table 2: Themes derived from analysis of the data

CHAPTER FIVE

5.0 DISCUSSION

The Coronavirus disease (COVID-19) pandemic has had deleterious effects around the world. People's experiences due to its varying effects on different aspects of human life are similar in certain aspects yet different in others. Most of the differences are tied to the resilience levels of health systems, which are usually dependent on the country's level of development, i.e., if it is a high- or low-income country (Arsenault, Gage et al. 2022). This empirical investigation was conducted with the overarching aim to portray how COVID-19 has affected maternal health services in Nigeria from the point of view of perinatal health care stakeholders using a qualitative research approach. A lot of the experiences mentioned by the participants in this study were not only linked to the direct effects of the pandemic but also due to its indirect effects, especially those related to public health COVID-19 control measures that were put in place to contain the spread of the virus such as the lockdown.

The first major finding of this study is that the COVID-19 pandemic worsened hospital perinatal healthcare delivery experiences for all perinatal stakeholders. Direct deleterious effects included undue fear (which caused avoidance and underutilization of available perinatal services), and staff shortages (that resulted when infected healthcare providers had to go on isolation). The indirect effects mainly concerned the public health measures implemented within and outside the hospital, which affected access, availability, and sub-optimal delivery of perinatal healthcare. Underutilization was evident from the low turnout of patients in the different maternity units because apart from restrictions in the number of patients attended to in the units, the pregnant women were also afraid of visiting the hospital out of fear that they may get infected while there. This finding corroborates what was reported in other studies conducted in the early stages of the

pandemic in the city of Lagos in Nigeria (Balogun, Dada et al. 2022), and in India (Singh, Jain et al. 2021). It is also in keeping with the predictions of the statistical modeling study by Robertson et al., about the effects of COVID-19 on the underutilization of maternal services in low- and middle-income countries (Roberton, Carter et al. 2020).

Most public health measures adopted during the pandemic (border closures, lockdown) were similar to those in other countries (Public.health.England 2020, Public.Health.Ontario 2022). Transportation and financial constraints resulting from the lockdown caused difficulties for pregnant women accessing health care in the hospital. Within the hospital, the COVID-19 control measures (screening for COVID exposure, hand washing, social distancing, use of masks, use of COVID guidelines, etc.), -were like those in other centers within and outside Nigeria (Ijarotimi, Ubom et al. 2020, The.Society.of.Obstetricians.and.Gynaecologists.of.Canada 2020). Also, some perinatal services were stopped or restricted to fewer patients to ensure social distancing and crowd control. However, unlike health facilities in higher income countries that shifted to virtual consultation and telemedicine as alternative means of providing health care (Sabırlı R 2020), such an alternative was not available in the study site because of the unaffordability and lack of required equipment for virtual meetings.

The challenges mentioned above caused delays which contributed to exposing women to the risk of managing their pregnancies or deliveries in less-than-ideal situations. Some authors have identified three well-known temporal factors that increase the risk for adverse maternal outcome in LMICs: (1) delay in seeking care, (2) delay in reaching health-care services, and (3) delay in receiving adequate care at the health facility (Calvello, Skog et al. 2015). Osanan et al. (2020) have described how these delays are more likely to occur in the face of the COVID-19 pandemic. The findings of the present study also corroborate these increased risks for maternal outcomes, For example, some suspected COVID-19-positive pregnant women who presented in the hospital faced delays in receiving optimum care due to long COVID-19 PCR result turnaround time, insufficient PPEs, and insufficient dedicated COVID containment resources to manage them. These circumstances led to the three mortalities directly linked to COVID-19 reported in the study. Mortalities like these have been reported in low-income countries like Brazil, Iran, and Mexico (Lumbreras-Marquez, Campos-Zamora et al. 2020, Lumbreras-Marquez, Campos-Zamora et al. 2020, Takemoto, Menezes et al. 2020, Souza and Amorim 2021), basically because of problems with non-availability of the required equipment and materials to care for high-risk cases. Note, however, that even though the mortalities from COVID-19 in this study center were low compared to those in other studies, the fact that it was not zero is unacceptable and should inspire caution against complacency concerning the consequences of the pandemic and the public health restrictions.

A second important finding from this study was the discordance in participants' views concerning the COVID-19 control measures in the hospital. This discordance was seen in two areas: between the pregnant women and health care providers; and between the health care providers and the management staff. Concerning the divergent views between the pregnant women and health care providers, while most of the pregnant women were satisfied with the measures in the hospital, the health care workers were not. This could be explained by the women's lower level of education and pandemic preparedness awareness compared with that of the health workers. Another reason was that the women were more preoccupied with the more significant socioeconomic challenges and stressors they were facing from the pandemic and paid less attention to the details of what was happening within the hospital.

The second area of discordance was seen between the healthcare providers and the management staff interviewed regarding the provision of PPEs and incentives for staff. There was also the view about management's reluctance in encouraging COVID testing for staff because of the likely hood of further increasing staff shortages if the results were positive. Inadequate supply of PPE was very prominent among the responses of HCP. This has also been reported in other countries like Libya (Elhadi, Msherghi et al. 2020). However, in this study, despite this challenge by staff, the management staff interviewed believed the hospital management had provided sufficient PPE. Also, though the management staff felt that staff were well appreciated by giving out letters of commendation for the effort made during the initial stage of the pandemic, many of the healthcare providers would have preferred monetary incentives instead of the letters they received. This finding showed a disconnect in the expectations of HCPs vis a vis what was provided by the hospital management, which needed to be solved.

The third important finding from the study was the effects of the pandemic on other aspects of the lives of perinatal stakeholders. The socioeconomic effects of the pandemic were a major challenge especially the financial constraints, inflation, and transportation challenges. This is unlike what has been reported in older studies, which showed more of the mental and psychological effects of the pandemic particularly in higher income countries (Davenport, Meyer et al. 2020, Ajayi, Wachira et al. 2021, Sun, Wang et al. 2021). Challenges with transportation have been documented in studies from Spain (Gutiérrez, Miravet et al. 2021) and Lagos, Nigeria (Mogaji 2020), but its effect on perinatal care has not been documented as at the time of this write-up.

As for participants' psychological and mental health experiences, fear was the most common mental health problem mentioned by participants, followed by the feeling of being stressed, boredom, loneliness, and being overworked. Several coping mechanisms were used by participants, especially religious activities, and social media. Religion plays a prominent role in the lives of Nigerians, especially in times of crisis. Therefore, resorting to religious activities like prayer and acts of faith in God as a coping strategy was not surprising. However, while religion had a positive effect in coping with the challenges brought on by the pandemic, there were times when it had a negative effect on people, especially when religious leaders disagreed with government directives to control the infection through social distancing at places of worship (Aisha Salaudeen, 2020). There were news reports including that from Agence France Press (AFP 2021) of prominent religious leaders supporting conspiracy theories about the vaccines and discouraging their members from taking the vaccine (AFP 2021, Tijani 2021). Like religion, using social media as a coping strategy had both positive (connection with friends/family, a means to get information) and negative effects (spread of bad news and conspiracy theories). The effect of social media on pregnant women during the pandemic has been reported in a study done in the United Kingdom by Karavadra and colleagues (Karavadra, Stockl et al. 2020).

Unlike what has been reported in studies from high-income countries like Canada (Rice and Williams 2021) and Australia (Vasilevski, Sweet et al. 2022), where there were complaints from pregnant women or their partners regarding the restriction of partners presence in the birthing process, in the index study, such a challenge was never mentioned as an issue. This is probably because, in the study site (as in many other health facilities in Nigeria), partners were not allowed into the labor ward except for the private patient admitted into the private delivery room even before the pandemic. Thus, there was not much of a difference in the pandemic. Also, from the author's experience with the Nigerian culture, particularly in Northern Nigeria, issues about childbirth and peripartum care are usually handled by female family members like the patient's mother or mother-in-law rather than her partner (Ighele 2019, RefinedNG 2020, BBC.World.Service 2022).

A fourth major finding that this study shows is the high level of vaccine hesitancy among participants, even among the healthcare providers. This is concerning given that the HCPs worked in a hospital at the forefront of COVID-19 control in the country, with a COVID-19 vaccination center, a COVID-19 isolation ward, and a COVID-19 testing center located within the hospital premises. This finding is worrisome and poses a serious problem because apart from the risk of contracting and spreading the infection while working, HCPs also serve as role models and healthcare advocates for the larger population. A few emerging studies in Nigeria have also reported a similar finding of COVID vaccine hesitancy in other countries like Ethiopia (Mohammed, Nguse et al. 2021) and USA (Paris, Bénézit et al. 2021).

The reasons behind the vaccine hesitancy found in this study include psychological factors, religion, concerns with vaccine safety, and information issues like conspiracy theories. Like the findings of the index study, a study by de Albuquerque also agrees that the lack of trust in information spread through popular and social media as a contributing factor in countries like Russia and France (de Albuquerque Veloso Machado, Roberts et al. 2021). At the same time, other studies identified religion (Uzochukwu, Eleje et al. 2021), social media (Afolabi and Ilesanmi 2021), and safety concerns (Uzochukwu, Eleje et al. 2021, Iliyasu, Perkins et al. 2022) as reasons for hesitancy.

The fifth important finding from the study was how the COVID-19 pandemic exposed several underlying issues in Nigeria, which contributed to its negative effects on perinatal health care. For example, it revealed a fragile economy, a poorly equipped health care system, 'brain drain', and the high level of mistrust Nigerian people have in both the Nigerian government and the Nigerian health care system. Brain drain was one reason for some of the staff shortages reported during the study because many HCPs had resigned from their work in search of healthcare jobs abroad. This problem of brain drain had been ongoing even before the pandemic and is an emerging problem in developing countries which has been reported in other studies (Watanabe 1969). However, it became more prominent in the crisis when more hands were needed in the healthcare space.

As for the widespread mistrust, one explanation for this could be the previous experiences with corruption scandals and government inefficiencies. Thus, amid the COVID-19 crisis, even though the government was a strong force that gave the directive for a collective solution to the crisis, many people still believed that the government officials had other selfish reasons for doing so. Also, while in many high-income countries, the government responded to the job losses by offering bailouts and financial support (Grogan, Gusmano et al. 2021), it was not the case in Nigeria, particularly for those working in the private sector. This further gave the impression that the government did not care about its people who faced much hardship during the pandemic, and it further deepened the mistrust towards the government and the measures the government had taken towards the pandemic control.

The final important finding from the study are the suggestions made by participants to improve the perinatal care experience in extreme situations like the COVID-19 pandemic. They include the need for the hospital management and government to provide adequate PPE and other essential equipment for the health care providers, creation of a communication system and health promotion reminders for staff and patients, creation of channels for dialogue and regular feedback between management and staff, provision of appropriate incentives to staff and financial support for the citizens of the country to ease the financial burdens that resulted from the pandemic. In summary, this study showed how the COVID-19 pandemic altered perinatal care delivery in many ways by affecting access to care, availability of essential maternal services, avoidance/under-utilization of available services and delayed/sub-optimal provision of perinatal care. The study also highlighted areas of disagreement amongst perinatal stakeholders, the unmet expectations of the HCPs, the effect of the pandemic on other aspects of the participants' lives (including transportation, finances, and mental health), the high level of vaccine hesitancy among HCPs and exposed underlying issues with the health care system in the country which has not been documented in previous studies from Nigeria.

From the findings of this study, one would agree with authors like Osanana et al that the COVID-19 Pandemic posed challenges in maternal health care delivery (Osanan, Vidarte et al. 2020). However, even though the pandemic control measures were a necessary intervention, they had unintended consequences not only perinatal care but in other aspects of life particularly in resource-constrained settings, like Nigeria (Ameyaw, Njue et al. 2020, Chatwin, Butler et al. 2021) where many COVID control measures were implemented without providing alternatives to ease the consequences. These caused undue hardship, ultimately affecting other aspects of life, including perinatal care delivery. The originality of this investigation relies on the finding of a lot of emphasis on financial challenges faced by participants in this study. Also, the conflicting opinions between the HCP and management staff, and COVID-19 exposing other underlying problems within the country (like brain drain in the health sector), are major findings which have not been documented in existing literature.

Besides the advancement of knowledge in the perinatal care field of inquiry, this study makes interesting contributions for improving perinatal care at the hospital, yet primary care levels in Nigeria, and other similar contexts. At the hospital level, it would be important to develop or adopt context-specific COVID-19 guidelines that are appropriate for their setting, create a dedicated mental health support service for staff and patients, provide the necessary materials to properly implement these measures (e.g. extra seats to ensure social distancing, batteries for non-contact thermometers, free masks for patients and staff), faster turnaround time for test results, leverage on telemedicine /virtual platforms for health care delivery, and provide transportation alternatives for health care purposes. Concerning the COVID-19 vaccine hesitancy, appropriately designed advocacy and behavior-change communication messages that target respective groups should be deployed to minimize vaccine hesitancy amongst health workers and patients. One way to start is by working with relevant stakeholders and influencers to boost people's trust and confidence. It may be necessary to involve not only those within healthcare institutions but religious and community leaders whom the people trust.

This study was conducted in a hospital setting, but its findings also have implications for the practice of Family Medicine in Nigeria. Family Medicine is an important medical speciality integral to primary care delivery, which includes perinatal care. As health care systems around the world continue to evolve to better accommodate changing health care priorities and unexpected crisis like the COVID-19 pandemic, there is need for policies and organizational processes to advance and adapt to changes to ensure that health care providers remain competent, and that health care delivery is optimum amidst these changes. This is particularly necessary in the discipline of family medicine which provides first contact comprehensive care for a wide variety of patients including pregnant women. As family physicians are positioned to play a pivotal role in primary care, the knowledge developed from this study will help ensure that interventions directed towards COVID control and prevention of other outbreaks in the future will be implemented in ways that will further strengthen primary care including perinatal care delivery and safeguard the robustness of health care systems not only in resource poor settings but in other parts of the world.

5.1 Limitations of the study

First, although the study findings provide a rich description of the experiences of pregnant women and their HCPs, they are not easily generalizable to the entire Nigerian population or Northern Nigeria, where participants were recruited. Second, only one Muslim was interviewed, and in our survey demographics section, there was no provision to disclose the religious denomination of participants. Given that Nigerians are deeply religious people and that the data showed how religion played an important role in the participants' experiences like coping mechanisms and their acceptance of vaccines, such information may have thrown more light on the effect of religion on the experiences found in the study. Third, most participants were females (mainly because the study involved pregnant women and most of the health care providers in the maternity department are female). This meant that we could not compare healthcare providers views based on gender. Fourth, as the pandemic was still ongoing and evolving at the time of the study, some findings are fluid, and some may have changed over time. For example, at the time of data collection, the Delta variant of coronavirus was emerging and there have since been other virus variants, such as the Omicron variant, after the study was completed. Fifth, the study was done in a large public tertiary hospital. It is possible that the experiences of participants may differ in a private facility or a smaller public hospital. However, despite these limitations, the study contributes significantly to a better understanding of participants' unique experiences during the outbreak, which it set out to achieve.

5.2 Strengths of this study

First, to the best of the author's knowledge, this is one of the few studies in Nigeria and probably the first in Northern Nigeria to explore the experiences of pregnant women and the experiences of hospital perinatal health care providers during the COVID-19 pandemic. To do so, a compelling qualitative research design was used that allowed one to provide a rich description of participants' perspectives about their perinatal healthcare experiences during the pandemic in their situated context. Second, the timing of the study was unique as it fell during the COVID-19 outbreak in Nigeria, allowing data on the crisis to be collected in real-time without the problem of recall bias. Third, the study included ethnographic methods, and so it did not have the problem of selection bias seen in virtual studies where only those who have access to virtual platforms are recruited. Being physically present also made it possible to observe the study area and body language of participants so one could better appreciate and confirm the information given by participants. Fourth, the sample had a good mix of a different cadre of HCP with varying years of experience thereby providing wider perspective on the topic.

5.3 Future research

There are many opportunities for future research following this study, as its findings serve as a foundation for further research to build on. For example, it would be beneficial to consider conducting studies exploring the influence of religion and social media on individuals during the pandemic, including how religion and social media can disseminate information and gain people's trust. Also, this study was done in a public hospital, future research in private-owned health facilities in the community is necessary to evaluate the experiences and perception of preparedness in private health facilities.

5.4 Conclusion

The COVID pandemic's effects touched almost every aspect of human life, including health systems, the economy, social ties, and how people work. This case study describes the experiences of perinatal stakeholders in Nigeria. The qualitative data presented in this thesis presents the participant's responses and observations made in a tertiary hospital in Northern Nigeria. During the pandemic, HCPs and pregnant women faced several challenges with maternal healthcare delivery (access, underutilization, and delays), finances, transportation, psychosocial/mental health, and other aspects of their lives.

Many of the findings of this study, like the underutilization of services, mortalities, and psychosocial/mental health challenges and COVID-19 vaccine hesitancy amongst pregnant women and healthcare workers are like those reported by studies in other countries. However, there are some dissimilarities peculiar to an LMIC like Nigeria such as lack of telemedicine services, more focus on financial challenges and less emphasis on mental health, the relative indifference for the presence of the patient's partner at birth, and religion as a strong coping mechanism. Some of the findings are new and yet to be documented in the literature, such as conflicting opinions between HCP and management staff, COVID-19 exposing other underlying problems within the country like brain drain in the health sector.

The lessons learnt from this pandemic and its effect on perinatal care delivery can be used to avoid further adverse consequences from the current pandemic or other disease outbreaks/ health crises in the future. There is need to not only adopt guidelines and pandemic control measures but crate those that are context-specific while also providing the necessary materials to properly implement these measures because in these challenging times, it is important to guarantee the optimal provision of perinatal services in an environment that is safe for not only the pregnant women but their healthcare providers as well.

REFERENCES

Agboghoroma, C. O. and E. P. Gharoro (2015). "Coverage and distribution of obstetricians and gynecologists in Nigeria." Int J Gynaecol Obstet **129**(1): 50-53.

Ahmed, S. A. S., et al. (2020). "Impact of the societal response to COVID-19 on access to healthcare for non-COVID-19 health issues in slum communities of Bangladesh, Kenya, Nigeria and Pakistan: results of pre-COVID and COVID-19 lockdown stakeholder engagements." <u>BMJ global health</u> **5**(8): e003042.

Aisha Salaudeen, C. (, 2020). "Nigeria reopens churches, mosques and hotels amid rising cases of Covid-19." <u>CNN</u> 2020.

Ajayi, K. V., et al. (2021). "Maternal mental health in Africa during the COVID-19 pandemic: a neglected global health issue." Epidemiology and Health 43.

Akaba, G. O., et al. (2022). "Barriers and facilitators of access to maternal, newborn and child health services during the first wave of COVID-19 pandemic in Nigeria: findings from a qualitative study." <u>BMC health services research</u> **22**(1): 611.

Ali, S., et al. (2020). "Psychological impact of the COVID-19 pandemic on healthcare workers at acute hospital settings in the South-East of Ireland: an observational cohort multicentre study." <u>BMJ open</u> **10**(12): e042930.

Aljazeera (2020). Nigerian doctors strike over lack of PPE, welfare concerns.

Aly, J., et al. (2020). "Contraception access during the COVID-19 pandemic." <u>Contraception and Reproductive</u> <u>Medicine</u> **5**(1): 17.

Ameh, C., et al. (2021). "Reproductive Maternal and Newborn Health Providers' Assessment of Facility Preparedness and Its Determinants during the COVID-19 Pandemic in Lagos, Nigeria." <u>The American Journal of</u> <u>Tropical Medicine and Hygiene</u> **104**(4): 1495-1506.

Ameyaw, E. K., et al. (2020). "Quality and women's satisfaction with maternal referral practices in sub-Saharan African low and lower-middle income countries: a systematic review." <u>BMC pregnancy and childbirth</u> **20**(1): 1-16.

Amzat, J., et al. (2020). "Coronavirus outbreak in Nigeria: Burden and socio-medical response during the first 100 days." Int J Infect Dis 98: 218-224.

Andam, K., et al. (2020). Impacts of COVID-19 on food systems and poverty in Nigeria. <u>Advances in food security</u> and sustainability, Elsevier. **5:** 145-173.

Anjankar Ashish, P., et al. (2020). "Positive aspects of COVID 19 pandemic: a blessing in disguise." Int. J. Res. Pharm. Sci.: 187-191.

Arsenault, C., et al. (2022). "COVID-19 and resilience of healthcare systems in ten countries." <u>Nature Medicine</u>: 1-11.

Babatunde, A. O., et al. (2020). "Implications of COVID-19 on the Healthcare Infrastructural Development in Nigeria." Jundishapur Journal of Health Sciences **12**(4).

Balogun, M., et al. (2022). "Actions and Adaptations Implemented for Maternal, Newborn and Child Health Service Provision During the Early Phase of the COVID-19 Pandemic in Lagos, Nigeria: Qualitative Study of Health Facility Leaders." <u>Ann Glob Health</u> **88**(1): 13.

Balogun, M., et al. (2022). "Leading in a time of crisis: exploring early experiences of health facility leaders during the COVID-19 pandemic in Nigeria's epicentre." Leadership in Health Services(ahead-of-print).

BBC.World.Service (2022). Focus on Africa, Omugwo: Igbo's postpartum cultural practice.

Berger, R. (2015). "Now I see it, now I don't: Researcher's position and reflexivity in qualitative research." Qualitative research 15(2): 219-234.

Biber, J., et al. (2022). "Mental health impact on healthcare workers due to the COVID-19 pandemic: a U.S. cross-sectional survey study." <u>Journal of Patient-Reported Outcomes 6(1): 63.</u>

Billings, J., et al. (2020). "Healthcare workers' experiences of working on the frontline and views about support during COVID-19 and comparable pandemics: a rapid review and meta-synthesis." <u>MedRxiv</u>.

Blake, H., et al. (2021). "COVID-well study: Qualitative evaluation of supported wellbeing centres and psychological first aid for healthcare workers during the COVID-19 pandemic." International journal of environmental research and public health 18(7): 3626.

Bolarinwa, O. A., et al. (2021). "Health facility delivery among women of reproductive age in Nigeria: Does age at first birth matter?" <u>PloS one</u> **16**(11): e0259250.

Bourgault, S., Peterman, A., & O'Donnell, M. (2021). Violence Against Women and Children During COVID-19— One Year On and 100 Papers In A Fourth Research Round Up. C. f. g. developement.

Calvello, E. J., et al. (2015). "Applying the lessons of maternal mortality reduction to global emergency health." Bulletin of the World Health Organization **93**: 417-423.

Cárdenas, M. (2020). "Looking at the bright side: 10 positive effects of the pandemic." Americas Quarterly 13.

Chatwin, J., et al. (2021). "Experiences of pregnant mothers using a social media based antenatal support service during the COVID-19 lockdown in the UK: findings from a user survey." <u>BMJ open 11(1)</u>: e040649.

Chemali, S., et al. (2022). "Health care workers' experiences during the COVID-19 pandemic: a scoping review." Human Resources for Health **20**(1): 27.

Chersich, M. F., et al. (2020). "COVID-19 in Africa: care and protection for frontline healthcare workers." <u>Globalization and Health</u> 16(1): 46.

Chmielewska, B., et al. (2021). "Effects of the COVID-19 pandemic on maternal and perinatal outcomes: a systematic review and meta-analysis." <u>The Lancet Global Health</u> **9**(6): e759-e772.

Chukwuka Onyekwena , M. A. E. (2020). Understanding the impact of the COVID-19 outbreak on the Nigerian economy. <u>Africa in Focus</u>.

Cinelli, M., et al. (2020). "The COVID-19 social media infodemic." Scientific reports 10(1): 1-10.

Cipriano, P. F. (2018). "100 years on: the Spanish Flu, pandemics and keeping nurses safe." International Nursing Review 65(3): 305.

Clarke, V., et al. (2015). "Thematic analysis." <u>Qualitative psychology: A practical guide to research methods</u> **222**: 248.

Cooper, J., et al. (2004). "Using Participant or Non-Participant Observation to Explain Information Behaviour." Inf. Res. 9.

Cucinotta, D. and M. Vanelli (2020). "WHO Declares COVID-19 a Pandemic." Acta Biomed 91(1): 157-160.

Dan-Nwafor, C., et al. (2020). "Nigeria's public health response to the COVID-19 pandemic: January to May 2020." Journal of global health **10**(2): 020399.

Davenport, M. H., et al. (2020). "Moms are not OK: COVID-19 and maternal mental health." <u>Frontiers in global</u> women's health: 1.

DeJonckheere, M. and L. M. Vaughn (2019). "Semistructured interviewing in primary care research: a balance of relationship and rigour." <u>Family Medicine and Community Health</u> **7**(2): e000057.

Delamou, A., et al. (2017). "Effect of Ebola virus disease on maternal and child health services in Guinea: a retrospective observational cohort study." <u>The Lancet Global Health</u> **5**(4): e448-e457.

Elhadi, M., et al. (2020). "Assessment of Healthcare Workers' Levels of Preparedness and Awareness Regarding COVID-19 Infection in Low-Resource Settings." <u>Am J Trop Med Hyg</u> **103**(2): 828-833.

Elston, J. W., et al. (2017). "The health impact of the 2014–15 Ebola outbreak." Public health 143: 60-70.

Elston, J. W. T., et al. (2017). "The health impact of the 2014–15 Ebola outbreak." Public health 143: 60-70.

Engebretsen, R. and C. Anderson (2020). "The impact of Coronavirus (COVID-19) and the global oil price shock on the fiscal position of oil-exporting developing countries." <u>OECD</u>: 1-18.

EuroNews (July 2020). At least 90,000 healthcare workers infected with COVID-19', says nursing group. . Euro News.

Eze, T. C., et al. (2014). "Patterns of inequality in human development across Nigeria's six geopolitical zones." <u>Developing Country Studies</u> **4**(8): 97-101.

Grailey, K., et al. (2021). "Lived experiences of healthcare workers on the front line during the COVID-19 pandemic: a qualitative interview study." <u>BMJ open 11(12)</u>: e053680.

Grogan, C., et al. (2021). "Unsanitized and Unfair: How COVID-19 Bailout Funds Refuel Inequity in the U.S. Health Care System." Journal of Health Politics, Policy and Law 46.

Gutiérrez, A., et al. (2021). "COVID-19 and urban public transport services: emerging challenges and research agenda." <u>Cities & Health 5(sup1)</u>: S177-S180.

Hantoushzadeh, S., et al. (2020). "Maternal death due to COVID-19." <u>American journal of obstetrics and gynecology</u> **223**(1): 109. e101-109. e116.

Ighele, B. (2019). Who is better nursing mother; mother or mother-in-law? The Guardian.

Igundunasse, A., et al. (2022). "Exploring the Perceptions & Experiences of Breastfeeding Mothers During COVID 19 Lockdown." <u>American Journal of Qualitative Research 6(1): 188-213</u>.

Ijarotimi, O. A., et al. (2020). "COVID-19 and obstetric practice: A critical review of the Nigerian situation." Int J Gynaecol Obstet **151**(1): 17-22.

Ilesanmi, O. and A. Afolabi (2020). "Perception and practices during the COVID-19 pandemic in an urban community in Nigeria: a cross-sectional study." <u>PeerJ</u> 8: e10038.

Ilesanmi, O. S., et al. (2021). "Infection prevention and control during COVID-19 pandemic: realities from health care workers in a north central state in Nigeria." <u>Epidemiol Infect</u> **149**: e15.

Iliyasu, Z., et al. (2022). "COVID-19 Vaccine Acceptability Among Pregnant Women in Northern Nigeria." Journal of Obstetrics and Gynaecology Canada 44(4): 349.

International.Monetary.Fund (2022). World Economic Outlook database. <u>WORLD ECONOMIC AND FINANCIAL SURVEYS</u>.

Karavadra, B., et al. (2020). "Women's perceptions of COVID-19 and their healthcare experiences: a qualitative thematic analysis of a national survey of pregnant women in the United Kingdom." <u>BMC pregnancy and childbirth</u> **20**(1): 600.

Kawulich, B. (2005). "Participant Observation as a Data Collection Method." Forum: Qualitative Social Research 6.

Kolker, S., et al. (2021). "Pregnant during the COVID-19 pandemic: an exploration of patients' lived experiences." <u>BMC pregnancy and childbirth</u> **21**(1): 1-13.

Kourti, A., et al. (2021). "Domestic violence during the COVID-19 pandemic: a systematic review." <u>Trauma</u>, <u>violence</u>, <u>& abuse</u>: 15248380211038690.

Leung, C., et al. (2022). "Perceptions and experiences of maternity care workers during COVID-19 pandemic in Lagos State, Nigeria; a qualitative study." <u>BMC health services research</u> 22(1): 1-14.

Li, H. O.-Y., et al. (2020). "YouTube as a source of information on COVID-19: a pandemic of misinformation?" BMJ global health **5**(5): e002604.

Lumbreras-Marquez, M. I., et al. (2020). "Maternal mortality from COVID-19 in Mexico." Int J Gynaecol Obstet **150**(2): 266-267.

Lumbreras-Marquez, M. I., et al. (2020). "Excess Maternal Deaths Associated With Coronavirus Disease 2019 (COVID-19) in Mexico." <u>Obstet Gynecol</u> **136**(6): 1114-1116.

Mascayano, F., et al. (2022). "The impact of the COVID-19 pandemic on the mental health of healthcare workers: study protocol for the COVID-19 HEalth caRe wOrkErS (HEROES) study." <u>Social Psychiatry and Psychiatric Epidemiology</u> **57**(3): 633-645.

Mbah, F. (2020). Nigeria Announces Lockdown of Major Cities to Curb Coronavirus. <u>aljazeera</u>. Mbah Fidelis, 2020. Nigeria announces lockdown of major cities to curb coronavirus.

McMahon, S. A., et al. (2016). "Healthcare providers on the frontlines: a qualitative investigation of the social and emotional impact of delivering health services during Sierra Leone's Ebola epidemic." <u>Health policy and planning</u> **31**(9): 1232-1239.

Mendez-Dominguez, N., et al. (2021). "Maternal mortality during the COVID-19 pandemic in Mexico: a preliminary analysis during the first year." <u>BMC Public Health</u> **21**(1): 1297.

Mental.Health.America (2022). "The mental health of Health care workers in COVID 19." from <u>https://mhanational.org/mental-health-healthcare-workers-covid-19</u>.

Mogaji, E. (2020). "Impact of COVID-19 on transportation in Lagos, Nigeria." <u>Transportation research</u> <u>interdisciplinary perspectives</u> **6**: 100154.

Mohammed, R., et al. (2021). "COVID-19 vaccine hesitancy among Ethiopian healthcare workers." <u>PloS one</u> **16**(12): e0261125.

Moyo, I., et al. (2021). <u>Experiences of Nurse Managers during the COVID-19 Outbreak in a Selected District</u> <u>Hospital in Limpopo Province, South Africa</u>. Healthcare, MDPI.

Muller, A. E., et al. (2020). "The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review." <u>Psychiatry research</u> **293**: 113441.

NAN (2020). FG bans inter-state movement of COVID-19 patients

Vanguard. Nigeria, NewsAgencyofNigeria April 23 2020.

Nationalhospital (2022). "National Hospital Abuja." 2022, from <u>https://nationalhospital.gov.ng/about/#:~:text=The%20National%20Hospital%20Abuja%20is,sustainable%20nation</u> <u>al%20and%20regional%20development%E2%80%9D</u>.

NCDC (2022). COVID -19 Nigeria.

Nelson, B. (2020). "The positive effects of covid-19." Bmj 369.

News.Agency.of.Nigeria (2020). Lagos State bans religious gatherings above 50 persons.

NewsLife (2020). Over 90,000 health workers infected with Covid-19 worldwide - nurses group. <u>NEWS LIFE</u>, TRT World.

Nuzzo, J. B., et al. (2019). "What makes health systems resilient against infectious disease outbreaks and natural hazards? Results from a scoping review." <u>BMC Public Health</u> **19**(1): 1-9.

Nwafor, J. I., et al. (2021). "Prevalence and predictors of depression, anxiety, and stress symptoms among pregnant women during COVID-19-related lockdown in Abakaliki, Nigeria." <u>Malawi Medical Journal</u> **33**(1): 54-58.

Nweze, P., Chukwudi and H. Hubs (2021). "EFFECT OF COVID-19 LOCKDOWN ON THE NIGERIAN ECONOMY: AN EMPIRICAL ASSESSMENT OF NIGERIAN ECONOMY."

Ojo, T. O. and A. F. Akinwumi (2015). "Doctors as managers of healthcare resources in Nigeria: Evolving roles and current challenges." <u>Niger Med J</u> 56(6): 375-380.

Okediran, J. O., et al. (2020). "The experiences of healthcare workers during the COVID-19 crisis in Lagos, Nigeria: A qualitative study." <u>Germs</u> **10**(4): 356.

Okeke, A., .&Guttry (2021). "Deaths Increased During The COVID-19 Pandemic." Global.health.policy:Health.Affairs.

Okoroiwu, H. U., et al. (2021). "COVID-19 in Nigeria: account of epidemiological events, response, management, preventions and lessons learned." Germs 11(3): 391-402.

Onyedika-Ugoeze, N. (2020). COVID-19: Tales of woe as Abuja hospitals reject patients. Guardian.

Osanan, G. C., et al. (2020). "Do not forget our pregnant women during the COVID-19 pandemic." <u>Women & Health</u> **60**(9): 959-962.

Oseni, T. I., et al. (2021). "Contributions of family physicians to health care services in Nigeria." <u>African Journal of</u> <u>Primary Health Care & Family Medicine</u> **13**(1): 1-3.

Padhan, R. and K. Prabheesh (2021). "The economics of COVID-19 pandemic: A survey." Economic analysis and policy **70**: 220-237.

Pappa, S., et al. (2020). "Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis." <u>Brain, behavior, and immunity</u> **88**: 901-907.

Paris, C., et al. (2021). "COVID-19 vaccine hesitancy among healthcare workers." Infectious diseases now 51(5): 484-487.

Piquero, A. R., et al. (2021). "Domestic violence during the COVID-19 pandemic-Evidence from a systematic review and meta-analysis." Journal of criminal justice **74**: 101806.

Public.health.England (2020). "COVID-19: infection prevention and control guidance." from https://www.publichealth.hscni.net/sites/default/files/2020-10/COVID-19 Infection prevention and control guidance complete.%203.2%20%2818 06 2020%29.pdf.

Public.Health.Ontario (2022). "Coronavirus Disease 2019 (COVID-19)How to Protect Yourself from COVID-19." from https://www.publichealthontario.ca/-/media/documents/ncov/factsheet/2021/06/lp/fact-sheet-covid-19-preventive-layers.pdf?la=en&sc_lang=en.

RefinedNG (2020). "OMUGWO."

Renfrew, M. J., et al. (2014). "Midwifery and quality care: findings from a new evidence-informed framework for maternal and newborn care." <u>The Lancet</u> **384**(9948): 1129-1145.

Rice, K. and S. Williams (2021). "Women's postpartum experiences in Canada during the COVID-19 pandemic: a qualitative study." <u>Canadian Medical Association Open Access Journal 9(2): E556-E562</u>.

Riley, T., et al. (2020). "Estimates of the potential impact of the COVID-19 pandemic on sexual and reproductive health in low-and middle-income countries." International perspectives on sexual and reproductive health **46**: 73-76.

Roberton, T., et al. (2020). "Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study." <u>The Lancet Global Health</u> **8**(7): e901-e908.

Sabırlı R, K. E., Canacik O, Ercin D, Çiftçi H, Sahin L, Dolanbay T, Tutuncu E (2020). "Use of WhatsApp for Polyclinic Consultation of Suspected Patients With COVID-19: Retrospective Case Control Study." <u>JMIR Mhealth</u> <u>Uhealth</u>.

Semaan, A., et al. (2020). "Voices from the frontline: findings from a thematic analysis of a rapid online global survey of maternal and newborn health professionals facing the COVID-19 pandemic." <u>BMJ global health</u> 5(6): e002967.

Semaan, A., et al. (2022). "'We are not going to shut down, because we cannot postpone pregnancy': a mixedmethods study of the provision of maternal healthcare in six referral maternity wards in four sub-Saharan African countries during the COVID-19 pandemic." <u>BMJ global health</u> 7(2): e008063. Sepkowitz, K. A. and L. Eisenberg (2005). "Occupational deaths among healthcare workers." <u>Emerg Infect Dis</u> **11**(7): 1003-1008.

Severe.Malaria.Observatory (2020). "Nigeria health system." <u>Severe Malaria Observatory</u>. from <u>https://www.severemalaria.org/countries/nigeria/nigeria/health-system</u>.

Shaibu, U. and M. Ibrahim (2017). "Access and Utilization of Government Health Facilities by Rural Farm Households: Evidence from Kogi State, Nigeria." <u>International Journal of Agricultural Science, Research and Technology in Extension and Education Systems (IJASRT in EES)</u> **7**(1): 11-17.

Shodunke, A. O. (2022). "Enforcement of COVID-19 pandemic lockdown orders in Nigeria: Evidence of public (non)compliance and police illegalities." <u>Int J Disaster Risk Reduct</u> **77**: 103082.

Si, M.-Y., et al. (2020). "Psychological impact of COVID-19 on medical care workers in China." Infectious diseases of poverty **9**(1): 1-13.

Singh, A. K., et al. (2021). "Impact of COVID-19 pandemic on maternal and child health services in Uttar Pradesh, India." Journal of Family Medicine and Primary Care **10**(1): 509-513.

Sochas, L., et al. (2017). "Counting indirect crisis-related deaths in the context of a low-resilience health system: the case of maternal and neonatal health during the Ebola epidemic in Sierra Leone." <u>Health policy and planning</u> **32**(suppl_3): iii32-iii39.

Souza, A. S. R. and M. M. R. Amorim (2021). "Maternal mortality by COVID-19 in Brazil." <u>Revista Brasileira de</u> Saúde Materno Infantil **21**: 253-256.

Stone, M. (2020). Carbon emissions are falling sharply due to coronavirus. But not for long.CO2 emissions are crashing as the world winds down, but experts say the drop won't last if governments don't start moving to cleaner energy.0. National geographic.

Sudo, N. (2022). "The positive and negative effects of the COVID-19 pandemic on subjective well-being and changes in social inequality: Evidence from prefectures in Japan." <u>SSM-Population Health</u> **17**: 101029.

Sun, P., et al. (2021). "The psychological impact of COVID-19 pandemic on health care workers: a systematic review and meta-analysis." Frontiers in psychology **12**: 626547.

Takemoto, M. L. S., et al. (2022). "Maternal mortality and COVID-19." <u>The Journal of Maternal-Fetal & Neonatal</u> <u>Medicine</u> **35**(12): 2355-2361.

Takemoto, M. L. S., et al. (2020). "The tragedy of COVID-19 in Brazil: 124 maternal deaths and counting." <u>Int J</u> <u>Gynaecol Obstet</u> **151**(1): 154-156.

Tam, C. W., et al. (2004). "Severe acute respiratory syndrome (SARS) in Hong Kong in 2003: stress and psychological impact among frontline healthcare workers." <u>Psychological medicine</u> **34**(7): 1197-1204.

Tessema.Kinfu.Dachew.et.al (2021). "The COVID-19 pandemic and healthcare systems in Africa: a scoping review of preparedness, impact and response." <u>BMJ Global Health 2021;6:e007179.</u>

The.Cable (2020). Coronavirus: Ogun bans gatherings of more than 50 persons.

The.Guardian (2020). Lagos State bans religious gatherings above 50 persons. The Guardian.

The.Society.of.Obstetricians.and.Gynaecologists.of.Canada (2020). Committee Opinion No. 400: COVID-19 and Pregnancy.

Titus, O. B., et al. (2015). "Health-care access and utilization among rural households in Nigeria." Journal of development and agricultural economics **7**(5): 195-203.

Tremblay, S., et al. (2021). "Conducting qualitative research to respond to COVID-19 challenges: Reflections for the present and beyond." <u>International Journal of Qualitative Methods</u> **20**: 16094069211009679.

Trombeta.andCox (2022). "The Textual-Visual Thematic Analysis: A Framework to Analyze the Conjunction and Interaction of Visual and Textual Data." <u>he Qualitative Report</u> **27(6)**, **1557-1574**.

Udonwa, N., et al. (2011). "Family Medicine in West Africa; progress, milestones and challenges so far in Nigeria (1980 - 2010)." <u>Nigerian Journal of Family Practice</u> 1: 1-9.

UNDP (2021). The Impact of COVID-19 on Business Enterprises in Nigeria

USAID (2013). SCALING UP NATIONAL HEALTH INSURANCE IN NIGERIA:Learning from Case Studies of India, Colombia, and Thailand <u>Helath Policy Project</u>.

Usigbe, L. (2021). Nigeria: COVID-19 vaccine rollout kicks off in Africa's most populous country.

Uzochukwu, I. C., et al. (2021). "COVID-19 vaccine hesitancy among staff and students in a Nigerian tertiary educational institution." <u>Therapeutic Advances in Infectious Disease</u> **8**: 20499361211054923.

Vasilevski, V., et al. (2022). "Receiving maternity care during the COVID-19 pandemic: Experiences of women's partners and support persons." Women and Birth **35**(3): 298-306.

Villar, J., et al. (2021). "Maternal and neonatal morbidity and mortality among pregnant women with and without COVID-19 infection: the INTERCOVID multinational cohort study." JAMA pediatrics **175**(8): 817-826.

Vora, K. S., et al. (2020). "Impact of COVID-19 on women and children and the need for a gendered approach in vaccine development." <u>Human Vaccines & Immunotherapeutics</u> **16**(12): 2932-2937.

Watanabe, S. (1969). "The brain drain from developing to developed countries." Int'l Lab. Rev. 99: 401.

West.African.College.of.Physicians (accessed 2023). CURRICULUM OF THE FACULTY OF FAMILY MEDICINE WEST AFRICAN COLLEGE OF PHYSICIANS.

WHO (2019). "Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division."

WHO (2020). Impact of COVID 19 on peoples livelihoods, their health and our food systems.

WHO (2020). Pulse survey on continuity of essential health services during the COVID-19 pandemic: interim report, 27 August 2020, World Health Organization.

WHO (2020). Rational use of personal protective equipment for coronavirus disease (COVID-19): interim guidance, 27 February 2020, World Health Organization.

Wilson, A. N., et al. (2021). "Caring for the carers: Ensuring the provision of quality maternity care during a global pandemic." <u>Women and Birth</u> **34**(3): 206-209.

WorldBank (2019). Current health expenditure per capita (current US\$) - Nigeria.

WorldBank (2020). Nigeria releases new report on poverty and inequality in country. Living Standards Measurement Study Briefs.

WorldBank (2021). Data for Lower middle income, Nigeria. The workd bank Data.

WorldBank (2021). GDP Per capita, The world bank Data.

WorldBank (2021). Worls Bank: Data : IBRD IDA.

Wu, Y., et al. (2020). "Perinatal depressive and anxiety symptoms of pregnant women during the coronavirus disease 2019 outbreak in China." <u>American journal of obstetrics and gynecology</u> **223**(2): 240. e241-240. e249.

Yasin, Y. J., et al. (2021). "Global impact of COVID-19 pandemic on road traffic collisions." <u>World journal of</u> <u>emergency surgery</u> **16**(1): 1-14.

Yerger, P., et al. (2020). "Barriers to maternal health services during the Ebola outbreak in three West African countries: a literature review." <u>BMJ global health</u> **5**(9): e002974.

Yin, R. (2017). Case Study Research and Applications: Design and Methods.

APPENDICES

Appendix I: Consent Form

CONSENT FORM

TITLE OF PROJECT The experiences of pregnant women and their healthcare providers during the COVID-19 pandemic in Nigeria

PRINCIPAL INVESTIGATORS

Minika Ohioma, MBBCh FWACP, Master's degree Candidate, Department of Family Medicine, Faculty of Medicine, McGill University
Supervisor: Roxana Behruzi: RM, MSc, PhD, Assistant professor, PhD, Department of Family Medicine, Faculty of Medicine, McGill University
Co-Supervisor: Charo Rodriguez, MD, PhD, Associate Professor, Department of Family Medicine, Faculty of Medicine, McGill University

COLLABORATORS

Dr Korede Durojaiye, MBBS FWACS, Chief Consultant Obstetrician and Gynaecologist, *National Hospital*, Abuja, Nigeria.
Kathleen Rice, PhD, Assistant Professor, Department of Family Medicine, Faculty of Medicine, McGill University
Marie Hatem, MSc, PhD, Associate professor, Department of Public Health, University of Montreal
Trust Awoniyi, RN, Research assistant

FUNDING: McGill University and Principal investigator

INVITATION TO PARTICIPATE IN THE PROJECT

You are kindly invited to participate in this project about the experiences of pregnant women and health care workers during the COVID-19 pandemic in Nigeria. Your point of view on maternity care services offered at the National Hospital Abuja during the COVID-19 pandemic is extremely important to us. It will allow us to obtain information about your experiences and your assessment of maternity care services during pandemic in Nigeria. Please do not hesitate to ask any questions concerning this project.

BRIEF DESCRIPTION OF PROJECT

Limited data are available on pregnancy and COVID-19 experiences and challenges that pregnant women and health care workers encounter during pandemic. Even though the studies published to date do not show an increased risk of severe disease in pregnancy or substantial risk to the new born, no papers have been published about either the experiences of Nigerian pregnant women. their health care providers and health care managers during the pandemic. This study will evaluate the impact of COVID-19 on perinatal care in Nigeria. The main aim of the study is to understand the experiences of pregnant mothers, their maternity health care providers and managers during the COVID-19 Pandemic in Nigeria and possibly find solutions to the problems.

STUDY PROCEDURE

The study will be conducted at the National Hospital located in Abuja, the Federal Capital Territory, the Capital of Nigeria.

Participants: It will target: 1) Pregnant women and nursing mothers within 6 weeks of delivery, 2) Maternity staff of the hospital including nurses, midwives, medical doctors. Family physicians, obstetricians 3) Managerial staff.

Data Collection:

This will be done using:

1) *Semi-structured interviews of participants*. With your permission, the interview will be recorded, audio-taped and transcribed for later analysis.

2) *Direct observation* with focus on participant's attitude, and interactions and experiences during perinatal visits, as well as what professionals do, what they value, the social interaction between them. Field observations will focus on inter-professionals and/or inter-organizational activities, and conversations in the maternity unit of the hospital during Covid19 pandemic.

3) *Documents and archives* minutes of meetings, formal agreements, organizational reports, policy documents and newspapers articles will be collected.

PROCEDURE

If you accept to participate in this study, you will be invited to participate in an interview. The interview will be conducted at the hospital, in an office, at a time that is convenient time for you. The duration of the interview will be approximately 30 to 60 minutes.

ADVANTAGES AND BENEFITS

The results may help to improve maternity care services with emphasis on Covid19. The results will be useful to women, maternity care providers and health care, who will be better informed about personal and organizational obstacles faced during the pandemic. It will thereby contribute towards establishing better protocols and policies to overcome these obstacles during pandemics.

RISKS AND INCONVENIENCES

The study will not present any foreseeable risks to you. As for time. you will be able to choose the period that is convenient for you to participate in the interview.

CONFIDENTIALITY

All information about you will be kept strictly confidential. A study number will be used on all forms instead of your name or any identifying information. The signed consent form, records, transcripts, and all other documents will be password protected and made available only to the investigators and Ethics committee. Data collected will be destroyed after 7years of completing the study. Names shall not be displayed in any publication or presentation.

LIBERTY OF PARTICIPANTS

Your participation in this study is completely voluntary. You are, therefore, free to accept or to refuse to participate in this study, and you can always withdraw even after signing the consent form. By signing this consent form, you are not jeopardising your civil rights and you do not liberate the investigators from their legal and professional responsibilities. You will be given a copy of the consent form.

COMMUNICATION

If you need any further information. You may contact: Dr Minika Ohioma, MBBCh, FWACP. MSc Family Medicine Program, McGill University Tel: +234-803-720-4139 Email: minika.ohioma@mail.mcgill.ca

Dr Korede Durojaiye, Department of Obstetrics and Gynaecology Tel: 0802373643

CONSENT AND SIGNATURES

I have read the content of this form, and I certify that it was explained to me verbally. I had the opportunity to ask questions concerning the research which were answered satisfactorily. I confirm that I given enough time to think and make my decision to participate. I understand that I am able to withdraw from the study at any time. I was told that a copy of the consent form will be given to me, and I have agreed to participate.

I, the undersigned, have accepted to participate in this study.

Name of the participant Signature of the participant

Date

I, confirm that I have explained the details of the research to the to the participant whose signature is signed above. I have explained a) The terms of the present consent form; b) That the participant is free to withdraw from the study at ant timer. C) That I will hand to the participant a copy of the signed form.

Name of the researcher

Signature of the researcher

Date

Appendix II: Topic Guides

TOPIC GUIDE: SEMI-STRUCTURED QUESTIONNAIRE FOR PREGNANT WOMEN

| ł | Age: |
|--------|---|
| (| Gestational age (weeks) at enrollment: Postpartum (weeks) |
|] | Place of birth: |
| ľ | Number of Pregnancies: |
| ľ | Number of Deliveries: |
| ľ | Number of Miscarriages: 🗌 |
| ľ | Number of Abortions |
| I | Marital Status: Married isingle Separated Civil Partner Divorced |
|] (| Education: Elementary School 🗌 High school 🗌 College 🔲 University Graduate 🔲 Graduate |
| (| Classification of Family income according to participant: Low middle High |
| J | Iob: Yes No If Yes: health care worker: Yes No |
| 1 | Fitle of your Job |
| V | What do you know about COVID 19? |
| ł | How has the COVID pandemic affected you? |
| ł | Have you experienced any challenges during the current pandemic? |
| (| Can you tell me about these experiences? |
| ł | Kindly explain some of the coping/adaptive mechanisms that has helped you while accessing he |
| ¢ | care services? |
| ١ | What were your experiences with the health care services in the hospital? |
| (| Can you say if there are any differences from your experiences before the pandemic (if the mo |

Do you have any suggestions on how to solve the problems mentioned above?
What can be improved?
Do you have any suggestions on how to solve the problems that resulted because of the COVID pandemic?
What are your views about the on-going COVID-19 vaccination exercise?
Do you have another comments or questions?
Is there anything thing else you would like us to talk about?
Thank you for your time and feedback.

Appendix IIb

SEMI-STRUCTURED QUESTIONNAIRE FOR HEALTH CARE PROVIDERS

| Research ID number: | | | | | | | |
|--|---|--|--|--|--|--|--|
| Workplace as health facilities | | | | | | | |
| Hospital Private Clinic Community CLSC | | | | | | | |
| Care Provider's position | | | | | | | |
| Maternity Nurse Midwife Manager Family Physician Obstetricia | | | | | | | |
| Family physician Others | Please | | | | | | |
| Sex: Female Male | | | | | | | |
| Age | | | | | | | |
| Years of work experience | | | | | | | |
| Less than 1 year Between 1 and 5 years More than 5 years | | | | | | | |
| | | | | | | | |
| Activities | Can you describe the typical activities or services provided at | | | | | | |
| | the hospital? | | | | | | |
| Factors causing challenges in | On an average how many women does the antenatal clinic, | | | | | | |
| expectant or new mothers | labour ward or post-natal ward cater for in a day/ week/ | | | | | | |
| during the pandemic | month? | | | | | | |
| | Have you been able to identify any factors that cause | | | | | | |
| | challenges in these women? | | | | | | |
| | Has anything changed Concerning your work at the hospital, | | | | | | |
| | are there any specific challenges you face by while working? | | | | | | |
| Factors that still persist | | | | | | | |
| Staff Challenges | Are there other challenges faced in the hospital as a whole? | | | | | | |
| | Kindly explain what you know about COVID-19 pandemic? | | | | | | |

COVID-19

| | Have you ever had any information about how to manage a pandemic? |
|--------------------|---|
| Effect of Covid-19 | What measures have been put in place as regards maternity |
| | services since the pandemic started? Do you feel these have |
| | been implemented? |
| | With respect to The COVID19 pandemic, what do you think |
| | are the major challenges faced by pregnant women? |
| | With respect to The COVID19 pandemic, what do you think |
| | are the major challenges faced by Healthcare professionals? |
| | With respect to The COVID19 pandemic, what do you think |
| | are the major challenges faced by Health Care Managers? |
| | With respect to The COVID19 pandemic, what do you think |
| | are the major challenges faced by MATERNITY health care |
| | workers? |
| | kindly explain some of the coping/adaptive mechanisms that |
| | has helped you while providing services. |
| | mentioned above? |
| | What can be improved? |
| | Do you have any suggestions on how to solve the problems |
| | that resulted because of the COVID pandemic? |
| | What are your views about the on-going COVID 19 |
| Wrap up | vaccination exercise? |
| | Do you have another comments or questions? |
| | Is there anything thing else you would like us to talk about? |
| | Thank you for your time and feedback. |
Appendix III: Table showing codes and themes

| Table 2b: Theme | s derived fr | om analysis | of the data | including | codes |
|-----------------|--------------|-------------|-------------|-----------|-------|
| | | • ··· / •-• | | | |

| examine to what tent public health wentive measures ainst COVID-19 COVID - 19 control measures put in place in the hospital COVID isolation centre Set up an isolation centre for covid patients COVID-19 reation of COVID team to manage COVID positive patients COVID control team inst COVID-19 Health education Health education on preventive measures to take Use of facemask Mandatory use of face mask in the hospital |
|---|
| tent public health eventive measures ainst COVID-19 iection have been plemented for image to be plemented for image covid positive patients Health education on preventive measures to take Use of facemask Mandatory use of face mask in the hospital image covid positive patients Health education on preventive measures to take Use of facemask Mandatory use of face mask in the hospital image covid positive patients |
| eventive measures the hospital COVID positive patients ainst COVID-19 Health education Health education on preventive measures to take become d for Use of facemask Mandatory use of face mask in the hospital |
| Image: Control of the second |
| Use of facemask Use of face mask in the hospital premises |
| Dromicoc |
| premises provides Company and a log company an |
| Screening Screening Interperature checks |
| spital. |
| Social distancing measures Space out clinic appointments |
| Beduced number of nations seen at he clinic to |
| avoid crowd |
| Restricted number of visitors for in-patients |
| Stopped hospital tours for new patients |
| Reduced number of beds in labour ward |
| Precautions for Staff working in Isolation ward |
| Hand hygiene Use of hand sanitizers |
| Hand washing |
| Participants Satisfaction with measures Participant was satisfied |
| put in place by the hospital Participant was not satisfied |
| |
| determine the General challenges Psychological effects of the pandemic Felt afraid |
| rceived barriers and experienced by all (Mental heath effects) Felt stressed |
| illitating factors participants Felt bored |
| perienced by Felt lonely |
| ignant mothers, Felt overworked |
| ternity healthcare Felt anxious |
| Viders, and Felt more hardship |
| Immistrators/ others |
| Coping Mechanisms Religion/faith |
| Obeying social distancing measures |
| Having a positive mind set |
| Family support |
| Encouraging others |
| Personal development and training in new skill |
| Social media |
| Used supplements to boost immunity |
| Others |
| Socioeconomic effects of the pandemic Financial constraints |
| Inflation |
| I ransportation challenges |
| nunger Sografity of metariale |
| Scarcity of materials |
| Effect of pandamic on exheating |
| Effect of pandemic of schooling |
| Effect of Pandemic on work Transportation challenges asting to work |
| Effect of Fanderine on work |
| Char |
| Effect of pandemic on the family |
| Effects of pandemic on Maternal and Low turn out of patients |
| child health care delivery Overwarded staff |
| Staff working in faar |
| Scart working in feat |
| Searchy of resources to work with |
| Diversion of resources from other health care need |

| | | SPECIFIC CHALLENGES BASED ON | PARTICIPANT GROUP | | |
|-------------------------------|---|--|---|--|--|
| | Challenges perceived by | Use of mask was a challenge | Masks were uncomfortable | | |
| | pregnant women | Added stress on pregnancy | | | |
| | | Pandemic effect on maternity services | Longer waiting time | | |
| | | | Reduced number of ann | ointment due to social | |
| | | | distancing | continent due to soenin | |
| | | | Had to come to hospital | despite the shallonges | |
| | | On the second second second second | Prior to come to nospital | despite the chaneliges | |
| | | Overlapping effect of covid and | Overlap between effects | s of covid and pregnancy | |
| | | pregnancy on health | | | |
| | | Pandemic effect on fertility | COVID lockdown as a r | reason for being pregnant | |
| | Challenges perceived by | Effect of covid on work in health care | | | |
| | Health care workers | Lack of materials to work with | Lack of PPE | | |
| | | | Lack of other equipmen | t | |
| | | Gross understaffing | overworked | _ | |
| | | Got infected with infection | Got covid | | |
| | Challenges perceived by | Managing/ meeting up to the | Scarcity of PPE | | |
| | Managers | expectations of staff | | | |
| | | Managing/ meeting up to the | Providing health care de | espite the pandemic | |
| | | expectations of patients Managing/ meeting up to the | | | |
| | | expectations of the public | Net concluining | al an in difficultur | |
| | | expectations of the Government | Not complaining even v | vnen in dimculty | |
| | | Meeting up with expectations of a | Paying bills | | |
| | | manager | Generating revenue in the | he pandemic | |
| | | Dealing with personal effects of the | Fear, Family, Trust, fulf | filment | |
| | | pandemic as an individual | | | |
| | Desition offersteref | Desition offerte of COMD | Heddings to met | | |
| | Positive effects of | Positive effects of COVID | Had time to rest | | |
| | | | Used the time to do othe | er things | |
| | | | Quality family time | | |
| | | | Emergence of new busin | nesses | |
| | | | | | |
| | | | | | |
| | | | | | |
| COVID Vaccination | Vaccine Acceptance | Has taken the vaccine | Yes | _ | |
| COVID Vaccination exercise | Vaccine Acceptance | Has taken the vaccine | Yes | Will take later | |
| COVID Vaccination exercise | Vaccine Acceptance | Has taken the vaccine | Yes No | Will take later Will not take it later | |
| COVID Vaccination exercise | Vaccine Acceptance | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety of | Will take later Will not take it later of vaccine | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety of Concerns about efficacy | Will take later Will not take it later f vaccine | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety o Concerns about efficacy | Will take later Will not take it later of vaccine of vaccine | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gow | Will take later Will not take it later of vaccine emment to core sustem | |
| COVID Vaccination exercise | Vaccine Acceptance | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gov Lack of trust in the heal | Will take later Will not take it later of vaccine of vaccine emment th care system cid form bich income | |
| COVID Vaccination exercise | Vaccine Acceptance | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the apout Lack of trust in the heal Lack of trust in western | Will take later Will not take it later of vaccine of vaccine ermment th care system aid from high income | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety of Concerns about efficacy Lack of trust in the pour Lack of trust in the heal Lack of trust in western countries | Will take later Will not take it later of vaccine ermment th care system aid from high income | |
| COVID Vaccination exercise | Vaccine Acceptance | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gov Lack of trust in the heal Lack of trust in western countries Perceived political unde | Will take later Will not take it later of vaccine ernment th care system aid from high income ertone | |
| COVID Vaccination exercise | Vaccine Acceptance | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gow Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did n | Will take later Will not take it later of vaccine of vaccine emment th care system aid from high income entone not exist | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety of Concerns about efficacy Lack of trust in the gov Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did 1 Conspiracy theories | Will take later Will not take it later of vaccine emment th care system aid from high income ertone not exist | |
| COVID Vaccination exercise | Vaccine Acceptance | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gov Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did Conspiracy theories Ignorance on how vacci | Will take later Will not take it later of vaccine ernment th care system aid from high income ertone not exist nes work | |
| COVID Vaccination exercise | Vaccine Acceptance | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gow Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did t Conspiracy theories Ignorance on how vacci Influence of religion | Will take later Will not take it later Will not take it later f of vaccine model gramment model th care system aid from high income aid from high income model entone model not exist model nes work model | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety or Concerns about efficacy Lack of trust in the gow Lack of trust in the heal Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did Conspiracy theories Ignorance on how vacci Influence of religion Influence of family and | Will take later Will not take it later of vaccine ermment th care system aid from high income ertone not exist nes work social networks | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety of Concerns about efficacy Lack of trust in the gow Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did f Conspiracy theories Ignorance on how vacci Influence of religion Influence of family and There were other pressi than COVID | Will take later Will not take it later of vaccine ermment th care system aid from high income ertone not exist ines work social networks ng issues more important | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety or Concerns about efficacy Lack of trust in the gow Lack of trust in the heal Lack of trust in the heal Lack of trust in the heal Lack of trust in the heal Conspiracy theories Ignorance on how vacci Influence of religion Influence of family and There were other pressit than COVID Pregnancy used as an es | Will take later Will not take it later of vaccine ermment th care system aid from high income ertone not exist nes work social networks ng issues more important ccuse not to take the | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy | Has taken the vaccine Reasons for vaccine hesitancy | Yes No Concerns about safety of Concerns about efficacy Lack of trust in the gov Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did Conspiracy theories Ignorance on how vacci Influence of religion Influence of family and There were other pressit than COVID Pregnancy used as an ex- vaccine | Will take later Will not take it later of vaccine emment th care system aid from high income ertone not exist nes work social networks ng issues more important accuse not to take the | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy | Has taken the vaccine Reasons for vaccine hesitancy Challenges | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gov Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did I Conspiracy theories Ignorance on how vacci Influence of religion Influence of religion Influence of religion Influence of religion Influence of religion Pregnancy used as an ex- vaccine Funding | Will take later Will not take it later of vaccine ernment th care system aid from high income ertone not exist nes work social networks ng issues more important cuse not to take the | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise | Has taken the vaccine Reasons for vaccine hesitancy Challenges | Yes No Concerns about safety or Concerns about efficacy Lack of trust in the gow Lack of trust in the heal Lack of trust in the heal Lack of trust in the heal Lack of trust in the heal Belief that COVID did Conspiracy theories Ignorance on how vacci Influence of religion Influence of religion Influence of family and There were other pressit than COVID Pregnancy used as an ex- vaccine Funding Low sensitization | Will take later Will not take it later of vaccine emment th care system aid from high income entone not exist nes work social networks ng issues more important ccuse not to take the | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise | Has taken the vaccine Reasons for vaccine hesitancy Challenges | Yes No Concerns about safety of Concerns about efficacy Lack of trust in the gov Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did Conspiracy theories Ignorance on how vacci Influence of religion Influence of family and There were other pressit than COVID Pregnancy used as an ey vaccine Funding Low sensitization Evolving pandemic | Will take later Will not take it later of vaccine emment th care system aid from high income ertone not exist ines work social networks ng issues more important accuse not to take the | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise | Has taken the vaccine Reasons for vaccine hesitancy Challenges | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gov Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did I Conspiracy theories Ignorance on how vacci Influence of religion Influence of religion Influence of religion Influence of religion Pregnancy used as an ev vaccine Funding Low sensitization Evolving pandemic | Will take later Will not take it later of vaccine ernment th care system aid from high income ertone not exist nes work social networks ng issues more important ccuse not to take the | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise | Has taken the vaccine Reasons for vaccine hesitancy Challenges | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gove Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did Conspiracy theories Ignorance on how vacci Influence of religion Influence of religion Influence of religion Influence of religion Pregnancy used as an ex vaccine Funding Low sensitization Evolving pandemic Distribution of the vacc | Will take later Will not take it later f vaccine of vaccine ernment th care system aid from high income ertone not exist nes work social networks ng issues more important scuse not to take the ine | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise | Has taken the vaccine Reasons for vaccine hesitancy Challenges COVID exposed underlying issues | Yes No Concerns about safety of Concerns about efficacy Lack of trust in the gov Lack of trust in the pov Lack of trust in western countries Perceived political unde Belief that COVID did Conspiracy theories Ignorance on how vacci Influence of religion Influence of religion Influence of family and There were other pressit than COVID Pregnancy used as an ex- vaccine Funding Low sensitization Evolving pandemic Distribution of the vacce | Will take later Will not take it later of vaccine emment th care system aid from high income entone not exist nes work social networks ng issues more important scuse not to take the ine | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise COVID exposed underlying issues | Has taken the vaccine Reasons for vaccine hesitancy Challenges COVID exposed underlying issues | Yes No Concerns about safety of Concerns about efficacy Lack of trust in the gove Lack of trust in the faul Lack of trust in western countries Perceived political unde Belief that COVID did Conspiracy theories Ignorance on how vacci Influence of religion Influence of family and There were other pressi than COVID Pregnancy used as an ey vaccine Funding Low sensitization Evolving pandemic Distribution of the vacci Brain drain Double standards | Will take later Will not take it later of vaccine ernment th care system aid from high income ertone not exist nes work social networks ng issues more important accuse not to take the ine Differential lock down | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise COVID exposed underlying issues | Has taken the vaccine Reasons for vaccine hesitancy Challenges COVID exposed underlying issues | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gove Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did I Conspiracy theories Ignorance on how vacci Influence of religion Influence of severe other pressi- than COVID Pregnancy used as an ex- vaccine Funding Low sensitization Evolving pandemic Distribution of the vacci Brain drain Double standards | Will take later Will not take it later of vaccine ernment th care system aid from high income ertone not exist nes work social networks ng issues more important ccuse not to take the ine Differential lock down measures in cities | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise COVID exposed underlying issues | Has taken the vaccine Reasons for vaccine hesitancy Challenges COVID exposed underlying issues | Yes No Concerns about safety or Concerns about efficacy Lack of trust in the gov Lack of trust in the gov Lack of trust in western countries Perceived political unde Belief that COVID did Conspiracy theories Ignorance on how vacci Influence of religion Influence of religion Influence of family and There were other pressi than COVID Pregnancy used as an ex vaccine Funding Low sensitization Evolving pandemic Distribution of the vacc Brain drain Double standards | Will take later Will not take it later of vaccine of vaccine emment th care system aid from high income entone not exist ines work social networks ng issues more important scuse not to take the Differential lock down measures in cities Government support | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise COVID exposed underlying issues | Has taken the vaccine Reasons for vaccine hesitancy Challenges COVID exposed underlying issues | Yes No Concerns about safety of Concerns about efficacy Lack of trust in the gov Lack of trust in the mal Lack of trust in western countries Perceived political unde Belief that COVID did Conspiracy theories Ignorance on how vacci Influence of religion Influence of family and There were other pressi than COVID Pregnancy used as an ex- vaccine Funding Low sensitization Evolving pandemic Distribution of the vacci Brain drain Double standards | Will take later Will not take it later of vaccine emment th care system aid from high income ertone not exist nes work social networks ng issues more important ccuse not to take the ine Differential lock down measures in cities Government support for upbic (sovernment | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise COVID exposed underlying issues | Has taken the vaccine Reasons for vaccine hesitancy Challenges COVID exposed underlying issues | Yes No Concerns about safety o Concerns about efficacy Lack of trust in the gov Lack of trust in the heal Lack of trust in western countries Perceived political unde Belief that COVID did I Conspiracy theories Ignorance on how vacci Influence of religion Influence of religion Influence of religion Influence of religion Influence of religion Pregnancy used as an ex- vaccine Funding Low sensitization Evolving pandemic Distribution of the vacci Brain drain Double standards | Will take later Will not take it later of vaccine ernment th care system aid from high income ertone not exist nes work social networks ng issues more important ccuse not to take the ine Differential lock down measures in cities Government support for public (government support oyned) establishments | |
| COVID Vaccination exercise | Vaccine Acceptance Vaccine Hesitancy Challenges with vaccination exercise COVID exposed underlying issues | Has taken the vaccine Reasons for vaccine hesitancy Challenges COVID exposed underlying issues | Yes No Concerns about safety or Concerns about efficacy Lack of trust in the gov Lack of trust in the pov Lack of trust in western countries Perceived political unde Belief that COVID did Conspiracy theories Ignorance on how vacci Influence of religion Influence of religion Influence of family and There were other pressi than COVID Pregnancy used as an ex vaccine Funding Low sensitization Evolving pandemic Distribution of the vacc Brain drain Double standards | Will take later Will not take it later of vaccine of vaccine emment th care system aid from high income entore not exist not to take the <t< td=""></t<> | |

| | | | Inequalities in Global health |
|--|--|--|--|
| | | | Lack of equipment and materials to work with |
| | | | Fragile economy |
| | | | The level of mistrust in the system |
| | | | |
| To proffer solutions to the problems identified | Solutions mentioned by participants | Ensure proper protection of staff | Provide adequate PPE |
| above. | | Provide require equipment | Ensure proper Provide PPE |
| | | | Provide equipment required to work |
| | | | Repair faulty equipment |
| | | | Ensure regular maintenance of other facilities in |
| | | | the hospital |
| | | Provide adequate communication channels | To receive regular feedback from staff |
| | | | To Send regular reminders to staff about |
| | | | precautions to take |
| | | | Incentives to staff for extra risk taken |
| | | Improve incentives | Incentives to sail for extra fisk taken |
| | | | the Pandemic |
| | | Health Education | Continuous health education for staff and patients |
| | | Avoid delays | Improve turn around time for the COVID test in the hospital |
| | | Social distancing measures | Creation of a separate isolation ward for patients in Labour |
| | | | Ensure social distancing measures are followed |

Appendix IV: Screen shots of data

Screen shot from NVivo Software of parent codes of the data.

| NVIVO :: (| File Home Import Create Explore Share Modules | | |
|----------------------------|---|----------------------|------------------------|
| | 🗂 🗅 : 🕮 : 🔍 : 🔟 : 🔿 : 🐻 | = <u>o</u> - | £- 6 |
| | Clipboard Item Organize Query Visualize Code Autocode Range | Uncode | Case Fi |
| ⋆ Quick Access | CODES AFTER CLEANING 9. Search Project | Cla | ssification classif |
| IMPORT | ⊕* Name | Files | References |
| E Data | - O 1 POSITIVE EFFECTS | 3 | 7 |
| Ellee | O 2 NEGATIVE EFFECTS OF THE PANDEMIC | 20 | 150 |
| > File Classifications | E O FEFECT ON HEALTH CARE DELIVERY | 15 | 47 |
| Externals | O EFFECT ON PHYSICAL HEALTH | 2 | 4 |
| | O EFFECT ON PREGNANCY | 3 | 9 |
| ORGANIZE | ⊕ O EFFECT ON WORK | 10 | 18 |
| ≡ Coding ~ | - O HAD COVID | 3 | 3 |
| ~ Codes | | 18 | 58 |
| 1st DRAFT of codes without | O SOCIOECONOMIC EFFECTS | 18 | 69 |
| CODES AFTER CLEANING | O ECONOMIC EFFECTS | 9 | 19 |
| INITIAL RAW CODES | Z EFFECT ON RELIGION | 3 | 3 |
| Belationships | O z EFFECT ON SCHOOLING | 3 | 6 |
| Relationship Types | - O z EFFECT ON SOCIAL RELATIONSHIPS | 3 | 5 |
| | O z EFFECTS ON THE FAMILY | 9 | 18 |
| 🛱 Cases 🛛 🗸 🗸 | O 5 PERCULIAR CHALLENCES FACED BY PREGNANT WOMEN | 9 | 16 |
| Cases | O 6 PERCULIAR CHALLENCES FACED BY HCW | 12 | 25 |
| > Case Classifications | O 7 PERCULIAR CHALLENGES WITH MANAGEMENT STAFF | 8 | 28 |
| ■ Notes > | - O 8 SOLUTIONS SUGGESTED BY PARTICIPANTS | 16 | 31 |
| • Sets > | In Codes Code to S | icarcity (Codes\\COD | ES AFTER CLEANING\\2 E |
| | A MEO 232 Items | | |

Screen shot from NVivo showing the theme "Effect of COVID Pandemic on Participants" with subthemes

| NVIVO ‡‡ | File | Home | Import | Creat | e Explo | re Sh | are Moo | dules | | | | |
|----------------------------|------------|------------|-----------|----------|-----------|----------|----------|-------|--------|-----------|--------------|-----|
| COVID NIGERIA 22.nvp | <u>°</u> - | <u>D</u> - | * | 0,- | 111 - | 0. | Ξo | Ē | ≣⊚ - | £). | 6 | 3 |
| | Clipboard | Item | Organize | Query | Visualize | Code | Autocode | Range | Uncode | Case | F | ile |
| ★ Quick Access | | | FANING | | E |) Count | Designet | Code | | Classific | ation Classi | |
| | CODES A | FILK CI | LANNING | | Ľ | < seurch | Project | | | | | |
| IMPORT | ⊕^ Na | me | | | | | | | | Files | References | |
| ∃ Data × | E 0 10 | OVID O | ONTROL N | IEASURE: | S USED IN | THE HO | SPITAL | | | 14 | 38 | |
| Files | O 2 € | FFECTS | OF THE CO | OVID PAN | IDEMIC ON | I PARTIC | CIPANTS | | | 20 | 154 | |
| > File Classifications | | PERCULI/ | AR CHALLE | NCES FA | CED BY PR | EGNAN | I WOMEN | | | 9 | 16 | |
| Externals | | PERCULI/ | AR CHALLE | NCES FA | CED BY H | CW | | | | 12 | 25 | |
| | • O 7 F | PERCULI/ | AR CHALLE | NGES WI | TH MANA | GEMENT | STAFF | | | 8 | 28 | |
| ORGANIZE | -0 85 | OLUTIO | NS SUGG | ESTED BY | PARTICIPA | ANTS | | | | 16 | 31 | |
| ≡ Coding ~ | .0 90 | OVID-1 | 9 VACCIN/ | ATION EX | CERCISE | | | | | 17 | 23 | |
| ✓ Codes | | COVID | EXPOSED | OTHER U | NDERLYIN | G ISSUE | S | | | 8 | 19 | |
| 1st DRAFT of codes without | O DO | UBLE ST | ANDARD | 5 | | | | | | 4 | 4 | |
| CODES AFTER CLEANING | O EF | FECT OF | OTHER TH | INGS ON | OVID | | | | | 2 | 2 | |
| INITIAL RAW CODES | O PA | RTICIPA | NTS VIEWS | 5 | | | | | | 1 | 2 | |
| Sentiment | | | | | | | | | | | | |

Appendix V:Tables containing quotes for different themes

Table 3: Measures used in the hospital to control the spread of COVID-19

| What was d | lone in the | Excerpts | |
|-------------------------------------|---|---|--|
| hospital | | | |
| Set up an iso | olation centre for | "Yes, they have. They set up a whole block to serve as an isolation ward for the treatment of COVID cases". | |
| covid patien | tients - H9(Physician) | | |
| COVID tear | COVID team to manage "The hospital set up <u>COVID teams</u> . Such that once there is a suspected case, the team is informed, at | | |
| COVID pos | COVID positive patients will take over the management of the patient from there". H9(Physician) | | |
| Health educ | ation on | "They [the nurses] give health education talks to women when the come for their visits apart from telling | |
| preventive r | neasures to take | us to stay healthy, boosting our immunity they advice us to avoid social gatherings with many peoplethat is | |
| | | social distancing" – P2 (student) | |
| | | they [nurses] usually give health talks very early in the morning before the doctors come in to the | |
| I | | curric P2 (pregnant physician) | |
| Use of face | mask made | We won't allow them stay in the clinic if they don't have their face mask. Also, we tell them why we had to | |
| Tamparatur | ahaala | reduce the number of people we see nowH3 Nurse | |
| Temperature | e checks | There were temperature checks for every patient as they waik into the hospital. They are supposed to be | |
| | | scannea using infrarea inermometers Its inurse | |
| | | The system we were using before has changed. Now patients must have their temperatures checked before the other the clinic", HANurse | |
| Social | Space out | "We shall be truthe their appointment so that the clinic is not crowded. We try to space them out when the sit in | |
| distancing | appointments/ | the waiting area" H4 Nurse | |
| measures | Reduced | "even the labour ward was also spaced. The number of delivery beds was reduced from 6 to 4 just to allow | |
| | number of | more space between the beds"H4 Nurse | |
| | patients seen at | | |
| | the clinic to | | |
| | avoid crowd | | |
| | Restricted | "The hospital staff just informed me of some precautionary measures like the number of people that co | |
| | number of | come to visit me this was limited. They also listed out some COVID-19 rules which my visitors and I had to | |
| visitors for in- follow. P1 Student | | follow. P1 Student | |
| | patients | | |
| | Stopped | "Also on booking clinic, we used to walk around the hospital to take the new women on a tour of the hospital | |
| | hospital tours | to show them the different units. We had to stop | |
| | for new | that auring the panaemic. It was to avoia crowa. H4 Nurse | |
| | Paducad | "I know the labour ward was also maged. The number of hads was reduced from 6 to 4 just to allow more | |
| | number of | Throw the labour wara was uso spaced. The number of beas was related from 0.10 + just to allow more space between the beds? "H4 Nurse | |
| | heds in labour | space between the beas . If this e | |
| | ward | | |
| Precautions | for staff | " during the first phase. While attending to patients, those staff were not allowed to go home. To prevent | |
| working in t | he COVID | infection in their homesthe hospital lodged them in hotels." -Manager | |
| solation war | solation ward | | |
| Hand hygier | ne Use of | "Yes. If you don't wear a face mask and use hand sanitizer, you cannot enter the clinic, and somebody is | |
| | hand | checking. Though the hand sanitizers are not really enough but you see them in most places, And they also | |
| | sanitizers | have water to wash hands in different corners" P4 Civil servant | |
| | Hand | "Yes. If you don't wear a face mask and use hand sanitizer, you cannot enter the clinic, and somebody is | |
| | washing | checking. Though the hand sanitizers are not enough but you see them in most places, and they also have | |
| | | water to wash hands in different corners"P4 Civil Servant | |

Table 4: Compliance with COVID-19 control measures in the hospital

| COVID-19 control measure not done properly | Quotes from participants |
|---|---|
| No visible guideline or standard operating procedure to refer to | What guideline [are you asking about]? WHO guideline? There is nothing like that. We don't use anything new guideline there was a guideline it should have been pasted on the notice board for everybody to see easily and easily refer to it. If you go and check, there you will see other guidelines there there is no guideline pasted about COVID", - H5 Midwife |
| Not enough seats for social distancing | "I remember while waiting for my turn, as more people came in and the place started getting filled, no body was obeying the social distancing rule. People had to seat on the available seats". P9 Architect |
| Staff are no longer enforcing measures | "They [nurses] usually give health talks are very early in the morning before the doctors come in for the clinic But to be honest with you, there are still some loopholes. Recently I noticed the are not very strict compared to what they were doing in the past. So, it is not always that these things are doneP2 |
| | "I feel the health providers are not as serious about preventive measures as they should, I feel that have relaxed. Patients seem to be the ones taking more precautions now that even the health providers. You find them not using their masks properly, not sanitizing their hands regularly. There are so many things that are going on that are not right. They are not following rules. There is a lot of contamination going on. Its almost as if people have forgotten that there is still a Pandemic. I feel people are getting used to the way thing are now and are no more as bothered. Even for me toorecently I told my friends that I was going to hug them because I had missed them for a while. (lughter). I think people are getting used to the disease being around and are gradually letting down their guard". P2 Pregnant physician |
| | "I think we just got tired of doing same thing every day. Wearing masks daily. We all just kind of relaxed". H4 midwife |
| | "Before, once you appear at the door, I will be the person to ask you from far to pull up your face mask (laughter) Buy now, I agree I have not been as strict as I used to be. And its not only me. A lot of us staff are more relaxed that we used to be in the first wave at the beginning of the pandemic"H4 |
| Not enough materials to use | "Yes. If you don't wear a face mask and use hand sanitizer, you cannot enter the clinic, and somebody is checking. Though the hand sanitizers are not really enough but you see them in most places". Pd |

Table 5: Participants satisfaction with COVID control measures in the hospital.

| Level of satisfaction with public health measures | Excerpts |
|--|--|
| Satisfied | "In my opinion they tried oh they tried. [they did a lot]. Because the Chief Medical Director and the Chairman medical advisory Committee were always out of their office and were personally monitoring the situation in the COVD vaccination centre. Sometimes you will see them trying to decide to control the crowd. Sometimes you will see them trying to decide to control the crowd. Sometimes you will see them trying to decide to control the crowd. Sometimes you will see them trying to decide to control the crowd. Sometimes you will see them trying to decide to control the crowd. Sometimes you will see them trying to decide to control the crowd. Sometimes you will see them trying to decide to control the crowd. Sometimes you will see them trying to decide to control the crowd. Sometimes you will see them trying to decide to control the crowd. Sometimes you will have them them so as reduce the crowd inside the building. Every day, the Chairman Medical advisory was always here. She was making sure that we at least got a conducive environment to work in. Even when we complained that there was no stipend to recharge phones and buy internet data, they made arrangements for that, she even asked the Human Resource Officer to get some Tablets for us to work with rather than using our personal phones. So, we used the tablets to record data for the vaccinations done in this centre. Even at that initial time, they were even providing us with water and lunch for almost 1 month. But they stopped after the first month. They did all that for the first 1 month when the vaccines arrived initially" H8 (Vaccinator) """. |
| | The tried their best considering the scarcity of resources". <i>M1(Management staff)</i> "I feel the Doctors and nurses have been doing their best. The worked in teams and they were checking on me regularly. I didn't really have any problems in that aspect [also, if a patient does not] wear a face mask and use hand sanitizer, she cannot enter the clinic, and somebody was checking. I think they are trying [doing well] in that aspect. I don't see them slacking in their work [they are doing what they are expected to do" P4 |
| Unsatisfied | "I feel the health providers are not as serious about preventive measures as they should, I feel that have relaxed. Patients seem to be the ones taking more precautions now that even the health providers. You find staff not using their masks properly, not sanitizing their hands regularly. There are so many things that are going on that are not right. They are not following rules. There is a lot of contamination going on. Its almost as if people have forgotten that there is still a Pandemic. I feel people are getting used to the way thing are now and are no more as bothered. Even for me toorecently I told my friends that I was going to hug them because I had missed them for a while. (laughter) I think people are getting used to the disease being around an are gradually letting down their guard"P2 Pregnant physician "'I don't think the hospital management is doing what it is supposed to do. Like I said about the PPE, they did not provide us with what to use. We still had to buy these things [PPE] on our own to protect ourselves. We really also do not have enough supplies of other things to work with. We have to keep running from one place to another (within the hospital] looking for what we need to work. Say we are to work in this ward, yet we do not have enough supplies of other units and this is also causing more infection. Things that should be left in one unit and not moved end up being taken to another unit thereby possibly spreading that should be left in one unit and not moved end up being taken to another unit hereby possibly spreading the infection across units"HI Physician "'HD Physician the provide us with the superly leven do there way the accusting the outperly had and the set still a stage causing more infection. Things that should be left in one unit and not moved end up being taken to another unit thereby possibly spreading the infection across units"HI Physician |
| | organization is perfect, there are obviously areas where they are lagging behind"H2 Records staff "{We are supposed to do] temperature checks for every patient as they walk into the hospitalusing infrared thermometers Then the use of face masks is mandatory. They [management] provided face mask. But it was not enough", -H3 Nurse. "They [Hospital Management] didn't implement anything my dear I didn't see much of a difference oh. If anything, the machines were breaking down. The CTG machine we normally use to monitor the fettuses in labour has been bad now for God knows how long. And it has not been repaired. So, I didn't see much difference personally. This place has been like this before COVID and its still basically the same'H5 Midwife "They! Hospital Management] are not [implementing the things they should do] because at the antenatal clinic [for example]. PPEs were not given to everybody. Meanwhile we were front line providers. They didn't give us anything there. They seemed to be selecting only certain people to be given the PPE which is not right". -H2 Midwife "They! Hospital Management] just provided us with hand sanitizers. Face masks. Sometimes they give PPE. We have a [ew PPE in the ward, but we only use it when we have a suspected case"H7 Midwife "Yes another challenge with the health care here is that it took a long time for [COVID PCR] results to be out. My sister did the test. The result never came out. It could take up to 8 days if you do them in some centres. Like the one here in [this] hospital"P2(Pregnant physician] "Yes they do, usually the health talks are very early in the morning before the doctors come in for the clinicBut, to be honest with you. There are still some loopholes. Recently I noticed the are not very strict compared to what they were doing in the past. So it is not always that these things are done" P2(Dreemant Physician") |

Table 6: Psychosocial and mental heath challenges faced by participants

| PSYCHOSOCIAL ISSUES MENTIONED BY PARTICIPANTS |
|---|
| Fear |
| Felt stressed |
| Felt bored/lazy |
| Felt lonely/isolated |
| Felt overworked |
| Felt anxious/worried |
| Felt paranoid |
| Felt demoralized |
| Felt more hardship |
| Felt depressed |
| Felt psychologically unbalanced |
| Felt angry |
| Felt frustrated |
| Had phobia |
| Felt paranoid |

Table 7: Coping mechanism used by participants.

| COPING MECHANISM USED BY PARTICIPANTS |
|---|
| Trust/Faith in God or prayer or preaching Gods word or other religious activity |
| Obey Social distancing measures (isolation from visitors)/gloves |
| Social media kept me busy |
| Stopped following social media or news |
| Got Training (online and by reading) to learn a new skill |
| Watched TV program |
| Having a positive mind set |
| Family Support |
| Encouraging others |
| Took supplements to boost immunity |

Table 8: Socioeconomic effects of the pandemic on participants

| CODES |
|--|
| Effect of the Pandemic on Family |
| Financial constraints |
| Transportation challenges |
| Inflation |
| Scarcity of materials |
| Hunger |
| Closure of Businesses |
| Diversion of resources to COVID related issues |
| Effect of pandemic on schooling |
| Effect on social relationships |

Table 9: Challenges perceived by pregnant women

| CODE | QUOTES |
|---------------------------|---|
| Masks were | "I seem to need to breath in more fresh air with the pregnancy but with the face make I seem to be choking sort |
| uncomfortable | of. It kind of does not allow me take in air the way I need to". P2 Pregnant Physician |
| COVID added extra | "I was admitted in the beginning of the pregnancy because I have had 3 miscarriages in the past and I had to |
| stress on pregnancy | have a cervical cerclage. (This is a surgical procedure to tighten the opening of the womb so as to avoid another |
| | miscarriage). So you can imagine me being admitted in hospital and then having to undergo an operation in theatre because of the pregnancyand all this was with the pandemic. So it was stressful ".P4- Civil Servant |
| Longer waiting time | "Most of them arrive here long before work resumes. So, I guess they were able to get transport and come into |
| | town before the lock down task force people resume work. So, for example, if a woman is here by 6am, she is |
| | already in the hospital before the law enforcement people begin to block the road say around 8 or 9 or 10am. |
| | Their problem was how to go home afterwards because some of them would finish clinic at 12noon and the roads |
| | are deserted. No public transport to go back home" H4 |
| Reduced number of | "Because some of These women come from far. Some would have taken the stress to come all the way to the |
| clinic appointments due | hospital only to get here and be told we had exceeded the number for the day. They didn't find that funny". H2 |
| to social distancing | (Records staff) |
| Had to come to hospital | "For me the most difficult challenge was knowing I was pregnant and also having to go to a "carrier zone' for |
| despite the challenges | my hospital appointments. I would have preferred to be at home, But then I had to come for my antenatal visits"- |
| | P3 Public servant |
| Overlap between effects | "The Doctors kept telling me my vital signs were quite low. My blood pressure was extremely low. I had been on |
| of covid and pregnancy | so many antibiotics because of the chest infection and even COVID. In fact, at some point they were concerned |
| | about the effect of the drugs on the foetus. Also, I kept having premature contractions like threatened |
| | miscarriages "-P9 Architect |
| Restriction from visitors | "I know a few women complained because they wanted to have access to their visitors after having their babies. |
| | But it was not allowed". |
| COVID lockdown made | "I feel the pandemic was good for the pregnant women (laughing). For the reproductive aspect I feel the |
| women get pregnant | pandemic had a positive effect on themBecause a lot of them got pregnant.! Most of the women you see now got |
| | pregnant in the pandemic. All the lock down period, they were forced to sit at home idle. With their husbands to |
| 1 | sitting at home idle. So a lot of them got pregnant". H5 (Midwife) |

Table 10: Challenges perceived by Health care providers

| CODE | QUOTES |
|---|--|
| Lack of PPE | I feel they [health care providers] may not have had the protective gear that they needed to work. Even then I feel they still worked. Also, I feel they were working moremaybe work hours were extended. They |
| | complained that they were overworkedP9 Architect |
| Overworked | "We needed extra hands before the pandemic. But the pandemic worsened it"H2 |
| | "We are also short staffed. Imagine a busy clinic like antenatal clinic having only 2 nurses working every day. Its has never been this bad" H3 Midwife |
| Fellow colleagues had contracted the infection | "A lot of us got sick and had to go on isolation. It put a lot of strain on those who were working. So many people got scared, others got infected as well. It just made work a little harder"H9 Physician |
| Having to work even when | "For those who had little children at home, day care and schools were closed yet we had to come to work |
| everyone else was at home | when everyone else was on lock downH2 (Records staff) |
| Working in fear | "I was coming to work with fear of getting infected" H7 Midwife |
| Lack of facilities and materials to work with | "Funding for the (vaccination) program was generally poor. In this centre, there was no data for internet connectivity. We had to use our personal data from our mobile phones to collate and send data". H8 |
| | (Vaccinator) |
| Lack of incentives | "Another challenge that staff members faced was also lack of incentives. Not much was done to encourage |
| | staff who were risking their lives to work despite the challenge and reality that they could get infected. In |
| | Jact promotion arrears have not been paid even as I speak not to talk of welfare package because of COVID"H3 Midwife |

Table 11: Challenges perceived by Management staff

| SUBTHEME | CODE | QUOTES |
|--|--|--|
| Managing/meeting up to the expectations of staff | Scarcity of PPE | "Initially the challenge was in providing PPEs to meet the needs of the demand. It wasn't that there were no PPE. Even when we had PPEs, everybody wanted to wear the suits including those who didn't need it. Those that were to say hello to patients at the entrance gate wanted to be given suits. So, we had a challenge of appropriate use of PPEs" MI |
| Managing/ meeting up to the expectations of patients | Providing health care despite the pandemic | "There are some people that were never satisfied with the things that were done for the patients even on the wards. Some felt that we needed to make the place like a hotel, and they forgot that we were meant to be dealing with critically ill patients. And some just had weird expectations of the hospital and they felt it was like we were treating malaria [a common infection we have around] and so some visitors and relatives wanted to go into the wards to see their relatives every two minutes [frequently]. There was a time we installed a doorbell, like an alarm for patients to use when they needed the attention of staff. Within 2 hours a particular patient had pressed the bell up to 15 to 20 times! Imagine what it will be like for the staff to wear complete PPE all the time to go in to attend to such a patient. MI |
| Managing/ meeting up to the expectations of the Government | Not complaining even when in difficulty | "Well at some point, even the government was playing politics with the issue. I really didn't like the way they were going about it and the way things were going at some point. One couldn't complain about things we didn't have, otherwise it would appear as if one was working against the Government. And to be sincere, up till now, many things are still not as ideal. I don't think it is out of place for people to voice out their opinion if they are not happy about something. If it is constructive criticism, I think it is fine particularly when it involves issues about healthcare. For me we are in a country where if you say something that appears negative, some authority [government official] somewhere will pick you out for speaking out. So, one has to be careful. But we really need to tell ourselves the truth". |
| Meeting up with expectations of a manager | Paying bills | "Do you know that our electricity bill is up to Thirty something million Naira! Where do we get such money from? So, when you shut down the hospital from patients, how do you raise the money to pay such a bill?" -MI |
| | Generating revenue in the pandemic | "The difficulty was in having to balance the requests of the staff for PPEs and also managing the fear of the staff. The fear was obviously leading to reduced performance in some areas. Manu of the staff were fearful and were unable to initially give their best". MI "Management did not want the hospital to shut down. But we also did not want to put our staff and other patients at risk". M1 |
| Dealing with personal effects of the pandemic as an individual | | "I personally managed the first COVID patient admitted in the hospital, and sincerely, the initial period was a very unpleasant experience"MI "I actually had periods of being under extreme stress. It was stressful. Coping with the care of the patient and combining it with the administrative part of the job"- MI "At the initial phase of the pandemic, I was reluctant to go home so as not to infect my family. There were times I slept in my office until eventually hotels were provided for staff working in the isolation ward" |

| THEME | SUBTHEMES | Reasons |
|-----------|------------------|---|
| Vaccine | Psychological | Fear |
| hesitancy | factors | Lack of trust in Government |
| | | Lack of trust in health care system |
| | External factors | Influence of Religion |
| | | Influence of Family |
| | | Perceived political undertone |
| | | Travel requirement |
| | Concerns with | Concerns about vaccine Efficacy |
| | vaccine | Concerns about safety and side effects |
| | | Speed of release of vaccine |
| | Information | Lack of knowledge on mechanism of action of vaccine |
| | issues | Influence of social media |
| | | Conspiracy theories |
| | | Perceived political undertone or personal gain |
| | | |

Table 12: Reasons for vaccine hesitancy amongst participants

| Table 13: Solutions to the problems as | s suggested by participants. |
|--|------------------------------|
|--|------------------------------|

| SOLUTION | QUOTE |
|---|---|
| Provision of Personal Protective Equipment and essential materials/ equipment | "They should provide what we need to work particularly in this period so that we reduce the risk of infecting ourselves. Secondly, I think they should also try to reach out to the staff more to find out if they [the staff] are having challenges and what their challenges are, so at they [the hospital management] can help. If they [the staff] just keep working and nobody is finding out if we [the staff] have any challenges and what those challenges are, its not really encouraging like I told you about the PPEs and not having many things to work with in different wards, it causes problems. They need someone we could report back to them [the hospital management] on the different issues. What I see is that everybody is trying to sort himself our individually and we just continue to work like that. It is not encouraging. People are getting used to it." HI Physician |
| | "There is no public address system to continually remind people of the pandemic and what to do. If people did not come to the antenatal clinic, they may not hear those health talks. And the health talks were for pregnant women. They should give regular mini talks about washing of hands, using our masks the proper way in other parts of the hospital"H2 Medical Records Staff |
| | "They should also help us by putting fans in the waiting area, the weather is very hot and there are no fans" - P8 "They should provide more seats" - P9 Architect |
| Repair/ maintenance of equipment and facilities | "Another area of improvement is the general maintenance of the hospital. They need to do more. I noticed that some toilets have been bad for almost 4 months now. Like the toilet in the antenatal clinic. I also noticed that they do not fumigate regularly, because I saw mosquitos in the clinic when I went to the toile. It should not be so"P3 Public servant |
| Creation of a regular feedback mechanism for staff | "They need someone we could report back to them [the hospital management] on the different issues. What I see is that everybody is trying to sort himself our individually and we just continue to work like that. It is not encouraging. People are getting used to it."-HI Physician |
| Increase manpower | They should employ more staff. We are really understaffed" H5 midwife |
| Provision of incentives | "They should increase the Hazzard allowance paid to staff. You won't believe I am only paid 5000 [a little over 10 dollars] for the kind of risk we are taking. Ut does not make any sense"H5 Nurse |
| | "Government needed to provide bail out funds for people and organizations that lost jobs and revenue. "For the Government, generally the government should find a way to make things "soft" and a little easier for the citizens. If someone like me who has a government job and earns a regular salary is feeling the effect like this and complaining, then you can imagine how it will be for those who is unemployed or someone who lost his job this period". -P4 Civil Servant |
| Improve turn around time for the COVID test in the hospital | "I feel the tests results were taking too long to be released sometimes it would take up to 8 days. Unless someone goes to chase the result from NCDC (Nigerian centre for disease control). It still takes days to get results"H7 |
| Creation of a separate well equipped infectious disease isolation ward for patients | "Also, there is a cross over of staff. Sometimes even when a patient is in isolation, because there is not enough materials to work with, we still have to go get them from the ward to use on the suspected cases. It causes cross contamination. It not supposed to be so. The 2 types of patients should have different places and different staff and equipment to avoid ContaminationHI "Ensure social distancing measures are followed. I have gone to a centre outside this hospital where I noticed that the turned the seats so that that if one patient seats facing north, the person next to her seats facing south.so there was some kind of distance. The hospital can copy that method, but it means they will have to buy single seats. So that no 2 people can share a seat"P9 |
| Health Education | "I think the government should continue its sensitization. They need to do jingles on National TV, Host TV shows. People still believe the infection rate is exaggerated and that there is no COVID" H9 "We need reminders. Because people get carried away until something serious happens. And everyone is susceptible to this infectionP2 Pregnant Physician "I think that at this stage, with as big as this National hospital is, they should have leaflets with information about COVID. When patients come in and register, they should be given these leaflets informing patients of what COVID is and precautionary methods to take." -P3 |

Appendix VI: Ethical approvals

| | 3655 Sir William Osler #0 Montreal, Quebec H0G 1Y | 3655, Promenade Sir William Osler # Montréal (Guébec) FGG 1Y6 | 633 TéliTel: (514) 298-3 | |
|---|--|--|--|--|
| 28 July 2021 | | | | |
| Dr. Roksana Behruzi Department of Family N 5858 Chemin de la Côte Montreal QC H3S 121 | ledicine -des-Neiges, Suite 300 | | | |
| Info-Ed File Number: | 21-03-060 | (IRB Internal Study Number: A0 | 7-856-218) | |
| Study/Protocol Title: | The experiences of pregnant women and their healthcare providers during the COVID-19 pandemic in Nigeria | | | |
| Principal Investigator: Student Investigator : | Roksana Behruzi Minika Ohioma | | | |
| Sponsor Name (if applie | :able): | | | |
| Dear Dr./Professor Behr | uzi, | | | |
| Thank you for submittin | Thank you for submitting the above-referenced study for an ethics review. | | | |
| As this study involves n 2nd Edition of the Can Humans (TCPS 2) and U that a delegated review Chair on 27 July 2021. presented for corrobora | o more than minimal adian Tri-Council Polic S. Title 45 CFR 46, Sec v was conducted and The ethics certificate tive approval at the ne | risk, and in accordance with Articles cy Statement of Ethical Conduct for tion 110 (b), paragraph (1), we are pl ethics approval for the study was j is valid until 26 July 2022. The stu ext meeting of the Institutional Revier | 2.9 and 6.12 of the Research Involving eased to inform you provided by the IRB dy proposal will be w Board. | |
| The following documents were reviewed and approved: | | | | |
| Study Proposal (cor Semi-Structured Op Semi-Structured Op Consent Form (corr | rrected) – note: the adi pen Questionnaires (In pen Questionnaires (In rected). | ded text for the WHO guidelines was a terview with Women Participants) terview with Healthcare Providers) | not provided | |
| The Faculty of Medicine the published guideline ministériel en éthique Drugs Act (17 June 2001 research on human su | Institutional Review I s of the Tri-Council Pr de la recherche et en); and acts in accordan bjects (PWA 000045- lariaciples of apod clin | Board (IRB) is a registered University olicy Statement 2, in compliance will intégrité scientifique (MSSS, 1998) ice with the U.S. Code of Federal Reg 45). The IRB working procedures a lical vractice. | / IRB working under th the Plan d'action , and the Food and ulations that govern are consistent with | |

The Principal Investigator is required to immediately notify the Institutional Review Board Office, via amendment or progress report, of:

- Any significant changes to the research project and the reason for that change, including an indication of ethical implications (if any)
- Serious Adverse Effects experienced by participants and the action taken to address those
 effects
- Any other unforeseen events or unanticipated developments that merit notification
- The inability of the Principal Investigator to continue in her/his role, or any other change in
 research personnel involved in the project
- · A delay of more than 12 months in the commencement of the research project, and
- Termination or closure of the research project.

The Principal Investigator is required to submit an annual progress report (continuing review application) on the anniversary of the date of the initial approval (or see the date of expiration).

The Faculty of Medicine IRB may conduct an audit of the research project at any time.

If the research project involves multiple study sites, the Principal Investigator is required to report all IRB approvals and approved study documents to the appropriate Research Ethics Office (REO) or delegated authority for the participating study sites. Appropriate authoritation from each study site must be obtained before the study recruitment and/or testing can begin at that site. Research funds linked to this research project may be withheld and/or the study data may be revoked if the Principal Investigator fails to comply with this requirement. A copy of the study site authorization should be submitted the IRB Office.

It is the Principal Investigator's responsibility to ensure that all researchers associated with this project are aware of the conditions of approval and which documents have been approved.

The McGill IRB wishes you and your colleagues every success in your research.

Kind regards,

Robark M. Palmore

Roberta Palmour, PhD Chair Institutional Review Board

CC:

Associate Dean, Research (Medicine) A07-856-218 / 21-03-060



NATIONAL HOSPITAL

(Established by Act No 36 of 1999).

Rt. Hon. Patricia Olubunmi Etteh CFR DIRECTOR OF ADMINISTRATION

BOARD CHAIRMAN

Dr. Peter O. Egwakhide

P.hd, FCIA, FIPMA, FIHC, FIHSAN, ANIM, ACIPM, CIPS

CHIEF MEDICAL DIRECTOR/CEO Dr. J. A. F. Momoh, MBBS, MSc, FWACP(LM), MACPE DIRECTOR OF CLINICAL SERVICES/C-MAC

Dr. Aisha Umar, MB: BCH, FMCR, MD

NHA/ADMIN/236/V.VII/

29th April, 2021

RE: "THE EXPERIENCE OF PREGNANT WOMEN AND THEIR HEALTHCARE PROVIDERS DURING THE COVID-19 PANDEMIC IN NIGERIA" NHA/EC/030/2021

Health Research Ethics Committee (HREC) Assigned number:

Name of Principal Investigator:

Address of Principal Investigator

Department of Family Medicine McGill University, Montreal, Canada

NHA/EC/030/2021

Dr. Minika Ohioma

Date of Receipt of Valid Application:

8th April, 2021

NOTICE OF APPROVAL

This is to inform you that the research described in the submitted protocol, the consent forms, advertisements and other participant information materials have been reviewed and given full approval by the Health Research Ethics Committee, National Hospital Abuja.

This approval dates from 29th April, 2021, to 28th April, 2023. If there is delay in starting the research, please inform the HREC National Hospital Abuja so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the HREC. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit to your research site without previous notification.

Dr. A.A. Umar

(DCS/CMAC) For: Chairman, HREC, National Hospital Abuja

123



 McGill
 Faculty of Medicine and Health Sciences
 Faculté de médecine et des sciences de la santé
 3655 Sir William Oxler #633 3655, Promenade Sir William Oxler #633 Tél/Tel: (514) 398-3124 Montreal, Guebec H3G 1116 Montreal (Guébec) H3G 1116

July 25, 2022

Dr. Roksana Behruzi Department of Family Medicine 5858 Chemin de la Cote des Neiges - Suite 300 Montreal, QC H3S 1Z1

RE: IRB Study Number A07-B56-21B (21-03-060) - Termination The experience of pregnant women and their healthcare providers during the COVID-19 pandemic in Nigeria

Dear Dr. Behruzi,

The Office of the Institutional Review Board has received a completed Termination Report for the above-referenced study.

The study termination will be reported to the Full Board at their next scheduled meeting.

Regards,

Robak tr. Palmon

Roberta M. Palmour, PhD Chair Institutional Review Board

Minika Ohioma CC: A07-B56-21B [21-03-060]