

https://dspace.org/

Community perceptions, knowledge, and attitudes on causes of stillbirths (CPKACS)

Eso-Obaleye, Olabisi Rosemary

2022
https://hdl.handle.net/10539/35524

Downloaded from a DSpace repository. https://dspace.org/



RESEARCH THESIS

COMMUNITY PERCEPTIONS, KNOWLEDGE, ANDATTITUDES ON CAUSES OF STILLBIRTHS (CPKACS)

BY
ESO-OBALEYE OLABISI ROSEMARY [M.D.]
MASTERS IN MEDICINE, VACCINOLOGY SUPERVISORS:
DR. NELLIE MYBURGH
DR. CLARE CUTLAND
UNIVERSITY OF WITWATERSRAND,JOHANNESBURG, SOUTH AFRICA

MARCH 2022

ACKNOWLEDGEMENTS

Firstly, I would like to formally acknowledge the academic supervisory contribution of Dr Nellie. I am so grateful for your guidance, enthusiasm and the time invested in me and this project and for supporting a project in an area that I am so passionate about.

Dr Clare Cutland, thank you for taking a chance with me when I registered for this Masters, and made my passion toward maternal and childcare known to you when picking a topic for my thesis. Your expertise in developing a project idea and directing the research within the clinical context of South Africa was invaluable.

Lunghile and Nomasonto, thanks for being awesome as a research assistance. Your availability helped me with speed and accuracy, considering I am an international student, walking in the street of Soweto.

I would like to express my appreciation and gratitude to the mothers and fathers who participated and generously shared their time and experiences. I also appreciate every other participant who shared their time and experience for this project.

To my family. Firstly, my dad, thank you for always believing in your children and giving us the opportunities in life that you never had.

To my partner, Daniel, thanks for you understand and encouragement, thanks for always pushing me to the next level in my career.

To my dear sister Odun Eso, thanks for acting as a sister and motherly role for me, ensuring my emotions are in check. You are so amazing.

And lastly, to my children Sophia and Joshua. It been a journey together! Sophia ,thank you for the messages and prayers. You are yet to be 5 years, and you amaze me by your understanding as to when I am busy and when I have to be out for this project. You are a wonderful child. Joshua, you were conceived and born during the period of this project. I appreciate your patience and understanding when I am busy and not around. You are a peaceful baby.

This research was supported by Wits-ALIVE consortium.
.

ABSTRACT

Background: Stillbirth can be defined as "an infant born with no sign of life at or after twenty eight weeks gestation. Stillbirth continues to be a major pregnancy outcome with its causes remaining a huge scientific mystery. The amount of stillbirth are mostly 10 times higher in third-world countries than in first-world countries. Ninety eight percent of the stillbirths happen in third-world nations, with more than 55% happening in remote sub-Saharan Africa. Consequently, every year the world loses an estimated 2.6 million babies to stillbirth. Causes of stillbirths remain mainly unknown and rarely investigated but some studies have shown that there are risk factors that contribute to stillbirths such as prior stillbirth, low socioeconomic status, low maternal education, advanced maternal age (>35), primiparity, obesity, smoking, alcohol, and recreational drug use. In addition, clinical studies have found that there are many causes of stillbirths including maternal disease, congenital anomalies, placenta conditions, intrapartum causes and trauma, umbilical causes, amniotic and uterine causes, and other unknown causes. However, despite an enormous amount of time and resources that have been invested in trying to prevent stillbirths, the problem continues to occur unabated. Literature reveals that there is a gap in knowledge regarding other unknown causes of stillbirths. Research on community perceptions, knowledge, and attitudes on the causes of stillbirths is hugely missing. This study gathered social science data by using a mixed-method approach, a qualitative and quantitative to understand community perceptions, knowledge, and attitudes on the causes of stillbirth, knowledge, and acceptance surrounding maternal immunization. Qualitative method involve key-informant interviews (KIIs). KIIs engaging 15 participants, captured the perspective, knowledge, and attitude towards the causes of stillbirth and knowledge and acceptance surrounding maternal vaccination, among participants and diverse social, ethnic, and religious groups. An open-ended and iteratively modified checklist was structured relatively to each key informant. The quantitative research includes a knowledge, attitude, and practice [KAP], survey, a cross-sectional face-to-face survey which was conducted within individuals and households of the communities, which included 192 males and 192 females. The questionnaire was used to capture information on their knowledge, and understanding of stillbirth, their practice about the prevention of stillbirth, and their attitude towards the causes of stillbirth.

Method: A key informant interview KII for a qualitative data collection, was conducted among 15 participants which included mothers and fathers that have experienced stillbirth, traditional birth attendance and leaders, religious leaders and birth attendance health care workers. All participant are member of the community in Soweto, South Africa. For a quantitative data collection, a survey was filled among 192 males and 192 females members of the community of Soweto south Africa. Computer Assisted Qualitative Data Analysis Software (CAQDAS) Atlas. tic version 9 software with the use of electronic coding was used to code and analyse all the details given by the key informant participants. For the Quantitative analysis, a descriptive statistics was also utilize to connote the distribution of all variables with the use of IBM-SPSS 26.

Findings: This study captured the understanding of stillbirth from the community's perspective as the 'death of an unborn baby. Factors such as abortion attempt, baby weight, comorbidities, health care worker negligence, being medically unfit to carry the child, poor antenatal care attendance, poor nutrition, being strangled by the umbilical cord, stress, witchcraft, and mother's negligence have been stated as the possible causes of stillbirth by the study participants. Reactions to receiving the news of

the stillbirths were mostly hurt, shocked, disappointed and some needed explanation as to why it happened. To most participants, it is still an unanswered question. Concerning coping mechanism, counselling, the presence and support of family and friends, and traditional medicine for cleansing, has been the responses from the participant but not in all cases. The findings have also shown practices done by participants in trying to prevent stillbirth, which includes, early antenatal care attendance, Health education for pregnant women, traditional concoction, and adequate medical attention. This study also captured participant knowledge of maternal immunization, understanding of maternal immunization benefits, and acceptance. It was found that the vast majority of participants were said to be unaware of the vaccines given to pregnant women to prevent stillbirths and confused them for supplements given during antenatal. It also indicates that most participant only has an average knowledge of the benefit of maternal immunization. Few of the participants were against maternal immunization due to religious and cultural beliefs, while others were in favour of it, claiming that they would recommend it to pregnant women, as it is a bit of medical advice to help protect the other and the baby.

***Conclusion**:* This study gives new information on the thoughts, understanding, and reaction towards stillbirth in a family and community after they have experienced a stillbirth. Clinically the information can be used to help improve health education to the community as regards to still birth causes, preventive measures, and maternal immunization. It will also help in policymaking as regards potential maternal vaccines that can prevent stillbirth-related diseases.

KEY TERMS

Stillbirth, Gestation, Computer Assisted Qualitative Data Analysis Software (CAQDAS), Immunization

LIST OF ACRONYMS

CAQDAS - Computer Assisted Qualitative Data Analysis SoftwareIUGR - Intrauterine Foetal Growth Restriction
BMI - Body Mass Index
SOWETO - South-Western TownshipsKIIs - Key-Informant Interviews LMICs – Low- and Middle-Income Countries
TBAs - Traditional Birth Attendants
SARS-CoV-2 - Severe Acute Respiratory Syndrome Coronavirus 2COVID-19 - Coronavirus Disease 2019
GBS - Group B Streptococcus WHO - World Health Organization STATS SA - Statistics South Africa
RMPRU - Respiratory and Meningeal Pathogens Research UnitCHAMPS - Child Health and Mortality Prevention SurveillanceMITS - Minimally Invasive Tissue Sampling
HREC - Human Research Ethics
HDSS - Health and Demographic Surveillance Systems VIDA - The Vaccines and Infectious Diseases AnalyticsKAP - Knowledge, Attitude and Practices
HIV - Human Immunodeficiency Virus

LIST OF FIGURES

FIGURE 1 Illustrates the distribution and range of the percentage of causes of stillbirths **...11**
FIGURE 2 Gender Mix.....**24**
FIGURE 3 Age distribution of the Respondents **25**
FIGURE 4 Distribution of Ethnics Group **26**
FIGURE 5 Religion Distribution of the Respondents **27**
FIGURE 6 Causes of Stillbirths.....**31**
FIGURE 7 Reactions to Stillbirths **38**
FIGURE 8 Support Given to Mothers Who Lost Their Babies.....**42**
FIGURE 9 Prevention Measurers.....**44**
FIGURE 10 Knowledge of Pregnancy Vaccines.....**48**
FIGURE 11 Perceptions of Maternal Immunization **48**
FIGURE 12 Perceptions of Maternal Immunization Graph **49**

Table of Contents

ACKNOWLEDGEMENTS **2**

ABSTRACT **3**

LIST OF ACRONYMS **5**

LIST OF FIGURES **6**

CHAPTER ONE **1**

1.0 BACKGROUND **1**

1.1 CAUSES OF STILLBIRTH **1**

1.2 RISK FACTORS CONTRIBUTING TO STILLBIRTH **3**

1.3 STATEMENT OF THE PROBLEM **3**

1.4 RATIONALE / PURPOSE OF THE STUDY **4**

1.5 AIM OF STUDY **4**

1.6 STUDY METHODOLOGY **5**

1.7 DATA COLLECTION METHODS **5**

A. Qualitative Data Collection Process **5**

B. Quantitative Data Collection Process **6**

1.8 SAMPLING TECHNIQUES **6**

A. Qualitative Sampling Techniques **6**

B. Quantitative Sampling Techniques **7**

1.9 STUDY LIMITATIONS **7**

1.10 ETHICAL CONSIDERATIONS **7**

CHAPTER TWO **9**

LITERATURE REVIEW **9**

2.0 STILLBIRTH DEFINITION AND CLASSIFICATION **9**

2.1 STILLBIRTH GLOBAL RATE **9**

2.2 STILLBIRTH IN SOUTH AFRICA **10**

2.3 UNKNOWN CAUSES OF STILLBIRTH. **11**

2.4 SOCIAL AND CULTURAL NORMS AS A POSSIBLE RISK FACTORS THAT CAUSE OF STILLBIRTH **12**

2.5 LOW SOCIOECONOMIC STATUS **12**

2.6 POTENTIAL IMPORTANCE OF IMMUNIZATION OF PREGNANT WOMENTO REDUCE RISK OF VIREMIA AND STILLBIRTH **13**
2.7 MATERNAL VACCINE CONCERNS IN SOUTHAFRICA **14**
2.8 IMPLICATION OF THE PREVIOUS STUDY **14**
2.8 INFLUENCE OF THIS STUDY **14**
CHAPTER THREE **15**
RESEARCH DESIGN AND METHODOLOGY **15**
3.0 INTRODUCTION **15**
3.1 RESEARCH DESIGN **15**
3.2 RESEARCH SITE **15**
3.3 STUDY POPULATION **15**
3.4 DATA COLLECTION METHODS **16**
Qualitative Formative Study **16**
Quantitative Survey **16**
3.5 SAMPLING TECHNIQUES **17**
Quantitative Sampling Techniques **19**
3.6 DATA COLLECTION PROCESS **20**
Consent Process for Qualitative Participants **21**
Consent Process for Quantitative Survey **22**
3.7 DATA ANALYSIS PROCESS **22**
MAIN THEMES GENERATED **24**
CHAPTER FOUR **26**
STUDY FINDINGS **26**
4.0 INTRODUCTION **26**
4.1 STUDY RESPONDENT DEMOGRAPHIC CHARATERISTICS **26**
Table 2: Age distribution of the respondents **27**
Table 1: Contribution of qualitative participants **31**
4.2 PERCEPTIONS, KNOWLEDGE, PRACTICES, ATTITUDES TOWARDS CAUSES STILLBIRTHS **33**
4.3 COMMUNITY UNDERSTANDING OF CAUSES OF STILL BIRTHS **36**
4.4 COMMUNITY ATTITUDES TOWARDS STILLBIRTH **42**
4.5 COMMUNITY PRACTICES WHEN THERE IS A STILLBIRTH **46**

4.6 COMMUNITY KNOWLEDGE AND ACCEPTANCE OF MATERNAL IMMUNIZATION 54

4.7 SUMMARY OF FINDINGS 59

CHAPTER FIVE 61

DISCUSSION, CONCLUSION AND RECOMMENDATION 61

5.0 DISCUSSION 61

5.1 CONCLUSION 63

5.2 RECOMMENDATION 64

REFERENCES 65

CHAPTER ONE

1.0 BACKGROUND

A stillbirth can be defined as “a baby born with no sign of life at or after 28 weeks gestation” [1,2,3]. Stillbirths continue to be a major negative pregnancy outcome with its causes remaining a huge scientific mystery. The amount of stillbirth are mostly 10 times higher in third-world countries than in first-world countries [1,6]. Thus, most (i.e., 98%) of the stillbirths happen in third-world countries, with more than 55% happening in remote sub- Saharan Africa [1,2,23]. Consequently, every year the world loses an estimated 2.6 million babies to stillbirth [4,6]. To have a comprehensive understanding of stillbirths occurring in South Africa, a study conducted in Soweto which has the level of stillbirth of about 22.5 per 1000 babies in 2016, which is more than that projected for South Africa based on valid registration data (14 per 1000 births in 2015) [4].
Several clinical studies have found that that there are many causes of stillbirths. In addition to risk factors that could add to the chances of a stillbirth, there are unknown factors that has the ability to cause or add to stillbirth. In most cases of stillbirth, even after extensivetesting, the cause of death can’t be explained by a known cause. Usually, the cause ofstillbirth has been directed to maternal causes, foetal causes, placental and external factors.

CAUSES OF STILLBIRTH

Maternal Causes

Maternal infection is one of the frequent mentioned as causes for stillbirth. Common increasing infections are as a result of Escherichia coli, Klebsiella, Group B Streptococcus, Enterococcus, Mycoplasma/Ureaplasma, Haemophilus influenzae and Chlamydia [2,5,23]. Research in Soweto, South Africa has identified the leading causes of stillbirth attributed to foetal invasive were common bacteria such as group B streptococcus (fifteen [5%] cases), E coli (twelve [4%]), E faecalis (6 [2%]), and S aureus (5 [2%]) [4].

In third world nations, some infectious agents could also be appraised, such as malaria, syphilis, and human immunodeficiency virus [5,19,28]. A database study was carried out in England to assess the viral infections as a cause of foetal loss between 1988 and 2008 agreed that more than 1/3 (37%) of the viral-related foetal deaths occurred antepartum, from parvovirus (Sixty Three Percent) or cytomegalovirus (Thirty Three Percent) [28].

Diabetesmellitus, thyroid disarray, hypertensive abnormalities, systemic lupus erythematosus, cholestasis of the pregnancy, renal ailment, sickle-cell disease, and other maternal medical situations are also seen as causes for stillbirth [5,6]. Anemia and nutritional inadequacies in the mother, common in third world countries, have been long discussed to also be a reason for stillbirths or other unfavorable pregnancy results [2,19]. In disparity, a high 1st hemoglobin measurement in early pregnancy has been indicated to be in connection with an almost two-fold increase in risk of stillbirth. [16].

Foetal Causes

Amid these, bad foetal growth, or intrauterine foetal growth restriction (IUGR) is seen as one of the most regular causes of stillbirth. [14,19]. Based on assumption, the growth restriction is because of a placental dysfunction that is related to numerous maternal diseases or ailment illustration above. Other known causes are multiple gestation, congenital anomalies, genetic disorder, foetal infection, and post maturity [13,19]. The frequent genetic etiology forstillbirth is because of karyo-type abnormalities, therefore many stillborn foetuses with normal karyotypes also have genetic disorders. [8,13].

Placental causes include placental disruption, premature rupture of membranes, vasa previa, chorioamnionitis, vascular malformations and umbilical cord mishap such as knots or abnormal placement [5,8,13,19].

External Causes

General examples are antepartum mother's injuries/trauma or delivery/labor incidents like birth asphyxia and obstetric trauma. In a situation where modern obstetric care cannot be acceptable, deaths could be frequent. It is calculated that in third world nations asphyxia causes around seven deaths per one thousand births, while in 1st world nations this proportionis lower than one death per one thousand births (5, 20). The level of availability of good delivery facilities also has a huge effect on the pregnancy results, as it was analysed in astudy that availability of very skilled attendant during delivery (one of the factors in delivery process) lead to a reduction in stillbirths, however the authors decided that this needs further analysis [19].

Most causes of stillbirth cases have remained mainly unknown and rarely investigated but studies have shown that there are risk factors that contribute to stillbirths.

1.2 RISK FACTORS CONTRIBUTING TO STILLBIRTH

A lot of epidemiological risk factors for stillbirth are generally known. Systematic reviews have shown very early or advanced maternal age as risk factors [11]. However, nulliparous women are at higher risk of stillbirth compared to multiparous women of all age range [11]. Thus, nulliparous females of age thirty-five years and above have been indicated to have a 3.3-fold increase in the risk of unknown foetal death compared with females less than thirty-five years of age. The odds ratio for maternal age forty years and above is 3.7. [11]

Other factors connected with increased risk of stillbirth are body mass index (BMI) ≥30, active and passive smoking, substance misuse and multi foetal gestation, with notable higher rates of stillbirth seen in monochorionic twins than indichorionic [13,15]. Research showed that maternal overweight (i.e., Body Mass Index ≥25) increases the chances of antepartum still-birth, especially term antepartum stillbirth, although weight increase during pregnancy was not connected with the risk of foetal death [9,11]. Women with a prior stillbirth are well known to beat five-to-ten-fold increased risk of recurrence for stillbirth [20]. In addition, AB blood group shown to be generally connected to stillbirth before twenty-four completed weeks of gestation [17]. Around the world, black women have 2.2-fold increased risk of stillbirth in comparison to white women [17]. The black/white disparity in stillbirth hazard at twenty to twenty-three weeks is 2.75, decreasing to 1.57 at thirty-nine to forty weeks [11,17]. Medical, pregnancy and labour complexity account for thirty percent of the risk of stillbirthin Blacks and twenty percent in Whites and Hispanics.[17]. Globally, sixty seven percent of stillbirths happens in rural families, where skilled birth attendance and caesarean sections are very low compared to that of urban births [5,16]. Low socio-economic ranking has been described by various studies as adding to stillbirth in LMIC and in third world countries. In a systematic review of risk factors for stillbirth in third world countries, identified maternal socio-economic pitfall as one of the factors with a population attributable fraction of greater than fifty percent, showing lack of formal education was discovered to increase the relative risk of stillbirths [6,16,20,28].

1.3 STATEMENT OF THE PROBLEM

Stillbirths are connected to immense socioeconomic consequences, including impaired physical and mental wellbeing of bereaved parents and monetary costs to families and the medical health system [4,5,20].

The cause of stillbirth has remained unknown, but certain studies have reported that there are risk factors associated with stillbirths, such as prior stillbirth, low socioeconomic status, low maternal education, advanced maternal age (>35), primiparity, obesity, smoking, alcohol, andrecreational drug use [11]. Clinical studies have shown that some predisposing factors could lead to stillbirths such as maternal disease, congenital anomalies, placenta conditions, intrapartum causes and trauma, umbilical causes, amniotic and uterine causes, and other unknown causes [5,17]. However, a lot of stillbirths in LMIC can be prevented via theprovision of good care for mothers and babies [10]. Therefore, studies on maternal immunization have shown promises as a potential prevention of maternal infection [18]. However, concern for the safety of the foetus is a commonly cited reason for vaccine hesitancy and refusal [21,34]. Despite an enormous amount of time and resources that have been invested in trying to prevent stillbirths, the problem continues to occur unabated.

Literature reveals that there is a gap in knowledge regarding other unknown causes of stillbirths. Research on community perceptions, knowledge, and attitudes on the causes of stillbirths is hugely missing. There is a need to gather social science data to begin to understand the phenomenon.

1.4 RATIONALE / PURPOSE OF THE STUDY

Because most of the research on understanding causes of stillbirths is done using clinical research methods, this study ventured into understanding community knowledge, attitudes, and perceptions that are associated with causes of stillbirths using a social science method allowing for gathering in-depth data regarding the phenomenon of stillbirths.

Particularly, the study ensured to collect qualitative and quantitative data with the hope of incorporating the findings of this study address the gap of knowledge for the unknown causesand to guide program and policy interventions and formulation respectively.

1.5 AIM OF STUDY

The main aim of this study is to explore community perceptions, knowledge, and attitudes on the causes of stillbirths. Specifically, the study intends to:

a. Explore community understanding of causes of stillbirths

b. Describe perceptions, knowledge, practices, and attitudes in understanding the root causes of stillbirth from parents who have lost a child in the community and community members.

c. Describe community acceptability of potential vaccine for prevention of infectiouscauses of stillbirths.

1.6 STUDY METHODOLOGY

Study Design

This study is an exploratory study; thus, the study was conducted using mixed-method research methods i.e., quantitative, and qualitative data collection methods. This method is engaged into this study, so we can capture adequate data by using different method for different lines of enquiry, and the finding is integrated to interpret the result [37].

Study Site

This study was conducted at Soweto, which is an acronym standing for the South-Western Townships, and is a congregation of twenty-nine townships in the Johannesburg Metropolisin Gauteng, South Africa. It is a low-income urbanized Black-African community of Zulu, Xhosa, Pedi, Tsonga, Venda, Tswana, and Sotho ethnicities (STATS-SA 2012), mainly of Christian religious background. The full population is 1.4 million people, of whom one hundred and twenty-five thousand are under the age of five. Life expectancy at birth is 59.6, and under-five mortality is 60/1000 (RMPRU, unpublished data). The stillbirth rate in Soweto was 22.5 per 1000 births in 2016, which is greater than that projected for South Africa based on vital registration data (14 per 1000 births in 2015) [4].

Study Population

The Study population includes both male and female participants who are recruited from communities of Soweto. The communities of the area under study are a majority Black- African low-income communities. The study populations are women and men of age 18 to 45years, who have experienced at least one stillbirth, midwives from bara hospital, experienced birth traditional attendance from the community, community members, traditional workers, religious rules of the communities of age 18 to above60. A total of 192 male and 192 female were recruited for the Quantitative part of the study, and a total of 15 males and females were recruited for the part Qualitative of the study.

1.7 DATA COLLECTION METHODS

A. Qualitative Data Collection Process

The data collection mode for this formative research for the qualitative method involve key- informant interviews (KIIs). KIIs engaging 15 participants, captured the perspective,

knowledge, and attitude among participants and diverse social, ethnic, and religious groups. An open-ended and iteratively modified checklist was structured relatively to each keyinformant. This list included the experience of stillbirth, feelings, and emotions related totheir experience, received support, coping mechanisms, social effect, impact on family, and meaning attributed to the experience, understanding of the relatable cause, and their understanding of maternal vaccine intake. During the interview, observations, and field notes capturing the expressions and key statements by the respondents were noted. The interview was audio-recorded and later transcribed verbatim in the local language using the audio record followed by a translation into English.

B. Quantitative Data Collection Process

The data collection method for the quantitative research includes a knowledge, attitude, and practice [KAP], survey [44]. A cross-sectional face-to-face survey was conducted within individuals and households of the communities. The study utilized a structured questionnaire.The questionnaire was used to capture information on their knowledge, and understanding of stillbirth, their practice about the prevention of stillbirth, and their attitude towards the causes of stillbirth. The essentials of the survey are to capture the knowledge, attitude, and practices of the community towards causes of stillbirth, to identify what is known and done toward causes of stillbirth among 384(192male,192 female) individuals and households.

1.8 SAMPLING TECHNIQUES

A. Qualitative Sampling Techniques

The study used two methods of sampling including purposive and snowball sampling strategies. A purposeful sampling method is essential in this study. The participants from the sampling frame are carefully selected because they have characteristics that is peculiar to this part of the study. snowball sampling, in this study was used to identify one and more participants, and this participant helps identify additional study participants.[38].

A purposive sampling method was used to identify mothers' and fathers' participants. Snowballing sampling method was used in identifying participants such as the religious and traditional leaders, community members' traditional birth attendance, and Hospital midwives. The sample size included 5 mothers, 2 fathers, 2 Hospital midwives, 2 Maternity healthcare

such as traditional birth attendance, 2 community member, 1 traditional leader, and 1 religious' leader.

B. Quantitative Sampling Techniques

A simple random sampling technique was used to obtain the samples size needed for the survey. In this technique, every member of the population has an equal chance of being selected.[39].

In this research, a random format sampling method was used for the Quantitative study. To obtain a sample needed for the survey, a random sampling technique of men and women, in the households, and relatives of families, who have lost a child to stillbirth was selected. Community member. An existing data from Bara was used to identify individuals and households that have experienced stillbirth. We carefully consider the views, interests, needs, priorities, expectations, and concerns of individuals when identifying participants. An appropriate sampling size determination formula was used to get samples of 192 men and 192 women from Soweto. A structured questionnaire was developed by the principal investigator, based on the relevant model questionnaires. The survey questionnaires were pre-tested, refined, and finalized for the survey.

Sampling Size

S = (z2 (d (1 - d)) / e2) / 1 + P(z2 (d(1 - d)) / e2)

where ***S*** = *sample size* | ***P*** = *population size* | ***z*** = *z-score* | ***e*** = *margin of error* | ***d*** = *standard deviation*
Population under surveillance in; Soweto: 109,289Sample size **383 (192 men and 192 women).** (Sample Size Calculator, 2020) [32].

1.9 STUDY LIMITATIONS

The major limitation of this study was the language barrier for the researcher as she is not conversant with the local languages. To mitigate this shortcoming and avoid misinterpretation , the researcher worked with a study research assistants who were native speakers of the languages that were used in this study. In addition, the study location comprises multicultural and diverse communities with mixed languages. However, most of the interviews were conducted and recorded in the English and Zulu language. In order to capture the non-verbal expressions used by the participants, the research assistant took written note of their expressions. The transcripts were translated into English by Research assistants and their expression were also imputed in the transcript.

1.10 ETHICAL CONSIDERATIONS

The protocol was reviewed and approved by the Wits Human Research Ethics Committee or Animal Research Ethics Committee. In order to obtain existing data from Bara to identify participant, protocol was reviewed and approved by the medical assessment committee at Bara Hospital. The research was guided by the following principles of research ethics: justice, autonomy, and beneficence. The

researcher ensured that the decision to participate in this research is individual, voluntary, and made without any sort of external constraint. All participants were treated in an equal manner and fully respect their integrity throughout the investigation.

CHAPTER TWO
LITERATURE REVIEW

2.0 STILLBIRTH DEFINITION AND CLASSIFICATION

Most stillbirth cases are poorly reported, and this is influenced by the definition and classification of what stillbirth is. A stillbirth is defined as a baby who is pronounced dead after 28 weeks of pregnancy, before or during birth [3]. Low birth weight and gestational age parameters are used as a comparison defining stillbirth within developed and developing countries [1,18]. Across the world in 2019, a total two million babies were stillborn at 28 weeks and above of the gestation period, with a world stillbirth rate of 13.9 stillbirths per 1000 total births [1,23].

Classification of stillbirth is determined by gestation age, an early stillbirth occurs between 20 and 27 weeks of pregnancy, while a late stillbirth occurs between 28 and 36 weeks of pregnancy and term stillbirth at 37 or more completed weeks of pregnancy [18].

2.1 STILLBIRTH GLOBAL RATE

Across the world in 2019, based on estimation a total of 2 million babies were stillborn at 28 weeks or more of gestation, with a world stillbirth rate of 13.9 stillbirths per 1,000 total births [23]. Stillbirth rates in 2019 differed widely across regions, from 22.8 stillbirths per 1000 total births in the west and central Africa to 2.9 in western Europe[1,23] .The world annual rate of reduction in stillbirth rate had an estimation of 2.3% between 2000 and 2019, which was lesser than the 2.9% annual rate of reduction in neonatal mortality rate (for neonates aged <28 days) and the 4.3% annual rate of reduction in mortality rate among children aged 1–59 months during the same period [1,23].114 countries had an estimated decrease in stillbirth rate since 2000, with four countries having a decrease of at least 50.0%, twenty eight having a decrease of 25.0–49.9%, fifty having a decrease of 10.0–24.9%, and thirty two having a decrease of less than 10.0%[1]. For the rest: eighty-one countries, there was no reduction in the stillbirth rate since 2000 [1,33]. Out of these countries, thirty-four were in sub-Saharan Africa, 16 were in east Asia and the Pacific, and 15 were in Latin America and the Caribbean [1,33].

Women in sub-Saharan Africa and South Asia share the biggest burden of stillbirths globally.More than three-quarters of stillbirth’s estimation in 2019 happened in these 2 regions, with

forty four percent of the world total in sub-Saharan Africa and thirty three percent in South Asia [6,23]. In sub-Saharan Africa, the calculated stillbirth rate of 21.7 stillbirths per 1,000 total births was seven times greater than the lowest regional average stillbirth rate of 2.9found in Western Europe [1,2,33]. South Asia had the second-highest stillbirth rate, at 18.2 stillbirths per 1,000 total births [2,33].

2.2 STILLBIRTH IN SOUTH AFRICA

The reported incidence of stillbirth partially varies in different studies and is determined by the countries' definitions being used. In South Africa, stillbirth is legally defined as an infant has had at least 26 weeks of intra-uterine existence but showed no sign of life after birth [24]. In the case where the gestation age can't be determined, a weight of 1000g is used to estimatethe gestation age, and this can be used to define stillbirth. [3,4,18]. Saving Babies report indicates that the stillbirth rate for South Africa, for babies weighing 500g and more, is averagely 18 per 1000. The rate differs from about 26 in poor rural areas to about 18 in cities. [31,45].

Most of the stillbirths (~98%) occur in low/middle-income countries [2,18]. Stillbirth is identified as an important adverse pregnancy outcome, specifically in low-income and middle-income countries (LMICs). Studies have shown that challenges associated with this problem in low-income and middle-income countries include low access to antenatal care which limits assess to pregnancy progress and maternal condition, late and no registration of pregnancy, lack of affordable technologies to examine the placenta, unconducted autopsy,and less clinical lab work to identify a harmful organism [16].

A prospective observational study targeting the population of Soweto in South Africa, focusing on identifying the causes of stillbirth for 354 stillbirths born to 350 women was conducted by reviewing maternal medical records by looking at the placental macroscopic, histological examination, and foetal blood culture results.[4].Among the 298 cases withcompete samples available, maternal medical conditions (64 [21%] cases - primarily hypertensive disease), infections of the placenta and foetus (58 [19%]), pathological placentalconditions (57 [19%]), and obstetric complications (54 [18%]) were the most common causesof fatal death, contributing to roughly equal numbers of stillbirths[4]. Numerous specific bacteria were also implicated, most commonly Enterococcus faecalis (41 [14%] cases) and Escherichia coli (31 [10%]). Only 2 (1%) of stillbirths were attributed to fatal asphyxia [4].

2.3 UNKNOWN CAUSES OF STILLBIRTH.

Although prenatal care has drastically improved over the years, the reality is that stillbirths still happen and often go unexplained.

A stillbirth of unknown cause is one that can't be analyzed by any recognizable cause [4]. Almost 1/2 of the stillbirths were recorded as causes *unknown* based on research fromBangladesh (49%) and Nepal (47%) [4]. 38.8% of 266 stillbirths as unexplained in Nigeria, while in Mumbai, India, 18% of 105 stillbirths recognized in a prospective study involving 13467 births were indicated as unknown causes [6]. In rural Ghana, 57.4% of antepartum deathsand 31.5% of intrapartum deaths were reported as 'unexplained'. In a multi-country study, 12% of 134 stillbirths were reported with cause unknown [6].

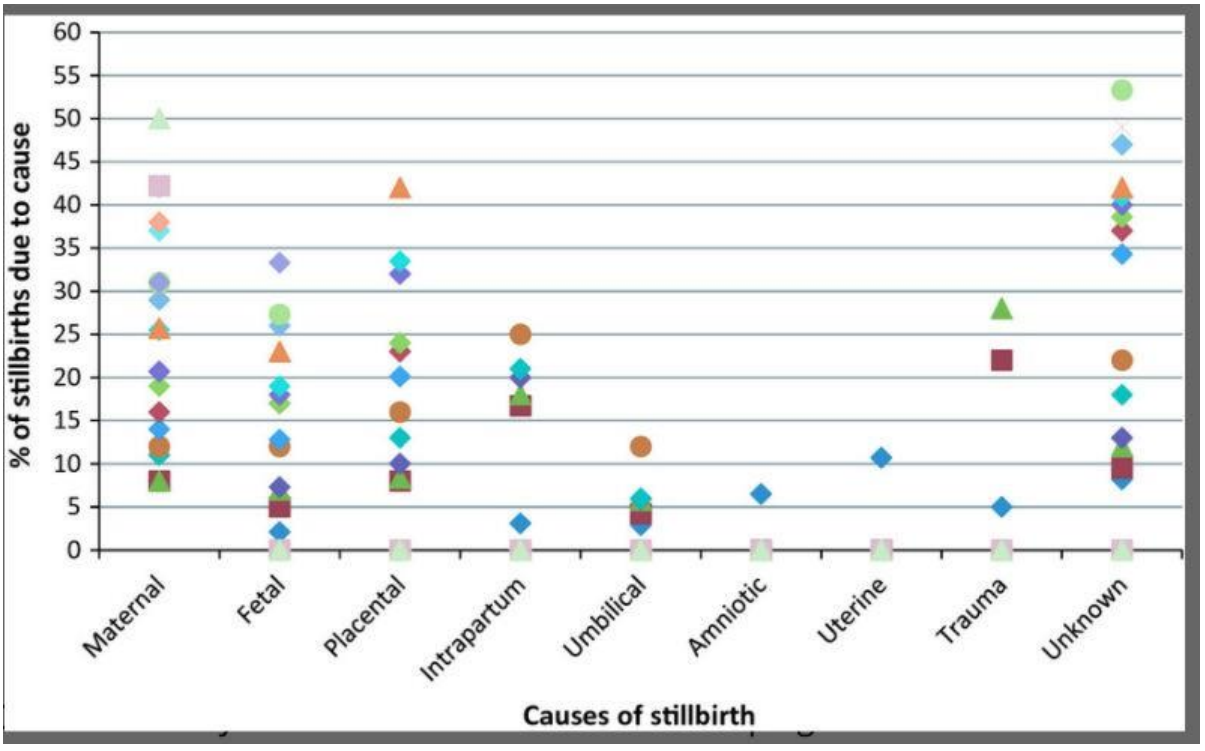


Figure 1: Illustrates the distribution and range of the percentage of causes of stillbirths [6].

A study conducted in Tanzania and Zambia, to understand the complexities around unexplained stillbirth shows women who had experienced a previous stillbirth are at higher risk of another [20]. It also shows in the study that the cause of death of fetus was

unexplained to the affected parent, and not knowing the causes of the death of the baby prevents the women from grieving.[20]. This was projected to be poor communication skills by health professionals with little empathy and skills when counselling [15,30]. A significant factor was the inaccurate understanding of the meaning of stillbirth by both healthcareproviders and the community, which leads to underreporting of incidences [15,30].

2.4 SOCIAL AND CULTURAL NORMS AS A POSSIBLE RISK FACTORS THAT CAUSE OF STILLBIRTH

Concerns about the high rate of stillbirths have stimulated the debate about the role of sociocultural norms as a contributing factor. There is limited information on social and cultural norms of the possible risk factors that cause stillbirths.

A study conducted in a district hospital and community in Free State, South Africa, where 80% of the community is black and about 20% lives in a poor condition, where deliveries andantenatal services are conducted, indicates that most community people and parents allude tothe causes of stillbirths that were cemented in the local beliefs and cultural context [12]. It is believed by the people, that stillbirths are because of the evil eye, black magic, curses, and *taweez* (an amulet or locket usually containing verses from the Quran or other prayers and symbols), which is inflicted by jealous relatives [31]. This concludes that Poverty, sociocultural practices, lack of needed services/staff availability at government facilities, and transport problems were the reasons for using the services of TBAs as birth attendants [12]. The traditional practices by traditional key players, such as traditional healers, mother-in-law,and partner's perspectives towards social norms may influence and limit pregnant women's access to medical antenatal care, thus having an influence on the increased rate of stillbirth. This social norm also limits the midwives, who are mostly female to educate the pregnant women, because they are also under the same social oppression [12,31]. A study conducted in Australia to capture the knowledge, perceptions, myths, and attitudes towards stillbirth,shows prominent myths such as baby runs out of room in the uterus, baby slows down when preparing for labor.[15].

2.5 LOW SOCIOECONOMIC STATUS

Low socioeconomic status has been researched in various studies as contributing to stillbirth in LMIC and third world nations. A systematic review of risk factors for stillbirth in developing countries identified maternal socio-economic mishaps as one of the factors with a population attributable fraction of higher than 50% [6,15,20]. Various studies have also

reported the association between low or poor maternal education and stillbirth which includesGhana and Brazil [2,6].

Majority of stillbirths in LMIC could be avoided via the provision of quality care for all mothers and babies [6,18]. Every Newborn Action Plan has the target of 12 or fewer stillbirths per 1000 births in every country by 2030 [25,39]. Therefore, a Maternal immunization has its potential in playing this vital role. The fear of vaccines affecting the foetus and lack of adequate understanding of the essence and benefit of available maternal immunization have been cited as the greatest fear of mothers in accepting maternal immunization [29,34].

2.6 POTENTIAL IMPORTANCE OF IMMUNIZATION OF PREGNANT WOMEN TO REDUCE RISK OF VIREMIA AND STILLBIRTH

There have been evidenced-based studies from clinical trial data and observational research showing the safety of classical non-live vaccines, tetanus, pertussis, or influenza during pregnancy. A reviewed paper indicated that influenza immunization might reduce the incidence of acute outcomes of pregnancy such as stillbirth, as a result of the prevention of influenza infection-related inflammation [21,29,34]. Similar to other viral infections that can undergo maternal-foetal transmissions such as Zika virus, cytomegalovirus, rubella, Ebola virus, and others, stillbirth in pregnant women with COVID-19 can result from placental infection and insufficiency has several clinical consequences. [22,29,34].

SARS-CoV-2 likely reaches the placenta through the maternal bloodstream as a result of viremia [22] reported cases of SARS-CoV-2 placentitis and stillbirth were probably the resultof an episode of the virus circulating in the mothers' bloodstream at some time during the pregnancy. Vaccines can be highly effective in reducing the pathogenic effects of viral infection that result from viremia [21,22]. If viremia was reduced in concentration or duration, or even eliminated, through maternal immunization then placental exposure toSARS-CoV-2 might potentially be reduced or avoided, decreasing the risk of stillbirth resulting from COVID-19 during pregnancy [22].

The recent knowledge that stillbirth occurring in mothers with COVID-19 results from placental infection and insufficiency from SARS- CoV-2 placentitis educates and emphasizesthe importance of immunization in pregnant women as a preventive strategy to avoid

perinatal deaths [22]. For infections that occur during pregnancy more than two months beforedelivery, maternal SARS-CoV-2 IgG antibodies appear to be efficiently transferred across theplacenta to the foetus and may persist for up to six months of life. Furthermore, for SARS- CoV-2 infections occurring perinatally, new-born are capable of mounting strong antibody responses [22]. Group B Streptococcus (GBS) is an identified cause of disease in young infants, stillbirth, pregnant and post-partum women [4,7]. GBS vaccines for maternal immunization are in development stage aiming to reduce this burden [4,7]. The development of GBS vaccines suitable for maternal immunization in pregnancy and use in low- and middle-income countries (LMICs) has been identified as a priority by the World Health Organization (WHO) [7].

2.7 MATERNAL VACCINE CONCERNS IN SOUTHAFRICA

Maternal immunization has prevented millions of child deaths globally; However incomplete immunizations remains a public health concern in South Africa, where almost half of child deaths occur during neonatal period[47]. There is a poor knowledge regarding the types of vaccinations administered and the health benefits of immunization [47,48,49] In a study in Rural KwaZulu-Natal, South Africa, Assessing Community Acceptance of Maternal Immunisation ,findings show that traditional customs and institutional barriers such as low-quality health service delivery, long queues, and distance to the health facilities, immunisation vaccine stockouts and low levels of maternal knowledge influence the choice and decision to engage with maternal immunisation .[48]

2.8 IMPLICATION OF THE PREVIOUS STUDY

The above review has shown studies that identified the burden of stillbirth mostly centralized in sub-Saharan Africa targeted to low-income countries. Regardless of research that has proven to identify the causes of stillbirth via clinical diagnosis, there are still cases of unknown causes. Studies have shown that unknown causes are due to unreported cases affected by case definition in different countries, inadequate access to maternal health facilities, low diagnosis facilities in low-middle-income countries. A few studies in South Africa have captured the perspective and knowledge of stillbirth from the community indicating that there is a low understanding of stillbirth within the community and the increased rates of stillbirth are affected by some social norms.

Every New-born Action Plan has the target of 12 or fewer stillbirths per 1000 births in every country by 2030 [30]. Therefore, maternal immunization has the potential in playing this vital role. Studies have shown vaccine potential role in preventing maternal infection.

2.8 INFLUENCE OF THIS STUDY

This study has identified the gap in knowledge towards the causes and understanding of stillbirth, especially within the community. There are a few studies that have addressed these concerns. This study captures community perceptions, knowledge, and attitudes on causes of stillbirths and captures their knowledge and acceptance towards maternal immunization in South Africa.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.0 INTRODUCTION

This chapter describes how the study was conducted providing a description of the research design, site, population, data collection methods and how the sampling was done.

3.1 RESEARCH DESIGN

This study is an exploratory study, which allows for a mix-method research methodology to gather data. Specifically, quantitative, and qualitative data collection methods were used to answer the research questions. The quantitative and qualitative methods is incorporated into this research study and the information is integrated to interpret the results. Both methods are carried out concurrently and data collection began in November 2021.

We engaged this mix method to expand the breadth and the range of the research topic by using different methods for different lines of enquiry. Also, for confirmation of results by different methods after analyzing both methods individually.[37].

3.2 RESEARCH SITE

The study was carried out in Soweto, South Africa. Soweto (South-Western Townships) is a congregation of 29 townships within the Johannesburg Metropolis in South Africa. It is inhabited by a low-income, urbanized Black-African community of Zulu, Xhosa, Pedi, Tsonga, Venda, Tswana, and Sotho ethnicities (STATS-SA 2012), mainly of Christian religious background (mostly Protestant and Charismatic). The total population is 1.4 million people, of whom 125,000 are under the age of 5. Life expectancy at birth is 59.6, and under- five mortality is 60/1000 (RMPRU, unpublished data). The rate of stillbirth in Soweto was 22.5 per 1000 births in 2016, which is higher than that estimated for South Africa based on vital registration data (14 per 1000 births in 2015) [4].

3.3 STUDY POPULATION

The study population for this study includes both male and female participants, who were recruited from communities of Soweto. The communities of the area under study are a majority black-African and coloured low-income communities. The study populations for the qualitative participant were mothers and fathers of age 18 to 45 years, who have experienced

at least one stillbirth, midwives from bara hospital, experienced birth traditional attendance from the community, community leaders, traditional healers and religious leaders within the communities.

In addition, individuals and members of households who have experience and knowledge of stillbirths in the community were recruited for the quantitative participant of this study.

3.4 DATA COLLECTION METHODS

Qualitative Formative Study

Qualitative formative research has been used in this study to comprehend the experiences of stillbirth from the view of mothers, fathers, traditional birth attendance from communities, Midwives from Bara hospital were also interviewed to understand affected mothers' perceptions on the causes of stillbirth. Key-informant interviews were carried out among menand women who experienced stillbirths within the past year and among traditional birth attendance and Hospital midwives. This study also involved traditional birth attendance, traditional healers and religious leaders, to understand cultural, religious, and social norm practices towards stillbirth, and their perception towards the acceptance of maternal immunization In this study, a detailed qualitative research design with the use of semi-structured interviews guide was used., a purposive sampling approach, where mothers and fathers that have experienced stillbirth were identified through the CHAMPs study at WITSVIDA, and a snowball was adopted to identify other potential participants such as the traditional healer and religious leaders.

Quantitative Survey

The quantitative survey was aimed at collecting knowledge, practice , and attitudes of the community on the causes of stillbirths. A cross-sectional face-to-face survey was conducted among individuals and households in the community. The population sample comprised of 192 men and 192 women community members within households, and individuals from Soweto. In the study, a structured questionnaire was used. The questionnaire captures information on their knowledge, and understanding of stillbirth, their practices about the cause and prevention of stillbirth, and their attitude towards stillbirth. The essentials of the survey are to capture the knowledge, attitude, and practices of the community towards causes of stillbirth, to identify what is known and done toward causes of stillbirth among individuals and households in the community, and their perceptive towards the acceptance of maternal immunization.

3.5 SAMPLING TECHNIQUES

Qualitative sampling techniques

The study used two methods of sampling including purposive and snowball sampling strategies. A purposeful sampling method is essential in this study. The participants from the sampling frame were carefully selected because they have characteristics that is peculiar to this part of the study. snowball sampling, in this study was used to identify one and more participants, and this participant helps identify additional study participants.[38]

Firstly, a purposive sampling method was used to identify the mothers and fathers' participants for the qualitative method.

Mothers and fathers of stillbirth cases: The mothers and fathers from the study site, who experienced child death and/or stillbirth in the hospital were identified through existing data. Parents of stillbirths were identified through MITS (CHAMPS MITS, 2017) and HDSS (CHAMPS HDSS, 2017) of the CHAMPS studies. This study has an existing consent form from the selected participants and HREC approval from previous studies. In order to obtain existing data from Bara to identify participants, protocol was reviewed and approved by the medical assessment committee at Bara Hospital. Participants were notified by the principal investigator telephonically and invited to participate in the study.

Secondly, the snowball sampling method was utilized to detect participants in the community. Snowballing sampling method was used to identify participants such as the community leaders, religious leaders, and traditional birth attendance. After identifying some community leaders within the community, a request from the investigator for the community leader to recommend another potential participant that was recruited was made. In this study, the views, interests, needs, priorities, expectations, and concerns of individuals when identifying recommended participants were carefully considered.

Community religious leaders and traditional healers: The community-level participants (leaders, and key influencers,) for KIIs were detected by the research team through the visit in the community and inquiry.

1. Traditional Birth attendance: those who assist in the culturally appropriate ways of giving birth outside the proper health care settings were detected by recommendation from the community leaders and identified via the visit to the community.

2. Midwives in the hospital were identified by the head of the department of thematernity ward of Bara hospital.

3. Community leaders, such as home social-based worker and community leader on health care, were recommended by the participating parents,

Sample Size for Qualitative Data Collection

Study Participant	Sample size	Age range	Data collection method	Gender
Women (Mothers) who have had at least one stillbirth	5	18-45	KII	Female
Men (Fathers)	2	18-45	KII	Male
Hospital Midwifes	2	18- Above 60	KII	Female
Homebased maternity health care worker, and traditional birth attendance	2	18- Above 60	KII	Female
Religious leader	1	18- Above 60	KII	Male
Community leaders	2	18- Above 60	KII	Female
Traditional healer (sangoma)	1	18- Above 60	KII	male
Total sample	15			

Quantitative Sampling Techniques

A simple random sampling technique was used to obtain the samples size needed for the survey. In this technique, every member of the population has an equal chance of being selected.[39].

Adult men and women who form part of the Soweto-Thembelihle Health and Demographic Surveillance Systems (HDSS) were recruited. More specifically a household that had lost a child to stillbirth, a relative, or a community member who had experienced a stillbirth or has knowledge of stillbirth were sampled for the study.

Initially, an existing stillbirth database that is housed at Wits-VIDA (A Wits Health Consortium Research Unit) based at the Chris Hani Baragwanath Academic Hospital – also called Bara was reviewed. These include databases from the CHAMPS program MITS data (Champs MITS, 2017) and HDSS (Champs HDSS, 2017). [35,36] Using the appropriate sampling size determination formula, where 192 men and 192 women from Soweto participated in the survey. A structured questionnaire using survey to capture their knowledge, attitudes, and practices (KAP) towards the causes of stillbirth.

Sampling Size

$$S = (z^2(d\,(1-d)) \div e^2) \div 1 + (z^2(d\,(1-d)) \div e^2)\,P$$

where *S = sample size | P = population size | z = z-score | e = margin of error | d = standard deviation*
Population under surveillance in; Soweto: 109,289Sample size **383 (192 men and 192 women).**
(Sample Size Calculator, 2020) [32]

3.6 DATA COLLECTION PROCESS

Qualitative Data Collection Process

a. Key-Informant Interviews (KIIs)

The data collection method for this formative study involved using key-informant interviews (KIIs). KIIs aim to explore and understand the perspective, knowledge, and attitude among participants and diverse social, ethnic, and religious groups. There was a semi structed interview guide prepared by the principal investigator, iteratively adjusted checklist tool, that evolve with each interview relative to the participant. This method typically consists of a dialogue between researcher and participant, guided by a flexible interview protocol and supplemented by follow-up questions, probes and comments. The method allows the researcher to collect open-ended data, to explore participant thoughts, feelings and beliefs about a particular topic and to delve deeply into personal and sometimes sensitive issues.[46].
The tool had the questions to capture their experience and knowledge of stillbirth, feelings, and emotions associated with their experience, support received, coping mechanisms, social effect, impact on family, and meaning attributed to the experience, understanding of the relatable cause, and their understanding of maternal vaccine intake.

The key informants are the traditional birth attendance, religious leaders, community members, traditional healer who have had experience with parents and relatives of stillbirth, and Fathers and mothers who have experienced at least one stillbirth. A telephonic call was made by the principal investigator, inviting identified participants to participate in the qualitative study. An appointment is made for the best date and time by the interviewee to conduct the interview. The interview was conducted at the locations preferred by the interviewees. Key informants were given the information sheets, which were made available in English, Is-Zulu, and is-Sotho. Participants were requested to sign consent forms beforethe interview begins, in which they agreed that the interview can be audio-recorded and written notes can be recorded by a note-taker to input interviewee responses. At the start of the interview, participants were provided with a standardized overview of the purpose of the study. During the KIIs, a voice record of respondents was taken by a recorder, and participants were allowed to express themselves in the language they were comfortable speaking. Expressions and key statements were noted down by the research assistance, for participants who spoke in their local language. This information was included during transcribing and translation. Due to the nature of the interview, a counsellor was available on sites for any participant that requested one.

The key-informant interviews were later transcribed and translated from the local language into English for better analysis. However, no identifying characteristics were included in the transcription. The interview starts with the KIIs involved discussion around the health status of pregnant women and their perceptions about stillbirths. Later, the discussion moved

towards exploring views about the causes of stillbirths, and. Each interview lasted about for20- 40mins.

Quantitative Data collection process Knowledge, Attitude and Practices [KAP]

The data collection method for the quantitative research included a Knowledge, Attitude, and Practices survey. A KAP survey is a quantitative type of method (predefined questions and formatted in standardised questionnaires) that provides access to quantitative and qualitative information [44]. A cross-sectional face-to-face survey was conducted with individuals and households of the community. The study utilized a structured questionnaire which was prepared by the principal investigator, in a survey format. The questionnaire captured information on their knowledge, and understanding of stillbirth, their practice about the cause of stillbirth, and their attitude towards stillbirth. Usingthe survey, their knowledge, attitude, and practices of the community towards causes of stillbirth were captured. What is known and done toward causes of stillbirth among individuals and households in the community was also captured.

Households that have experienced stillbirth were identified from the existing MITs study, and a telephone call by the principal investigator was made to request for an interview with the family members and set an appointment to visit the home at the given address. Eligible members of the household were approached to fill out the brief survey after reading the information sheet. Community leaders, religious leaders, and traditional healers and staff working with them at their place of work were approached to fill out the survey. Traditional birth attendances and their workers were approached at their locations to fill the survey. Healthcare workers within the community were identified by snowballing and were also approached to fill the survey. The filled survey tool was uploaded on the Redcap format for capturing data in real-time.

Consent Process for Qualitative Participants

At the being of each interview, an information sheet available in English, Is -Zulu and ISI- Sotho, containing the purpose and introduction of the study, was made available for the participant to read. Participants who could not read were read to in the language of their understanding. A consent form which also includes the information of the study and reason for their participation was duly signed by participants with their information provided and a witness to acknowledge the process of consenting. Before proceeding to record, a consent form for an audio recording of voice was also signed by the participant and they are reassure

that their name or identity will not be mentioned or used during the transcribing, analysis, and publication of the study. After the consent form and audio form have been signed by participants and witnesses, the interview begins with the recorder on, to capture the data. Participants are reminded that they can stop the interview at any time, and it will not have any effect on their access to health care anytime. They were asked Questions from the semi- structured interview guided and were reminded their answers were not restricted to the Questions alone and can give their answers in the language of their choice. Questions were asked in English. Most participants responded in English and Zulu language.

Consent Process for Quantitative Survey

During the process of data collection, before the survey is handled to the participant, an information sheet which is available in English, Is-Zulu, and ISI-Sotho is read out to the participant, containing the purpose of the study and the essence of their involvement in the study. At the beginning of the survey, a field as to if they consent to take the survey was filled before proceeding with the survey.

3.7 DATA ANALYSIS PROCESS

QUANTITATIVE DATA ANALYSIS PROCESS

Knowledge, attitude, prevention, and perception about stillbirth were the dependent variablesin this study survey, while gender, age, ethnic group, and religion were considered as independent variables. Descriptive statistics were used to describe the distribution of all variables.

Bivariate analysis using Chi-square test was used to examine the association between knowledge, attitude and prevention about stillbirth, while multiple logistic models was used to examine the risk factors associated with perceptions of stillbirth. Statisticalsignificance was set at 0.05. All analyses were conducted using IBM-SPSS 26.[43]

QUALITIVE DATA ANALYIS PROCESS

To avoid misquoting the participants, the interviews were recorded and transcribed verbatim. A thorough review of the transcripts was performed as part of the cleaning and preparation of the interviews for coding. Following that, the coders removed the typographical errors and

missing words. Relevant paragraphs were highlighted during the preliminary reading stage to aid in the data analysis process.

Computer Assisted Qualitative Data Analysis Software (CAQDAS)

An electronic coding using Computer Assisted Qualitative Data Analysis Software(CAQDAS) Atlas.ti version 9 software was used to code and evaluate all the information given by the participants. The reason for using CAQDAS is that the software acts like a "container" that all the data, codes, memos, and findings are kept from the same project in a single environment. This helps to manage, extract, compare and explore the data within the texts to ease and facilitate the analysis process [40]. Furthermore, the software assists in building networks and relationships, resulting in creating a graphical view of the data [40]. Although the software allows organizing transcript data in preparation for analysis, it does notanalyze the data as the analytic part remains the responsibility of the researcher.

Coding Process

Coding is a process that allows researchers to identify what they consider to be meaningful todraw conclusive conclusions. The coding process was guided and framed by the study's research questions and objectives.

The below table 1 depicts an example of the coding process, including the creation of codes and themes. To give meaning to the information in the transcripts, two codes – witchcraft and stress – were assigned based on the information in the transcripts. As a result of the code grouping, the theme 'causes pf stillbirths was generated'

Table 1: Coding examples

Theme	Code	Information from the transcript
CAUSES OF STILLBIRTHS	Witchcraft	"They are many… At some point in time someone was pregnant but lost the bay, when you throw the bones to see what caused the problem, you find that they were bewitched by someone who doesn't like them and swore that they would not give birth to that baby and through placing muthi on their way and when they step on or jump the muthi, the muthi then enters the womb and forms itself like fibroids (imfelo)."

	Stress	Another thing is stress like if one is depressed their mind is not sober, they are always negative and even trauma can cause a stillbirth. To add again, some other stillbirths are caused by nature, it is not everything that is known in relation to stillbirths" (Home base care giver)

MAIN THEMES GENERATED

Table 2 and Figure 1 below present the main themes that emerged from the data analysis. The most discussed themes, as shown in Table 3 and Figure 1, are 'Causes of stillbirths' and 'Perceptions of maternal vaccination,' with 43 and 30 references, respectively.

Table 2: Main themes

Main themes	Number of quotations
Causes of stillbirths	43
Knowledge of pregnancy vaccines	11
Perceptions on maternal vaccination	30
Prevention measurers	27
Reactions to stillbirths	14
Support given to mothers who lost their babies	26
Understanding of stillbirths	9

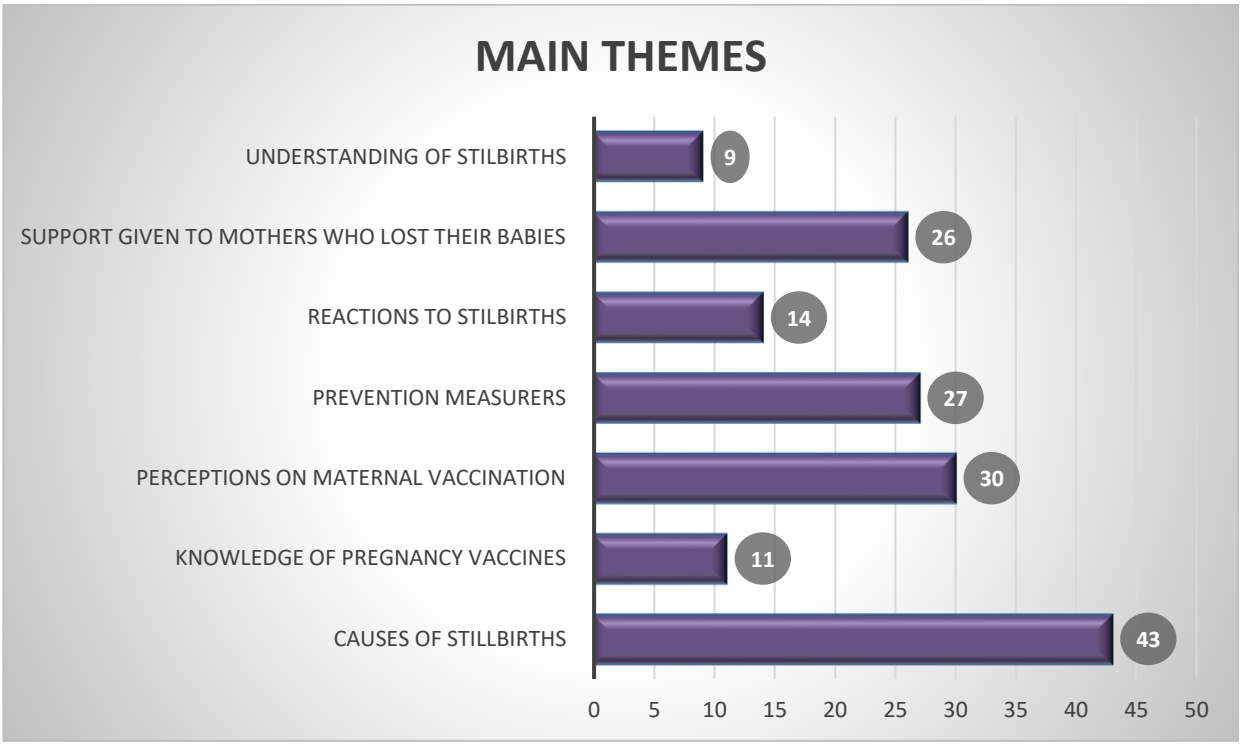


Figure1: Main themes

CHAPTER FOUR
STUDY FINDINGS

4.0 INTRODUCTION

Results of the Quantitative and Qualitative findings are presently concurrently, finding is integrated to interpret the result [37].

4.1 STUDY RESPONDENT DEMOGRAPHIC CHARATERISTICS

Biographic information of the survey respondents

The proportion of gender is presented in Table 1. The male proportion was 191(49.7%) and female was 193(50.3%). The original sample was to have equal numbers of men and women (i.e., 192).

Table 1: Gender

		Frequency	Percent
Valid	Male	191	49.7
	Female	193	50.3
	Total	384	100.0

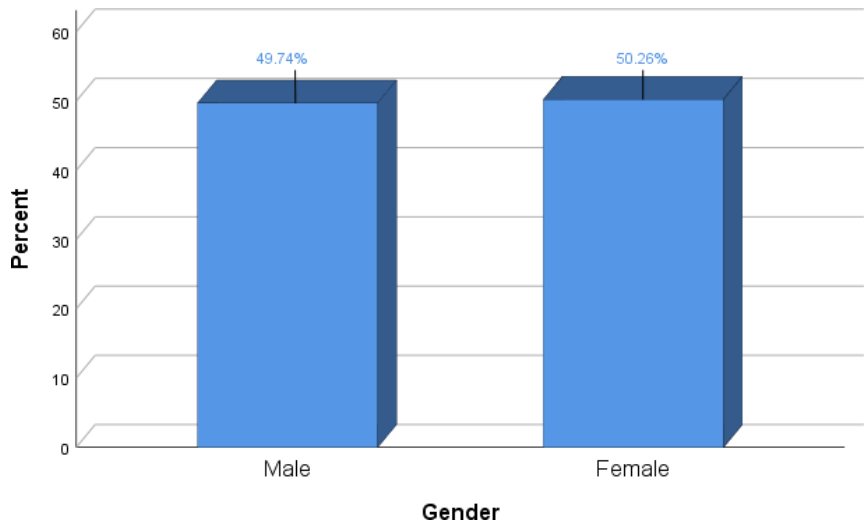


Figure 2: Gender Mix

The age distribution of the respondents is presented in Table 2. It is observed that 26.0% of the respondents aged between 31-40 years; 37.0% of them aged between 41-50 years; 26.3% of them aged between 51-60 years, and 10.7% of the respondents aged greater than 60 years.

Table 2: Age distribution of the respondents

Frequency			Percent
Valid	31-40 years	100	26.0
	41-50 years	142	37.0
	51-60 years	101	26.3
	> 60 years	41	10.7
	Total	384	100.0

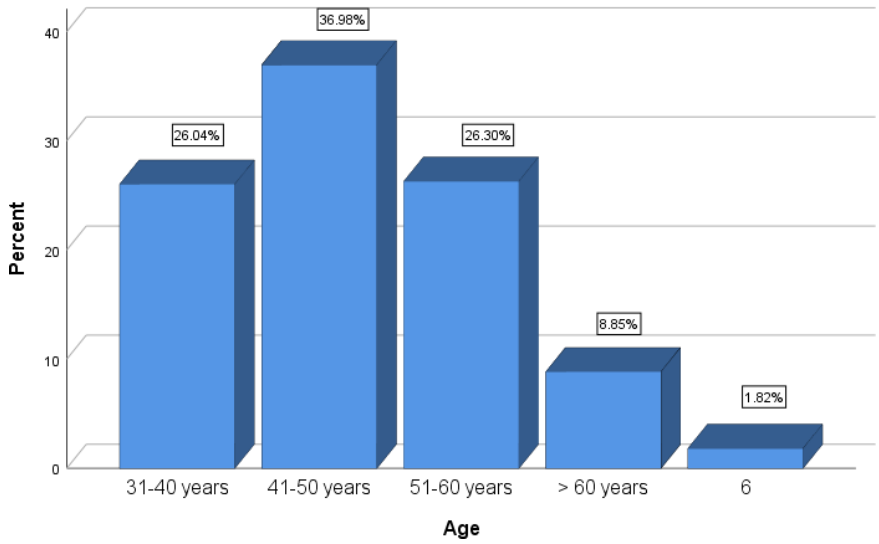


Figure 3: Age distribution of the Respondents

Table 3 presents the distribution of respondents' ethnic groups. The distribution showed that 4.9% were White ethnic group, 72.4% were Black group, 12.0% were Colored, and 0nly 0.3% were from others unspecified ethnic group.

Table 3: Distribution of Ethnic group

Frequency			Percent
Valid	White	19	4.9
	Black	278	72.4

	Coloured	46	12.0
	Indian	28	7.3
	Others	12	3.1
Missing	System	1	.3
Total		384	100.0

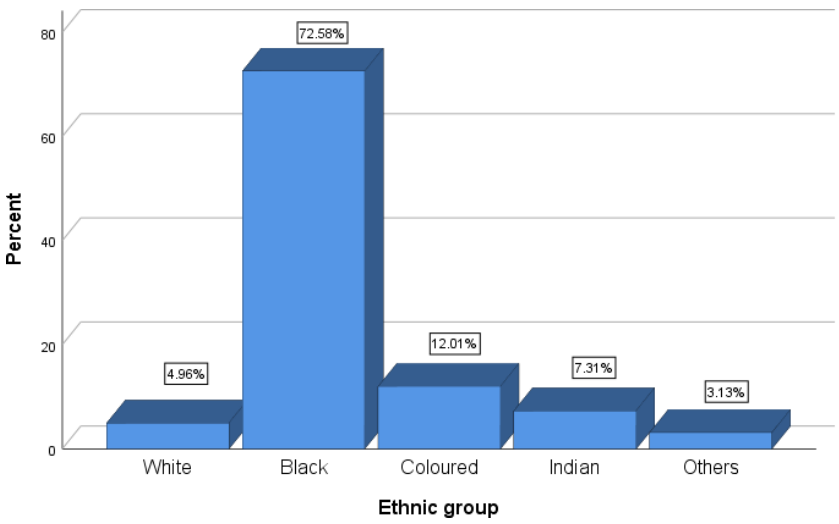


Figure 4: Distribution of Ethnics Group

The religion distribution of the respondents is presented in Table 4. The distribution showed that more than half of the respondents (64.1%) were Christians, 12.2% of them were Muslims, 10.7% of them were Traditionalists, and 12.0% of the respondents were unspecifiedreligion.

Table 4: Religion distribution of the respondents

		Frequency	Percent
Valid	Christianity	246	64.1
	Muslim	47	12.2
	Traditionalist	41	10.7
	Others	46	12.0
Missing	System	4	1.0
Total		384	100.0

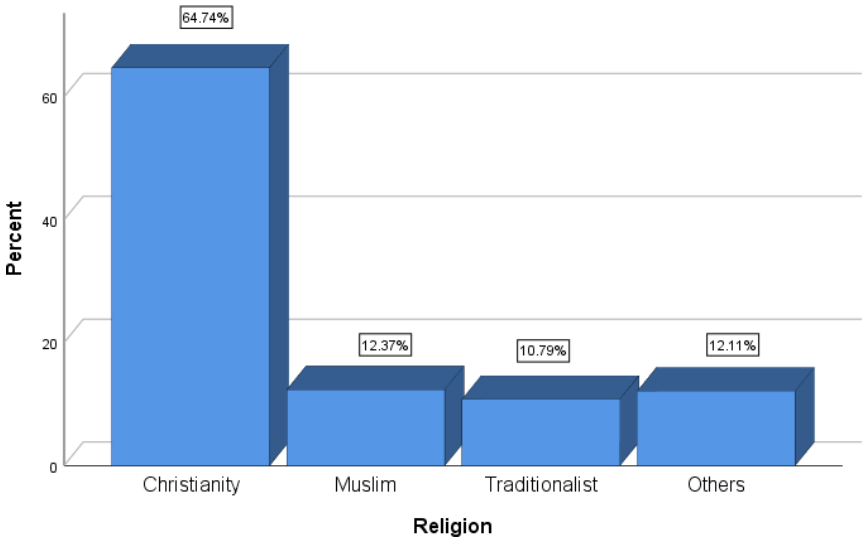


Figure 5: Religion Distribution of the Respondents

Table 6 presents the distribution of the position in the household. The distribution indicates that 4.4% of the respondents were holding a father-in-law position in the household, 2.6% were holding a mother-in-law position in the household, 25.1% were husband in the household, 18.1% were relatives and 13.6% were classified as others.

Position in the household

	N	Percent
Father-in-Law	17	4.4%
Mother-in-Law	10	2.6%
Husband	96	25.1%
Relative	73	19.1%
Others	52	13.6%
Unspecified	135	35.2%
Total	383	100.0%

Qualitative Demographical Information

Twelve (15) key informant interviews were conducted with stillbirth mothers and fathers, Sangomas, Religious leaders, community leaders, midwives, traditional birth attendees, and health care workers.

Table 1: Contribution of qualitative participants

Transcript name	Participants	Age	Marital status	Gender	Ethnic group	Education & Position
Father	Participant 1	33	Married	Male	Black	
Health care worker	Participant 2	54	Single	Female	Black	Staff nurse
Interview6 midwife	Participant 3	48	married		black	Midwife
Religiousleader	Participant 4	33	married	Male	Black	Diploma in business management
Sangoma	Participant 5	32	Single	Male	Black	Diploma in electrical engineering
Traditional birth attendant	Participant 6	43	married	female	Black	Grade 12, did pre-nursing for 3 months
Traditional birth attendant1	Participant 7	73	Divorce	female	Black	Grade 8
transcript 2 mother	Participant 8	35	married	Female	Black	matric
Transcript 3 mother	Participant 9	26	Single	Female	Black	Not mentioned

Transcript 5 mother	Participant10	47	Single	Female	Black	Not mentioned
Transcript4 homebased	Participant	59	Divorce	Female	Black	Nursing certificate

care giver	11					
Transcript7 mother	Participant12	35	Single	Female	Colored	Not mentioned
Transcript 1 mother	Participant 13	41	Married	Female	Black	Not mentioned
Community leader	Participant14	52	Married	Female	Black	Matric and Ancillary Health Care Worker
Interview 8 father	Participant15	35	Married	Male	Black	Diploma electrical engineering

4.2 PERCEPTIONS, KNOWLEDGE, PRACTICES, ATTITUDES TOWARDS CAUSES STILLBIRTHS

KNOWLEDGE AND UNDERSTANDING OF STILLBIRTH

The analysis of association between the knowledge of stillbirth and the respondents' biographic characteristics is presented in Table 11. It is showed that both male and female respondents have adequate knowledge of stillbirth, which is significantly associated (χ^2=17.3, p = 0.000) and there was significant association between the respondent's religion and knowledge of stillbirth. There is no association between the age of the respondents and the knowledge of stillbirth (χ^2=9.22, p = 0.324) and no association were found between the ethnic group of the respondents and the knowledge of stillbirth (χ^2=4.08, p = 0.894).

Factors significantly associated with knowledge of stillbirth

		Yes	No	Not sure	Chi-Square	p-value
Gender	Male	177(46.8%)	6(1.6%)	5(1.3%)	17.309	0.000
	Female	157 (41.5%)	5(1.3%)	28(7.4%)		
Age	31-40 years	86(22.8%)	1(0.3%)	11(2.9%)	9.223	0.324
	41-50 years	118(31.2%)	7(1.9%)	15(4.0%)		

	51-60 years	91(24.1%)	3(0.8%)	6(1.6%)		
	> 60 years	32(8.5%)	0(0.0%)	1(0.3%)		
Ethnic group	White	18(4.8%)	0(0.0%)	1(0.3%)	4.088	0.849
	Black	239(63.4%	10(2.7%)	25(6.6%)		
	Colored	39(10.3%)	1(0.3%)	4(1.1%)		
	Indian	25(6.6%)	0(0.0%)	3(0.8%)		
	Others	12(3.2%)	0(0.0%)	0(0.0%)		
Religion	Christianity	217(57.9%)	5(1.3%)	21(5.6%)	17.986	0.006
	Muslim	41(10.9%)	1(0.3%)	4(1.1%)		
	Traditionalist	40(10.7%)	0(0.0%)	1(0.3%)		
	Others	33(8.8%)	5(1.3%)	7(1.9%)		

Understanding Of Stillbirths

The majority of study participants defined stillbirth as the **death of an unbornbaby**, as evidenced by the following excerpts:

> *Stillbirth is a baby that is born dead. Other dies while in the womb, as we hear that the baby gets tired (foetal distress) and that happens when a mother feels pains but does not rush to the hospital. While the baby tries to push to comeout, but the mother just stays at home, the baby gets tired or the pregnant woman pushes harder only to find that it's not yet time to push and the baby comes out tired. (Traditional birth attended)*

> *From my own understanding a stillbirth is a child that is born dead, it is achild who died while inside the womb of their mother. (Homebased care giver)*

> *Respondent: Well, according to me, I think a stillborn is a child that was born before their time and dead. (Transcript 1 mother)*

I think stillbirth is when a child dies before birth. (Religious leader)

It is when a baby is born dead. (Sangma)

While one community member claimed to have never witnessed a stillbirth incident, he had asimilar perception of what he believes to be stillbirth. He stated,

I have never seen a stillborn baby but personally I think a stillborn is baby thatdied before birth or during birth. (Community leader)

One mother who had lost an unborn child went so far as to distinguish between miscarriage and stillbirth and the pain attached to that. She described stillbirth as the birth of a fully developed dead baby.

> *Respondent: A stillbirth is not a miscarriage; the baby has developed already, and it is very painful to have a dead baby. I mean you have already counted your months that at a certain month I will be giving birth. (Transcript 5mother)*

4.3 COMMUNITY UNDERSTANDING OF CAUSES OF STILL BIRTHS

The cause of stillbirth is presented in Table 7. It is indicated that 39.9% think medical reason is the cause of stillbirth, 29.4% think is a natural occurrence, 5.7% think is a witchcraft, 10.5% think is a mother negligence, 5.3% think is a lack of traditional practices, and 9.3% think otherwise.

what are the causes of stillbirth?

	N	Percent
Medical reason	258	39.9%
Natural occurrence	190	29.4%
Witchcraft	37	5.7%
Mother's negligence	68	10.5%
Lack of traditional practices	34	5.3%
Others	60	9.3%
Total	647	100.0%

Causes Of Stillbirths

Various factors were reported to be the cause of stillbirths in this study. These included an abortion attempt, baby weight, comorbidities, health care worker negligence, being medicallyunfit to carry the child, poor antenatal care attendance, poor nutrition, being strangled by the umbilical cord, stress, and witchcraft. They will be discussed further below.

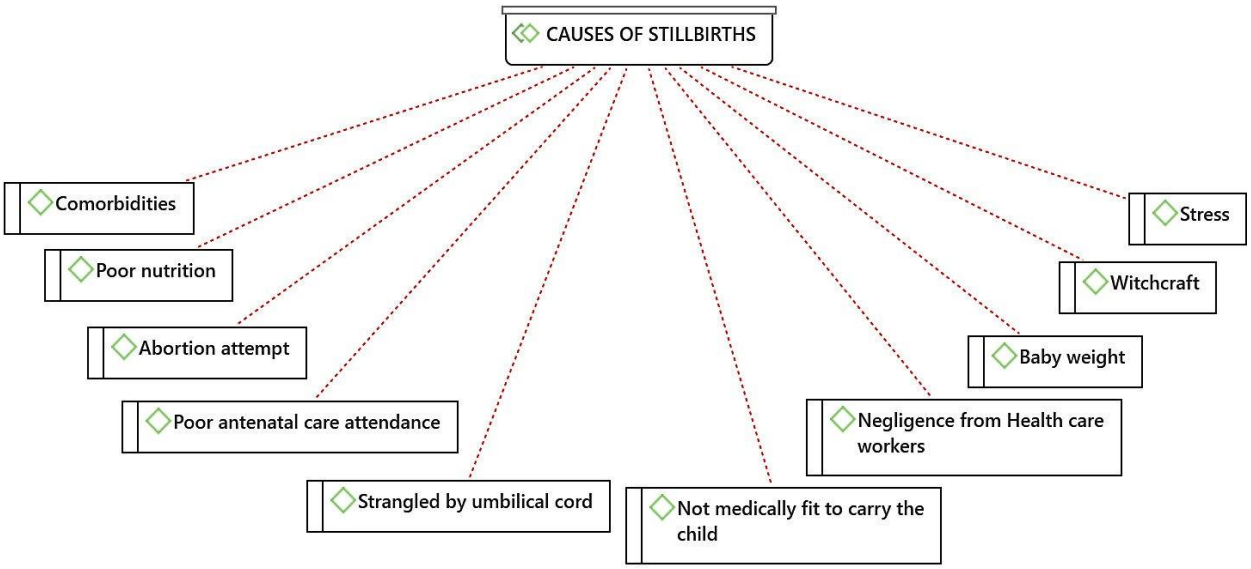


Figure 6: Causes of Stillbirths

Medical Reasons

b. Poor Antenatal Care Attendance

It is argued that antenatal care (ANC) is critical for both mother and child's health, and that pregnant women who do not attend ANC are at a high risk of stillbirth. Participants in the study provided feedback on factors related to ANC poor attendance. The lack of attendance among HIV-positive mothers stems from a fear of being stigmatized.

> *Some of the moms who refuse to come to the clinic are those who are HIV positive because they are afraid that anyone including family members will read their status antenatal care card and learn about their HIV status. They also tear the page with results of HIV status and hop from one clinic to another. (Health care worker)*

Other women are said to have skipped antenatal care because they were unaware, they were pregnant until they were in labour.

> *Respondent: Sometimes other booked at the clinic, others didn't book. When you ask them why they didn't book? They tell you that they didn't know they were pregnant. There is on those I was called to assist deliver at night, when I asked why she didn't book she said she didn't know that she was pregnant. But most of them I think about four had booked. So, no, I have not offered antenatalcare. (Traditional birth attendant)*

c. Negligence From Health Care Workers

Participants expressed dissatisfaction with the care they received from health-care workers. Some mothers insinuated that they lost their babies as a result of mistreatment by healthcare workers.

> *"I was very heartbroken due to the entire process. The day I went to Bara Iwas bleeding a lot and I was in so much pain. In addition, to that, they didn't treat me right at the hospital. One of the nurses told me that I must lay on the bed and if I mess on the floor, then I will have to wipe it myself. Then thenasked me to get onto a bed and I slept and spent the whole night bleeding. The following day the doctor came in and said that they had to put me on a Sonar, the doctor then checked me, and he told me that the baby passed away. I told them that all this could have been prevented if they were quick to help me because they didn't, they just let me lie there the whole day without helping me." (Transcript 7 Mother)*

> *Respondent: They said that it was caused by High blood, and I do blame them because by the time they had kept me at the hospital couldn't they have done any C-section and save my child's life. (Transcript 5 mother)*

> *Respondent: Everything was okay until the last day when I stopped feeling the movement of the baby. Even, the doctors themselves they were struggling to find out what was wrong. They kept on sending me home telling me that I should go home and come back next week, stuff like that. So yes, it was hectic for me because they didn't even believe me when I told them that I didn't feel the movement. They would say that nothing was wrong with me I just wanted attention. Around 4 o'clock, that's when they took me to sonar, and theystruggled to find the heartbeat and they told me that there is no heartbeat anymore. (Transcript 2 mother)*

d. Comorbidities were identified by a few of the participants as being linked to stillbirths.

> *Yes, I have, I can say that it was sixth case; they came to fetch from work. My colleague asked to me to assist her neighbour who was in labor and had already given birth, but they were struggling with taking out the placenta. When I arrived there, I could see that the issue was not the placenta, but it was*

stillborn. They were aborting the pregnancy; it was an abortion gone wrong. I could see that the pregnant girl was too young to be in the stage of giving birth to a child. I got in and helped her push out the placenta then after that I set down with her and asked what did she drink? She told me that she bought a pill that she inserted in the mouth of the womb. I reprimanded her and told to never call me such things. I don't do such things. The father of the girl apologized and promised to do a cleansing ritual for me as that was an abomination. They fled and migrated, running away from me because they couldn't do what the father promised

Respondent: Yes, it was because of the high blood that they had to do that, but with the recent one everything was fine but on one Friday I just started bleeding. (Mother 7)

They said that it was caused by High blood (mother 5)

During a woman's pregnancy, nutrient-dense food is extremely important. Poor nutrition hasa direct impact on the unborn child's survival. The following quotations correspond with this.

I think it's caused by foods we are eating these nowadays because in the olden days they didn't have a lot of cases of stillbirths, according to my knowledge. But recently we have a lot of them because we are eating a lot of different foodswhich were not there in the olden days.

That's the way I understand it, as well as the foods we eat. (Sangoma)

To add on this, another thing that can cause stillbirths is a lifestyle such how you eat and what you eat. (Home based care)

Baby Strangled by The Umbilical Cord

Some participants contended that stillbirth can be due to an umbilical cord strangling the baby and cutting off oxygen.

Respondent: They then took me to the Sonar again and they repeatedly checkedand checked and that is when the doctor discovered that the baby was no more,but I was not told when it happened, and I don't even think that it is possible to tell when it happened. I also don't know what caused the death because when I gave birth the baby had an umbilical cord around the neck, so they told me that

it was possible that is what caused the death. It was very true the baby had an umbilical cord around the neck, so yah that is what happened. (Transcript 3 mother)

Sometimes they say the baby was surrounded or strangled by the umbilical cord. I don't know what causes that, because I am not a doctor but many times you hear that it was the umbilical cord. (Community leader)

While some babies are excessively playful to the point of being wrapped up by the umbilical cord, others are unable to play due to obesity. One participant mentioned that **baby weight** was a factor in stillbirths.

A lady I know said that her baby was very big and during labour the baby struggled to move and ended up pooping while in the womb. The baby choked on the fesses and died and was a stillborn baby… Probably it was because the baby was big; she mentioned that the baby was too big. (Community leader)

Witchcraft

Many believe that stillborn baby is as a result of witchcraft. For instance, some of the mothersassume that some of the family members might have had an influence in the death of their babies.

And the other explanation is that maybe from the family someone did something for their personal reasons, I don't know. (Transcript 3 mother)

Similarly, one traditional birth attendant shared that:

Sometimes your mother in-law doesn't like you, she won't tell you, but she is going to busy with you. You will innocently tell her that you are pregnant then she says this is what I was waiting for, you will never have babies. You start having miscarriages every after two to three months of your pregnancy. Then she calls her son to tell him that she told him she never wanted this lady because she can't have babies. Why, why? Because God gave her the ability to give birth, why does she say that? (Traditional birth attendant)

Participant (Transcript 3 mother) also emphasized the importance of traditional medication during pregnancy. She stated that because she did not have the means to see the traditional leader during her recent pregnancy, her pregnancy was not protected, and she lost the baby.

Respondent: Yes, as black people you know that we have our own traditional belief. So, in my family whenever you find out that you are pregnant you go andsee the traditional healer so that they can protect you from the evil things.

Sometimes, when you go outside you might step on something and affect the pregnancy so at that time when I was pregnant, I didn't have the means to go see the traditional healer and protect my child. So, I believed that since I couldn't do things properly, maybe I stepped on something, and it is what might have caused the death of the child. (Transcript 3 mother)

Others mentioned that witchcraft is used to create fibroids during pregnancy to ensure the death of the baby. the quotations below concur with this.

There are fibroids that are intentionally manmade through black magic that will hit the baby's fontanelle during labour when you are pushing out the

baby,it happens that you give birth to a baby with defects, sometimes the baby maybe born well but die after three days or the baby appears to be healthy at birth and you see the baby but when you get home you lose the baby. (Sangoma)

But, traditionally, sometimes it is said that it's the fibroids that cause stillbirths. I have heard people talk about it, saying that the fibroids hit the baby's fontanel and baby dies before being born…For tradition, they use traditional medicines because they believe that fibroids are caused by witchcraft. (Community leader)

Maternal Reasons

e. Stress

The majority of participants highlighted stress as another major cause for stillbirths. For instance, when the participants were asked what they think caused stillbirths, these were their responses:

Respondent: I think it was stress, because I had a lot of stress you know. I was panicking a lot. The father of the baby was just giving me hard time, I don't want to lie and also that I was on ARV medication. (Transcript 2 mother)

I think for those two because I know them, it was because of stress, financial stress, a lack of food due to the unemployment levels in their families, yes for both of them. (Home based care giver)

f. Abortion attempts can also have a significant impact on the baby's survival.The traditional birth attendant explained:

Yes, I have, I can say that it was sixth case; they came to fetch from work. My colleague asked to me to assist her neighbour who was in labour and had

already given birth, but they were struggling with taking out the placenta. When I arrived there, I could see that the issue was not the placenta, but it was stillborn. They were aborting the pregnancy; it was an abortion gone wrong. I could see that the pregnant girl was too young to be in the stage of giving birth to a child. I got in and helped her push out the placenta then after that I set down with her and asked what did she drink? She told me that she bought a pill that she inserted in the mouth of the womb. I reprimanded her and told to never call me such things. I don't do such things. The father of the girl apologized and promised to do a cleansing ritual for me as that was an abomination. They fled and migrated, running away from me because they couldn't do what the father promised (Traditional birth attendant)

One mother assumed that her baby did not survive due because she recently had a miscarriage and believes that she was not medically fit for to carry baby after that incident.

> *For me I thought maybe it was caused by the fact maybe because of the miscarriage my body was not yet ready to carry a child. (Transcript 3 mother)*

4.4 COMMUNITY ATTITUDES TOWARDS STILLBIRTH

Table 8 shows the reaction to the news of stillbirth. The distribution shows that 42.0% of the respondents react disappointed, 5.6% of them react with expectation, 31.3% of them react supportively, 16.2% of them need an explanation about the it, and 4.9% of them think otherwise.

Reaction to the news of stillbirth

	N	Percent
Disappointed	239	42.0%
Expected	32	5.6%
Supportive	178	31.3%
Needed an explanation	92	16.2%
Others	28	4.9%

Total	569	100.0%

The analysis of factors associated with attitude about stillbirth and the respondents' biographic characteristics is presented in Table 13. It is showed that gender is significantly associated with attitude about stillbirth (χ^2=58.9, p = 0.000). There is a significant association between the age of the respondents and the attitude about stillbirth (χ^2=118.023,p = 0.000). There is a significant association between the ethnic group of the respondents and the attitude about stillbirth (χ^2=89.365, p = 0.042). There is a significant association between the religion of the respondents and the attitude about stillbirth (χ^2=119.344, p = 0.000).

Factors significantly associated with attitude towards stillbirth

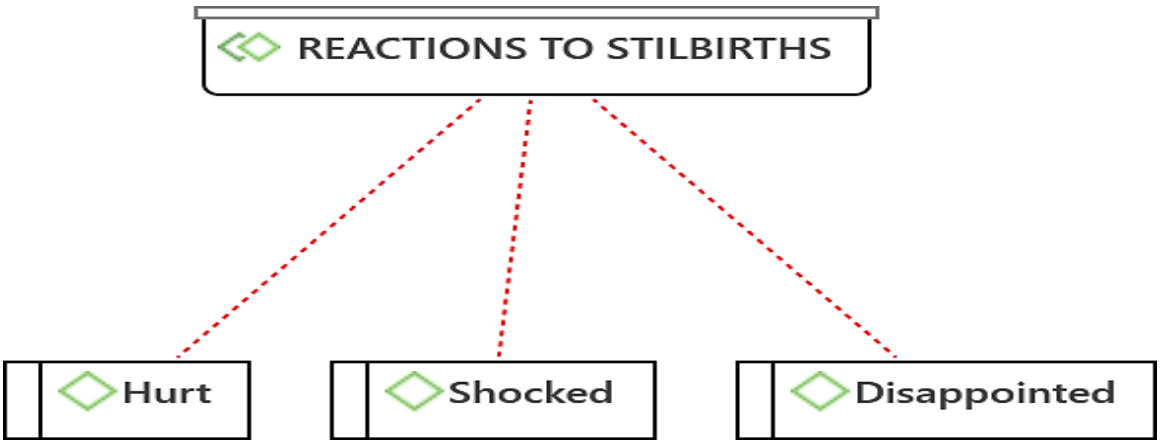
		Disappointed	Expected	Supportive	Needed an explanation	Others	Chi-Square	p-value
Gender	Male	59(15.4%)	6(1.6%)	46(12.0%)	22(5.7%)	1(0.3%)	58.903	0.000
	Female	47 (12.5%)	3(0.8%)	23(6.0%	6(1.6%)	5(1.3%)		
Age	31-40 years	10(2.6%)	0(0.0%)	28(7.3%)	15(3.9%)	3(0.8%)	118.023	0.000
	41-50 years	54(14.1%)	2(0.5%)	18(4.7%)	8(2.1%)	3(0.8%)		
	51-60 years	33(8.6%)	4(1.0%)	18(4.7%)	4(1.0%)	0(0.0%)		
	> 60 years	9(3.3%)	2(0.5%)	5(1.3%)	0(0.0%)	0(0.0%)		
Ethnic group	White	8(2.1%)	0(0.0%)	4(1.0%)	0(0.0%)	0(0.0%)	89.365	0.042
	Black	78(20.4%)	7(1.8%)	51(13.3%)	25(6.5%)	2(0.5%)		
	Colored	13(3.4%)	2(0.5%)	8(2.1%)	2(0.5%)	4(1.1%)		

	Indian	3(0.8%)	0(0.0%)	5(1.3%)	0(0.0%)	0(0.0%)		
	Others	4(1.0%)	0(0.0%)	0(0.0%)	1(0.3%)	0(0.0%)		
Religion	Christianity	75(19.7%)	2(0.5%)	38(10.0%)	27(7.1%)	4(1.1%)	109.344	0.000

Reactions To Still Birth

When the research participants were asked to share their reactions when they learned that the baby had died, their responses were congruent. They emphasized feelings of being shocked, disappointment, and hurt.

Figure 7: Reactions to Stillbirths



g. Hurt

The majority of mothers who took part in the study described their anguish at learning that the baby they had formed a strong bond with while in their tummy had died.

> *When I was told for the first time, I was shuttered because I love babies. I really love babies, so I felt very bad. In fact, I felt like a failure because from my family we don't have many babies especially from my mom's side. Everyonewas hurt because they had prepared that when the baby comes, they were going to do this and that. They were so excited; I was excited and even the father was excited. The sad part was when I received the news, I was shuttered,I felt empty because even people from my community knew that I was pregnant so now when I had to come back home empty handed it was something else (transcript 3 mother)*

> *It was very painful, giving birth to a dead baby. (Transcript 5 mother)*

> *Respondent: I was very heartbroken, even the father also because it was his first baby. (Transcript7 mother)*

> *Respondent: I was so down, and it was very painful because I was expecting two babies, I had already instilled it on my mind. (Transcript 1 mother)*

h. Shocked

Some of the participants were taken aback by the news of stillbirth. Some of the mothers wholost their babies have unanswered questions because they believe they did everything correctly.

> *Respondent: Well, I am still asking myself so many questions even now, that what happened. And yah, I'll be lying if I were to say that I know much about stillbirths you know…They were crying, they were shocked because everyone*

was expecting the baby, he was the first boy in the house. I only have girls, so everyone was excited, I mean it was after my baby shower. So yes, it was a bad experience I don't want to lie to you. It was a bad experience for my family because everything went well. (Transcript 2 mother)

Respondent: Well, I don't understand because even now I am still questioning myself as to why did this baby die? because they said that the umbilical cord was around his neck, but it wasn't true. (Transcript 7 mother)

i. Disappointed

Some people believe that pregnancy is a divine gift. It's a gift that comes with so much excitement and a lot is done to prepare mentally and financially for the new member of the family. However, when things do not go as planned, many people are extremely disappointed. Participants reported being extremely disappointed when they learned that the baby they were expecting had died.

"I was a bit disappointed, I wanted someone to blame. It was stressing and painful. I don't want to lie it was very painful because I was so excited, but yeah" (Father)

"Irrespective of abuse you still want to see your baby alive. Irrespective of what you are going through you still expect to have a live baby" (Homebase care giver).

4.5 COMMUNITY PRACTICES WHEN THERE IS A STILLBIRTH

Support Given To Mothers Who Lost Their Babies

The responses on the advice on respondents' perception is presented in Table 9. It is observedthat 67.7% of the respondents were advised on the adequate medical attention, 7.5% of them were advised on traditional practices, 15.9% were on religion practices, and 9.0% of the respondents were advised on other practices.

Advice on prevention of stillbirth

	N	Percent
Adequate medical attention	363	67.7%
Traditional practice	40	7.5%
Religion practice	85	15.9%
Others	48	9.0%
Total	536	100.0%

The analysis of association between the prevention of stillbirth and the respondents' biographic characteristics is presented in Table 14. It is showed that gender have is significantly associated with prevention of stillbirth (χ^2=21.208, p = 0.047). There is no significant association between the age of the respondents and the prevention of stillbirth (χ^2=63.899, p = 0.064). There is a significant association between the ethnic group of the respondents and the prevention of stillbirth (χ^2=89.662, p = 0.000). There is a significant association between the religion of the respondents and the prevention of stillbirth (χ^2=136.130, p = 0.000).

Factors significantly associated with prevention of stillbirth

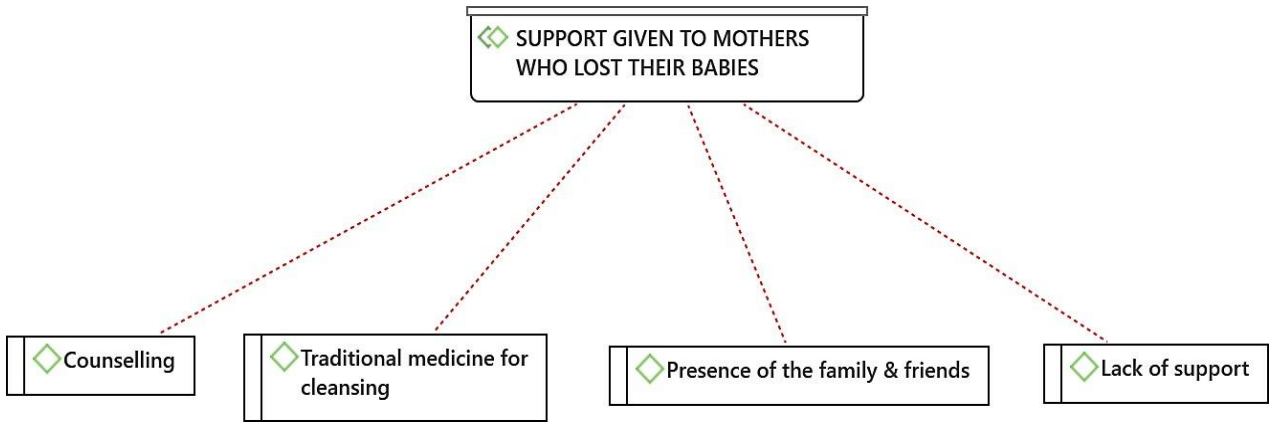
		Adequate medical attention	Traditional practice	Religion practice	Others	Chi-Square	p-value
Gender	Male	119(31.0%)	7(1.8%)	3(0.8%)	2(0.5%)	21.208	0.047
	Female	119(31.0%)	1(0.3%)	1(0.3%)	0(0.0%)		
Age	31-40 years	71(18.5%)	0(0.0%)	1(0.3%)	2(0.5%)		

	41-50 years	86(22.4%)	2(0.5%)	3(0.8%)	0(0.0%)	63.693	0.064
	51-60 years	61(5.9%)	3(0.8%)	0(0.0%)	0(0.0%)		
	> 60 years	15(3.9%)	2(0.5%)	0(0.0%)	0(0.0%)		
Ethnic group	White	17(4.4%)	0(0.0%)	0(0.0%)	0(0.0%)	89.662	0.000
	Black	159(41.5%)	8(2.1%)	1(0.3%)	1(0.3%)		
	Colored	37(9.7%)	0(0.0%)	0(0.0%)	0(0.0%)		
	Indian	18(4.7%)	0(0.0%)	3(0.8%)	0(0.0%)		
	Others	6(1.6%)	0(0.0%)	0(0.0%)	1(0.3%)		
Religion	Christianity	159(41.8%)	1(0.3%)	1(0.3%)	1(0.3%)	136.130	0.000

	Muslim	28(7.4%)	0(0.0%)	3(0.8%)	0(0.0%)		
	Traditionalist	18(4.7%)	7(1.8%)	0(0.0%)	0(0.0%)		
	Others	29(7.6%)	0(0.0%)	0(0.0%)	1(0.3%)		

It is argued that having a stillborn child has a direct impact on the mother's and family's well- being. The participants confirmed the anguish that comes with the loss of an unborn child. They also discussed the various support mechanisms available to mothers who have lost their babies, such as counselling, the presence of family and friends, and traditional medicine for cleansing.

Figure 8: Support Given to Mothers Who Lost Their Babies



j. Counselling

Counselling emerged from the data coding process as a type of support provided to women who have lost their unborn babies. Participants mentioned a variety of sources for counselling, including church, support groups, and professional counselling, such as a psychologist.

> *but you know what I have a mother in Christ. She was my counsellor, my pillar and my everything. She counselled me until I was okay, she told me that things like this do happen in life, and I must pray to God for healing, yes, it is going totake time but I will be okay. (Mother 2)*

> *We then refer them to psychologist and social workers for assistance. We even call their partners or whoever who is taking care of the pregnant woman sothat we prepare them for what will happen before and after delivery. (Transcript 6 Midwife)*

Respondent: Yes, I received counselling, a day after I gave birth to my stillborn baby, we were given counselling. (Mother 3)

k. Presence Of Family and Friends

The majority of mothers and other community members stated that they both provide andreceive emotional support from their loved ones.

We show empathy and give condolences and give them hope by choosing to usewords that build them, not words that are hurtful and judgmental. (Sangoma) when I get home, I survived because I have a supportive partner, he has beenvery supportive. He has been here for me, and I even told him that I don't wantbabies in future, and I asked him to work hard so that we can adopt because Ihad concluded that I couldn't carry a child. He said relax, in God's time it willhappen and here I am I have a baby girl. (Transcript 3 mother)

Respondent: They were sad about it and some of them consoled us, they told us that these things happens while we wait for the right time. Some of them even came around to console us, but it was a very difficult time even to them as well.(Interview 8 father)

l. Traditional Medicine for Cleansing

Traditional healers argued that they not only console mothers who have lost their babies, but also provide them with traditional cleansing medication. They believe that it is critical for these women to be cleansed following the tragedy because they may be re-affected if they do not.

Then after that give her herbal drinks (Imbiza) to clean her womb from the bad luck because once she sleeps with a man and falls pregnant that might contractthe dirt from the previous experience. That womb is still a grave, it hasn't been cleansed. She must take the herbal drinks to cleanse her womb so that the next baby will live. (Sangoma)

Some of us we are mourning about miscarriages, after having a miscarriage you became pregnant about three months miscarriage again, fall pregnant again another miscarriage, then you come to me, first thing I do is to cleanse you, because there is a mistake from the first baby. I must clean that part sothat the next pregnancy is a success, and the baby will live. (Traditional birth attendant1)

m. Lack of Support

While other women receive support, this is not the case for some other women who have lost their babies. Some people complained about a lack of support, particularly within their own households.

> *Again, when I called the father to tell him that the child was no more, he just hung up the phone and that's when I realized that I was all alone. I felt it because no one was there at the hospital to support me even with the decisionof leaving my child at the hospital, it was so sad. (Mother 2)*

> *Respondent: So, yah when I came home, my first daughter asked me where the child was. I had to explain to her what happened, and she went on to ask if theycan go see where he was buried. I had to lie and say that he was buried at Avalon cemetery, I have to lie every day because every day she keeps askingme where the child is, and they want to go the grave. That always makes mefeel bad, I always feel more than bad, I had to deal with a lot. I had a C-sectionof which I was struggling, and no one was there to give me that full support here at home. I struggled. (Mother 2)*

Prevention Measures To Curb Stillbirths

Participants alluded on the prevention measures they take or are taken by the mothers to protect their unborn babies. These include Early antenatal care attendance, Health education, and traditional concoction.

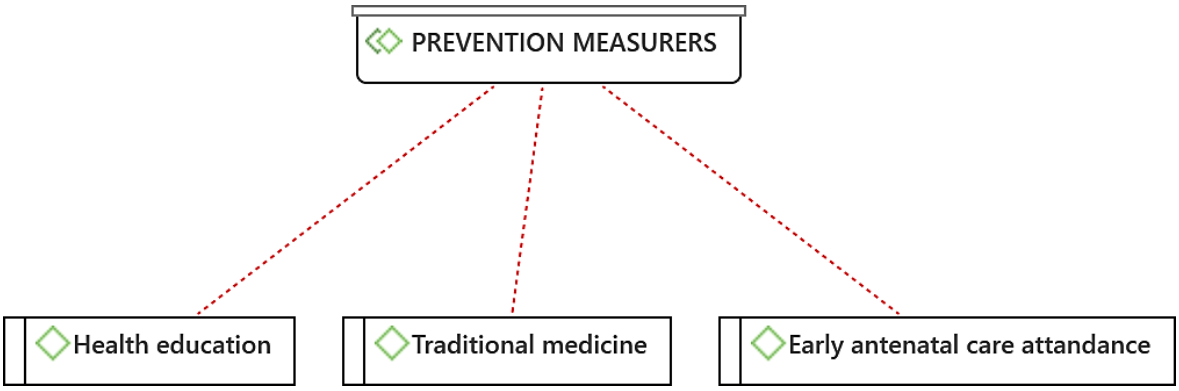


Figure 9: Prevention Measurers

n. Early Antenatal Care Attendance

Clinic visits during pregnancy were highly valued by the participants. They stated that these visits guide and monitor the baby's growth while also detecting potential dangers.

> *Yes, I do advise them to go because sometimes you might have a problem which you are not aware of. So, when you go for your appointments, the doctors might identify something that was life threatening to your baby (Home base care giver)*

> *For big babies and umbilical cords conditions… those are for doctors because only they can see those. The way I see it, that requires operating because maybe when they scan the mother, they can see the baby or when they monitor the baby while the baby is still in the womb and they see that the baby is big or surrounded by the umbilical cord then for those conditions I prefer the caesarean section, the one of operating. (Community leader)*

A community leader shared similar views. He said:

> *For big babies and umbilical cords conditions… those are for doctors because only they can see those. The way I see it, that requires operating becausemaybe when they scan the mother, they can see the baby or when they monitor the baby while the baby is still in the womb and they see that the baby is big or surrounded by the umbilical cord then for those conditions I prefer the caesarean section, the one of operating. Yes, I do advise them to go because sometimes you might have a problem which you are not aware of. So, when you go for your appointments, the doctors might identify something that was life threatening to your baby. (Homebased care giver)*

Interestingly, the majority of mothers who took part in the study highlighted that they were attending antenatal care in the early periods of their pregnancies.

> *Respondent: Yes, I use to go, I have never skipped or missed my appointments. In fact, I use to attend all my classes since I discovered that I was pregnant. (Mother 1)*

Respondent: The time I found out that I was pregnant, I use to go to the local clinic for my ANC and they then transferred me to Bara ANC. I used to attend at Bara until I lost the baby (Mother 7)

o. Health Education

Educating pregnant women on the dos and don'ts of pregnancy allows them to make more informed decisions. Midwives and health care workers emphasized the important roles they play in ensuring that pregnant women have access to accurate information. This is supported by the excerpts below.

Respondent: Some of them yes, I would tell them to be faithful to their husband and if not married I would tell them to go to the clinic and get tested for all diseases especially GBS (Group B Streptococcus) because it is a problem, and no one is talking about it. GBS is the main cause for babies born blind, deafand others die. I always encourage mothers to enrol in research studieshapping at their local clinics. I say that they should not be afraid and stop believing rumours that they are being made guinea pigs. (Health Care Worker)

No, we don't offer them maternal immunisation we offer them health education,when one is screening them, we talk to them about the vaccines (MIDWIFE)

p. Traditional Medication

Pregnancy is viewed as fragile and must be protected at all times. Traditional medication was mentioned by participants as one of the actions they take to prevent and ensure a successful pregnancy. They mentioned various concoctions regarded as being good for pregnancy protection, with Isihlambezo being the most common.

I give her some herbal drink (Isihlambezo) and put a string around her waist and instruct her to remove the string when she commences her ninth month. I then put some herbs in Vaseline that will be applied to the stomach by someonewho no longer menstruates so that when she is due, delivery will be eased, and the baby born alive. Other babies are born with the fontanelle sunk in and having a bloody mark at the back of the neck (inyoni ne bala), western doctors don't know what that is – they delivered a healthy baby. I then take a razor

blade and cut it and apply muthi to clear it because if I don't do that and that blood moves up to the fontanelle, the baby will die. (Sangoma)

Respondent: Yes, there is a traditional herbal drink (isihlambezo) they use, especially the one called 'Baboon's urine' that is the one I know. it's very good. I too use it; I have five children and I used isihlambezo with all my pregnancies. (Traditional birth attendant)

One mother praises the efficacy of consulting traditional healers while pregnant. She referenced her own personal experience. She stated,

Respondent: Yes, because when I conceived my daughter that's when I went to see the traditional healer, and everything has been going well and I never had any problem. (Mother 3)

4.6 COMMUNITY KNOWLEDGE AND ACCEPTANCE OF MATERNAL IMMUNIZATION

Knowledge And Perception Towards Maternal immunization

Table 10 shows that 32.3% of the respondents have a good knowledge of the benefits of maternal immunization, 55.2% of them averagely understand some benefits of maternal immunization, 12.0% of them do not know anything about the benefits of maternal immunization.

MATERNAL IMMUNIZATION

How would you rate your knowledge surrounding the benefits of maternal immunization?

	Frequency	Percent
Good: I understand all the benefits of maternal immunization	124	32.3
Average: I understand some benefits of maternal immunization but could know more	212	55.2
None: I don't know anything about maternal immunization	46	12.0
Missing System	2	.5
Total	384	100.0

Knowledge Of Maternal Vaccines

Divergent views persisted regarding the awareness of maternal vaccines. The vast majority of participants were said to be unaware of the vaccines given to pregnant women to prevent stillbirths.

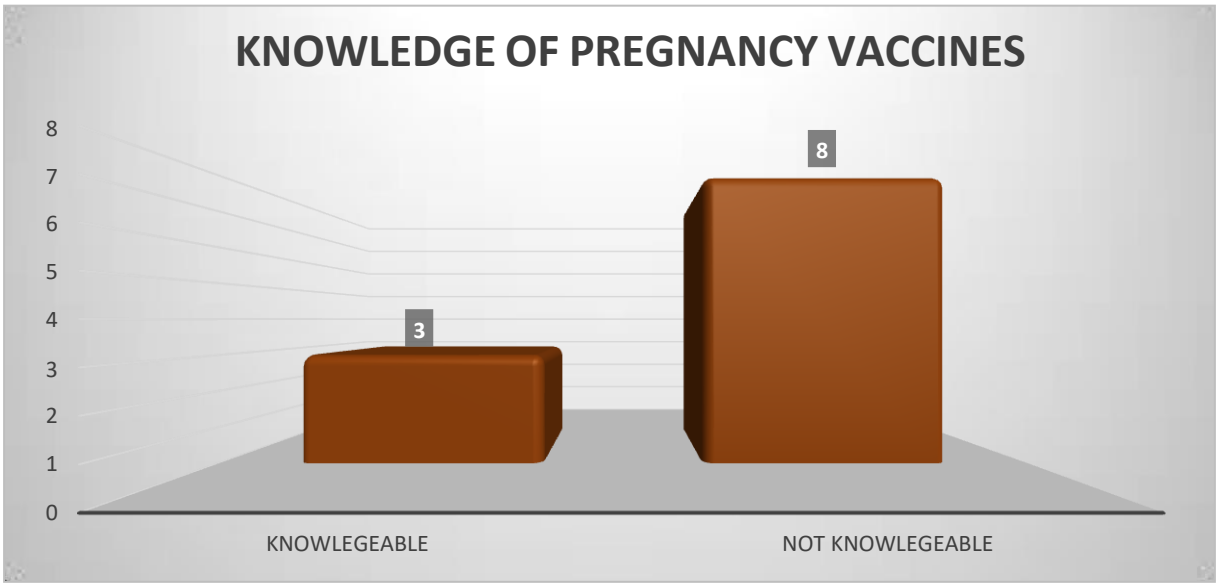


Figure 10: Knowledge of Pregnancy Vaccines

The lack of knowledge among the mothers who participated in this study can be attributed toa lack of Immunization during their pregnancies, as they claimed not to have been vaccinated and that they were only given supplements.

> *No, I didn't get any immunizations for myself. The only ones I got was those supplements from the clinic because it was only those pills. (Transcript 3mother)*

When One health care worker was asked whether she is aware or not of maternal vaccinesshe said

> "*Yes, I am… there is Tetanus given at clinics.*" (Health Care Worker).

Perceptions On Maternal Immunization

There were mixed feelings about maternal immunization; some were opposed to it, while others supported it.

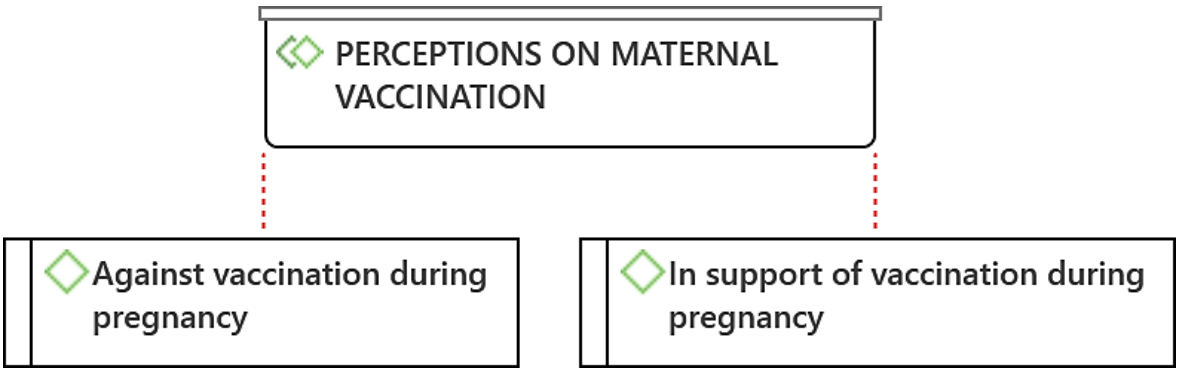


Figure 11: Perceptions of Maternal Immunization

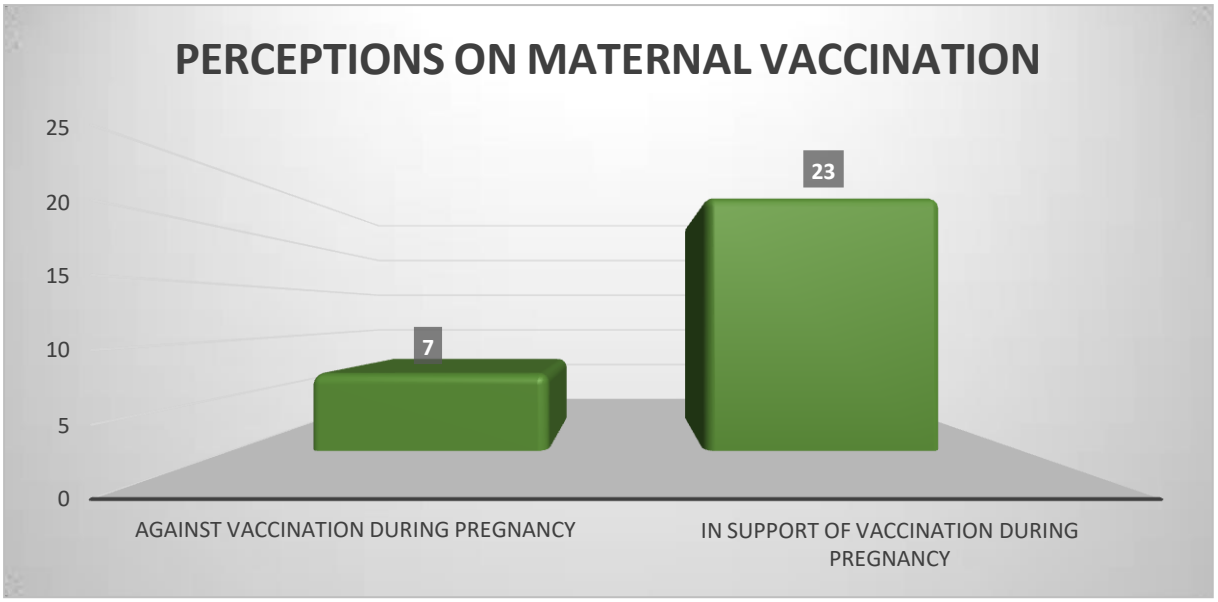


Figure 12: Perceptions of Maternal Immunization Graph

q. Against Immunization During Pregnancy

Few of the participants were against maternal Immunization. Religious and cultural beliefs were found to be having an impact with regards to their opposition to maternal vaccines.

> *According to our church, we don't take any vaccines because the Bible tells us that we must come back the very same way we left. So, I don't encourage them to take the vaccines and other staffs but then we the current law, I am notreally stating it straight, but they do know that we have our bill of rights at church that this is what we are doing, and this is what we are not doing. Even the Covid-19 vaccine we don't really encourage them to take it, even myself I did not vaccinate because of my religious belief, religiously I am not allowed to. (Religious leader)*

No, she was not taking any because after we got married as Christians wedon't have to use or take any prevention medications or any vaccines. After getting married you are ready to become a parent or a mother.

Interviewer: If there was a chance to check the cause and find that it was related to medical condition which has a vaccine to prevent stillbirth, would you have advised her to take the vaccine or not?[P SEP]*Respondent: No, I wouldn't. (Father33 years, male)*

However, other participants are not influenced by either religion or culture but wouldn't take the vaccines because of fear of not knowing the impact the vaccine might have on their babies.

So, majority of them are saying that they are not sure about the vaccines they would rather vaccinate after giving birth, it is rather to be safe than sorry… They are positive but mostly they will tell you that they are scared. (Interview 6midwife,48 years, female)

r. In Support of Maternal Immunization

While some were against the maternal Immunization, others were in favour of it, claiming thatthey would recommend it to pregnant women, and the following excerpts support this claim:

"Yah, I would encourage them to get vaccinated against that diseases but then there would be some traditional herbs that I will be giving them because back then while growing up there occurred a dreadful and incurable illness called incubulunjwane, the grannies took inkaka, (artemisia) umhlonyane and msutwane and boil together with amacembe (leaves) omgwabo and then make all those infected by that sickness to drink and also use it in the enema. Kids who came out yellow mucus were also given this concoction and they were healed. Even now I still use the medicine and give to adults as well. Since thesediseases come in many variants, I always encourage people to also go to the hospitals and get vaccinated" (Sangoma,32years,male)

"Yes, obviously we would since we are not God, and we need these western doctors to assist us. As much as we believe that our traditional medicine can help, we also believe that you also studied and scientifically proven that the western medicine can help. Just as we are also learning we believe that we will

get to a point that we will be able to tell you that this kind of traditional medicine will help but you should still go to the hospital. We don't survive on our own, neither do you, we all need each other" ((Sangoma,32years,male)

"If then we traditional healers discourage pregnant women to go to the hospitals, they may give birth to babies with disabilities. If the baby is a bridge,you as a traditional healer you can't see that, you will continue giving this woman traditional herbs until the baby dies; but the doctors are able to seethat through sonar scans and help the mother and baby. I strongly agree with hospitals, if you are pregnant go to the hospital to get immunization" (Sangoma,32years,male))

The mothers who were interviewed said they would strongly recommend the vaccine becausethey understand the suffering of losing a child. This argument is supported by the quotations below.

"Respondent: Yes, I would and recommend it" (mother)

"Respondent: In order to save the child, I mean it is very painful to lose a child" (Mother)

"Respondent: Honestly speaking I would take it after the experience, because ifI were to take it before or during the time, I was pregnant, and something happens I was going to point fingers and say if it was not for the vaccine my child would have been alive. But after my experience I would" (mother)

"Respondent: Yes. I would have taken it. Rather than regretting if in case something happens' (mother)

The home-based caregiver also mentioned that vaccines are important and that she will recommend them, and the quotations below concur with this:

"Yes, I do recommend because remember doctors do know what is relevant for the baby and what is relevant for the mother" (Home based caregiver,59years,Female)

"Respondent: Honestly speaking I do recommend that they go to the doctor because I don't believe that doctors can lie about someone's health. Let me put it like this, I do recommend, and I would recommend as long as it thoroughly tested."

Finally, the community leader argues that Immunization is important because it protects the baby, as stated below:

"Yes, yes, it's good, its prevention and it protects then baby, it's good, and I support it. Even now, we encourage them to go get vaccinated against COVID. There is one lady who is pregnant, we told her to go to get vaccinated, but I don't know if she did go or not." (Community leader52 years, female.)

4.7 SUMMARY OF FINDINGS

With the aim of capturing community perception, knowledge, and attitude on causes ofstillbirth, this study using both quantitative and qualitative methods to strengthen the findings, has collectively captured the understanding of stillbirth from the community'sperspective as the 'death of unborn baby'. This study indicates that both male and female correspondents have a knowledge of still birth.

Factors such as abortion attempt, baby weight, comorbidities, health care worker negligence, being medically unfit to carry the child, poor antenatal care attendance, poor nutrition, being strangled by the umbilical cord, stress, witchcraft, and mother's negligence has been stated as the possible causes of still birth by the study participants. Reactions towards receiving the news of the stillbirths were mostly hurt, shocked, disappointed and some needed explanation as to why it happened. To most participant, it is still an unanswered question. The findings reveals that mostly male participants needed an explanation.

In relating to coping mechanism, counselling, the presence and support of family and friends, and traditional medicine for cleansing, has been the responses from the participant. However, that was not the case for a participant as she complains of lack of support,particularly from her household.

The findings have also shown practices done by participant in trying to prevent still birth,which includes, early antenatal care attendance, Health education for pregnant women, traditional concoction, and adequate medical attention. This study also captured participant knowledge of maternal immunization, understanding of maternal immunization benefits and acceptance. It was found that vast majority of participants were said to be unaware of the vaccines given to pregnant women to prevent stillbirths and confused it for supplement given during antenatal. It also indicates that most participant only have an average knowledge of benefit of maternal immunization. Few of the participants were against maternal Immunization due to Religious and cultural belief while others were in favor of it, claiming that they would recommend it to pregnant women, as it is a medical advice to help protect the other and the baby.

CHAPTER FIVE
DISCUSSION, CONCLUSION AND RECOMMENDATION

5.0 DISCUSSION

The main aim of this study was to explore community perceptions, knowledge, and attitudeon the causes of stillbirth. Several studies have shown the definition and classification of stillbirth as "a baby born with no sign of life at or after 28 weeks' gestation" [1,3], with classification according to gestational age. An early stillbirth occurs between 20 and 27 weeks of pregnancy, while a late stillbirth occurs between 28 and 36 weeks of pregnancy, anda term stillbirth at 37 or more completed weeks of pregnancy [18]

In this study, community members defined stillbirth as the death of an unborn baby, however,their definition is not clarified by gestation age, but the emphasis was laid on the fact that it's a developed baby already and thus differentiates it from miscarriage. Different definitions of stillbirth have led to a lot of underreporting of stillbirth cases [31,45].

Several studies have identified the clinical causes of stillbirth which included maternal causes, fetal causes, placental, and other external factors [1,4,6] Majority of the study participants based on their understanding, believed that the main cause of stillbirths includes medical reasons such as abortion attempt, low baby weight, being strangled by the umbilical cord, and being medically unfit to carry the child

However, healthcare professionals stated causes to be related to poor antenatal care attendance. This was attributed to HIV-positive mothers, and fear of being stigmatized by a family member or anyone who reads their status on the antenatal care card.

Maternal reasons such as mother's negligence, poor nutrition, stress due to emotional and physical abuse have also been stated as a relatable cause of stillbirth. By some participants in this study.

Studies have constantly shown that antenatal care is critical for both mother and child. Negligence and poor education of healthcare workers toward patients has being a topic[5,31].Health care worker negligence was mentioned as one of the causes leading to stillbirth. A response in this study has stated that if she was attended to in good time, as she had come to the hospital earlier since her symptom started, she wouldn't have lost the baby.

Traditional beliefs have been accepted as social norms social [12,31], especially within the black community. This study identified witchcraft as a cause of stillbirth and believed to lead to an obstruction in the womb such as fibroid to kill the baby. This is where the role of a traditional healer comes in the protection of the baby.

It is not good news to hear about the death of a baby in the womb. This study captured their attitudes towards their reaction to the news. It came with so much pain, hurt, disappointment, and mostly needed explanation. Autopsy of the fetus and lab testing after stillbirth can help inidentifying the cause of death [4]. This could give families who needed an explanation closure.

However, counselling and support system is very essential in this topic of discussion. Participants discussed the various support mechanisms available to them during their loss. Counselling from professionals, traditional, and religious leaders, the presence of family and friends, and traditional medicine for cleansing. This study has revealed the role and importance of the members of the community and household members in the healing process and mental stability of affected mothers and families. There is no doubt that siblings from affected mothers will be affected and have a question as regards stillbirth.[41]. A participant complained of a lack of support, especially from her household, and how she needed to lie to her older children about the whereabouts of the baby.

In a way to curb stillbirth, several studies have presented different mechanisms for reducing the rate of stillbirth, which includes maternal immunization [7,18]. This study captured ways community members perceive they could prevent stillbirth. The majority of the study participants emphasized adequate medical attention. These include Early antenatal care

attendance to detect complications earlier, Health education to educate pregnant women on the dos and don'ts of pregnancy allowing them to make more informed decisions.

Since traditional beliefs such as witchcraft has been indicated as one of the causes of stillbirth, the traditional concoction was mentioned by participants as one of the actions they take to prevent and ensure a successful pregnancy. It is believed that the pregnancy needs to be protected at the early stage, thus endorsing the need for a traditional birth attendant and healer.

This study also captured participant knowledge surrounding the benefits of maternal immunization and their readiness to acceptance towards it to prevent stillbirth. Vast majority of participants were said to

be unaware of the vaccines given to pregnant women to prevent stillbirths and mistake supplements given in the hospital for Immunization,this lack of knowledge among the mothers who participated in this study can be attributed toa lack of Immunization during their pregnancies. One of the healthcare workers was only ableto testify to the tetanus vaccine given at the clinic and this should raise a question of if maternal immunization is given to pregnant women across the healthcare facilities in Soweto, South Africa. The awareness of the benefit of maternal immunization amongst the participants is on average and participants hope to be educated on it. However, this has not affected their perception of accepting maternal Immunization. Most of the participants are in favor of it, believing immunization is a system that have being created to protect the mother and child from a certain disease. While some participants in this study would not accept maternal immunization because of religious reasons and fear of not knowing the impact the vaccine might have on their babies.

5.1 CONCLUSION

The definition of stillbirth states possible causes of stillbirth from the community perceptive has opened a window of understanding as to the gap of some unknown causes of stillbirth. The attitude and practices of the community toward this experience indicate efforts to reduce and prevent the cases and causes of stillbirth, encouraging mostly adequate medical attention traditional involvement. The knowledge surrounding maternal immunization is on average in this study but has not affected their perception of the acceptance of maternal immunization. Clinically the information can be used to help improve health education to the community as regards still birth causes, preventive measures, and maternal immunization. It will also helps in policymaking as regards potential maternal vaccines that can prevent stillbirth-related diseases.

5.2 RECOMMENDATION

After the finding of this study, Comprehensive strategies are needed to improve community knowledge and understanding of stillbirth. The reporting system for stillbirths should be aligned with the WHO definition of stillbirth [3] it is important to further a social science study on a coping mechanism of the bevered. Early screening and identification of high-risk pregnancies can prevent stillbirths.[42] Specialized training and refresher courses are needed for maternal healthcare providers to screen and refer the cases of high-risk pregnancies to the health facilities. It is important to challenge the societal stereotypes about stillbirth by enhancing the communities, Since the fear of being stigmatized as an HIV positive prevents some others from attending antenatal, it is important to improve the awareness of the necessity of antenatal care, for HIV positive women and awareness and improving health literacy about the causes of stillbirth and the significance of its reporting. It is also important for the public healthcare sector to create awareness and health education in the community,on the knowledge and benefit of maternal immunization. In doing this, it will help reduce vaccine hesitancy towards maternal immunization and help in policymaking for maternal vaccines relatable to maternal disease that has been identified to cause stillbirth.

REFERENCES

1. A neglected tragedy: The global burden of stillbirths 2020 https://www.unicef.org/reports/neglected-tragedy-global-burden-of-stillbirths-2020.
2. McClure, E. M., Garces, A., Saleem, S., Moore, J. L., Bose, C. L., Esamai, F., Goudar, S. S., Chomba, E., Mwenechanya, M., Pasha, O., Tshefu, A., Patel, A., Dhaded, S. M., Tenge, C., Marete, I., Bauserman, M., Sunder, S., Kodkany, B. S., Carlo, W. A., Derman, R. J., … Goldenberg, R. L. (2018). Global Network for Women's and Children's Health Research: probable causes of stillbirth in low- and middle-income countries using a prospectively defined classification system. BJOG: an international journal of obstetrics and gynaecology, 125(2), 131–138. https://doi.org/10.1111/1471-0528.14493.
3. WHO, 2020. Maternal, newborn, child, and adolescent health. https://www.who.int/maternal_child_adolescent/epidemiology/stillbirth/en/
4. Prof Shabir A Madhi, PhD Carmen Briner, MBBCh Salome Maswime, PhD Simpiwe Mose, FCO&G Philiswa Mlandu, DipObst [SA] Richard Chawana, PhD Jeannette Wadula, FCPath Yasmin Adam, FCO&G Alane Izu, PhD Clare L Cutland, PhD "Causes of stillbirths among women from South Africa: a prospective, observational study"Published: April 2019.
5. Elizabeth M McClure, Robert L Goldenberg, Understanding causes of stillbirth: moving in the right direction, The Lancet Global Health,Volume 7, Issue 4,2019.
6. M Aminu, R Unkels, M Mdegela, B Utz,S Adaji,N van den Broek "Causes of and factors associated with stillbirth in low- and middle-income countries: a systematic literature review"18 September 2014 .
7. Anna C. Seale, Carol J. Baker, James A. Berkley, Shabir A. Madhi, Jaume Ordi, Samir K. Saha, Stephanie J. Schrag, Ajoke Sobanjo-ter Meulen, Johan Vekemans,. Vaccines for maternal immunization against Group B Streptococcus disease: WHO perspectives on case ascertainment and case definitions, Vaccine,Volume 37, Issue 35,2019.
8. István Nagy, Károly Pap, Ferenc Dicső, Ibolya Arany, Chorioamnionitis is still the main cause of preterm birth, European Journal of Obstetrics & Gynecology and Reproductive Biology,Volume 206,2016.
9. Vicki Flenady, Aleena M. Wojcieszek, David Ellwood, Susannah Hopkins Leisher, Jan Jaap H.M. Erwich, Elizabeth S. Draper, Elizabeth M. McClure, Hanna E. Reinebrant, Jeremy Oats, Lesley McCowan, Alison L. Kent, Glenn Gardener, Adrienne Gordon, David Tudehope, Dimitrios Siassakos, Claire Storey, Jane Zuccollo, Jane E. Dahlstrom, Katherine J. Gold, Sanne Gordijn, Karin Pettersson, Vicki Masson, Robert Pattinson, Jason Gardosi, T. Yee Khong, J Frederik Frøen, Robert M. Silver,Classification of causes and associated conditions for stillbirths and neonatal deaths,Seminars in Fetal and Neonatal Medicine,Volume 22, Issue 3,2017.
10. Lena Sweeney, Katherine Campbell, Lisbet S. Lundsberg, Uma M. Reddy,1140 Stillbirth cause and potential preventability in tertiary care hospital population, American Journal of Obstetrics and Gynecology, Volume 224, Issue 2, Supplement,2021.

11. Kate F. Walker, Lucy Bradshaw, George J. Bugg, Jim G. Thornton, Causes of antepartum stillbirth in women of advanced maternal age, European Journal of Obstetrics & Gynecology and Reproductive Biology,Volume 197,2016.
12. Sesi Noge, Yvonne Botma, Hannes Steinberg, Social norms as possible causes of stillbirths, Midwifery,Volume 90,2020.
13. Francesca M. Russo, Elisa Pozzi, Francesca Pelizzoni, Lyudmyla Todyrenchuk, Davide P, Bernasconi, Sabrina Cozzolino, Patrizia Vergani, Stillbirths in singletons, dichorionic and monochorionic twins: a comparison of risks andcauses, European Journal of Obstetrics & Gynecology and Reproductive Biology,Volume 170, Issue 1,2013.
14. Jessica M. Page, Nathan R. Blue, Robert M. Silver, Fetal Growth and Stillbirth, Obstetrics and Gynecology Clinics of North America,Volume 48, Issue2,2021.
15. D. Pollock, C.C.J. Shepherd, A.A. Adane, C. Foord, B.M. Farrant, J. Warland, Knowing your audience: Investigating stillbirth knowledge and perceptions in the general population to inform future public health campaigns, Women and Birth,2021.
16. Aminu, M., Bar-Zeev, S., White, S. *et al.* Understanding cause of stillbirth: a prospective observational multi-country study from sub-Saharan Africa. *BMC Pregnancy Childbirth* 19, 470 (2019).
17. Marguerite Herschel, Hui-lung Hsieh, Robert Mittendorf, Babak Khoshnood, Robert F. Covert, Kwang-sun Lee, Risk factors for fetal death in white, black, and hlspanic women, Obstetrics & Gynecology,Volume 85, Issue 2,1995.
18. Tavares Da Silva, Fernanda et al. "Stillbirth: Case definition and guidelines for data collection, analysis, and presentation of maternal immunization safety data." *Vaccine* vol. 34,49 (2016): 6057-6068. doi: 10.1016/j.vaccine.2016.03.04.
19. Nicole Graham, Alexander E.P. Heazell, When the Fetus Goes Still and the Birth Is Tragic: The Role of the Placenta in Stillbirths, Obstetrics and Gynecology Clinics of North America,Volume 47, Issue 1,2020.
20. Bedwell, C, Blaikie, K, Actis Danna, V, Sutton, C, Laisser, R, Tembo Kasengele, C, Wakasiaka, S, Victor, S, Lavender, T. Understanding the complexities of unexplained stillbirth in sub-Saharan Africa: a mixed-methods study. *BJOG* 2021.

21. Simionescu, A.A.; Streinu-Cercel, A.; Popescu, F.-D.; Stanescu, A.M.A.; Vieru, M.; Danciu, B.M.; Miron, V.D.; Săndulescu, O. Comprehensive Overview of Immunization during Pregnancy in Europe. *J. Pers. Med.* 2021.
22. Schwartz, D.A. Stillbirth after COVID-19 in Unvaccinated Mothers Can Result from SARS-CoV-2 Placentitis, Placental Insufficiency, and Hypoxic Ischemic Fetal Demise, Not Direct Fetal Infection: Potential Role of Maternal Immunization inPregnancy. *Viruses* 2022.
23. https://data.unicef.org/resources/global-regional-and-national-estimates-and-trends-in- stillbirths.
24. 34.DU TOIT-PRINSLOO, L; PICKLES, C and SAAYMAN, G. Managing the remains of fetuses and abandoned infants: A call to urgently review South Africanlaw and medicolegal practice. SAMJ, S. Afr. med. j. [online]. 2016.
25. Lawn JE, Blencowe H, Waiswa P, et al. Stillbirths: rates, risk factors, and accelerationtowards 2030. Lancet 2016; 387: 587–603.
26. Flenady V, Wojcieszek AM, Middleton P, et al. Stillbirths: recall to action in high- income countries. Lancet 2016; 387: 691–702.
27. Fretts RC, Boyd ME, Usher RH, Usher HA. 2007. The changing pattern of fetal death, 1961–1988. Obstet Gynecol. 1992; 79:35–9.
28. Di Mario, S., Say, L, Lincetto O. 2007. Risk Factors for Stillbirth in Developing Countries: A Systematic Review of the Literature August 2007. Sex Transm Dis 34(7 Suppl): S11-21. DOI: 10.1097/01.olq.0000258130. 07476.e3.
29. https://www.researchgate.net/publication/6245840_Risk_Factors_for_Stillbirth_in_D eveloping_Countries_A_Systematic_Review_of_the_Literature (Accessed on 2020-07-11).
30.

30. Ruitong Wang, Wenxin Yan, Min Du, Liyuan Tao, Jue Liu,The effect of influenza virusinfection on pregnancy outcomes: A systematic review and meta-analysis of cohort studies,International Journal of Infectious Diseases,Volume 105,2021.

31. Zakar, M.Z., Zakar, R., Mustafa, M. *et al.* Underreporting of stillbirths in Pakistan: perspectives of the parents, community and healthcare providers. *BMC Pregnancy Childbirth* 18, 302 (2018).

32. https://bettercare.co.za/learn/saving-mothers-and-babies/text/0-3-contents.html

33. Sample Size Calculator "Visited 2020" https://www.calculator.net/sample-size-calculator.html?type=1&cl=95&ci=5&pp=50&ps=635&x=40&y=10. 35
34. Robert L Goldenberg, Prof, Dr, MD, Elizabeth M McClure, MEd, Sarah Saleem, MBBS, and Uma M Reddy, MD "Infection-related stillbirths" Lancet. 2010 24-30 April; 375(9724): 1482–1490.
35. Regan AK, Moore HC, de Klerk N, Omer SB, Shellam G, Mak DB, Effler PV. Seasonal Trivalent Influenza Immunization During Pregnancy and the Incidence of Stillbirth: Population-Based Retrospective Cohort Study. Clin Infect Dis. 2016 May 15;62(10):1221-7. doi: 10.1093/cid/ciw082. Epub 2016 Mar 30. PMID: 27033634.
36. Champs HDSS – Child Health and Mortality Prevention Surveillance (CHAMPS): Health and Demographic Surveillance System (HDSS) Protocol with EthicsReference No: 170216, 13 June 2017.
37. Champs – Child Health and Mortality Prevention Surveillance (CHAMPS): Mortality Surveillance Protocol with Ethics Reference No: 170309, 26 May 2017.
38. https://www.emeraldgrouppublishing.com/how-to/research-methods/using-mixed-methods-research.
39. https://scientificinquiryinsocialwork.pressbooks.com/chapter/10-2-sampling-in-qualitative research. Stephanie Glen. "Simple Random Sample: Definition and Examples"

    From StatisticsHowTo.com: Elementary Statistics for the rest of

    us! https://www.statisticshowto.com/probability-and-statistics/statistics-definitions/simple-random-sample/.
40. Ngalande, R. C. and Mkwinda, E. (2014). *Benefits and challenges of using ATLAS.ti*. Retrievedfrom:https://depositonce.tuberlin.de/bitstream/11303/5132/1/16_ngalande_4 422.pdf. (Accessed 17 March 2020).
41. Stillbirth and siblings: Children need to learn how to grievehttps://www.irishtimes.com/life-and-style/health-family/parenting/stillbirth- and-siblings-children-need-to-learn-how-to-grieve-1.4140510.

42. Neogi, S.B., Sharma, J., Negandhi, P. *et al.* Risk factors for stillbirths: how much cana responsive health system prevent? *BMC Pregnancy Childbirth* **18,** 33 (2018). https://doi.org/10.1186/s12884-018-1660-1

43. BM Corp. Released 2019. IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBMCorp (https://www.ibm.com/support/pages/downloading-ibm-spss-statistics-26)
44. TheKAP survey model https://www.researchgate.net/file.PostFileLoader.html?id=56acfe3160614b17788b4592&assetKey=AS%3A323666162716672%401454179434027
45. Aliki Christou, Ashraful Alam, Sayed Murtaza Sadat Hofiani, Mohammad Hafiz Rasooly, Adela Mubasher, Mohammad Khakerah Rashidi, Michael J. Dibley, Camille Raynes-Greenow,. How community and healthcare provider perceptions, practices and experiences influence reporting, disclosure, and data collection on stillbirth: Findings of a qualitative study in Afghanistan, Social Science & Medicine Volume 236,2019.
46. DeJonckheere M, Vaughn LM. Semistructured interviewing in primary care research: a balance of relationship and rigor. Fam Med Community Health. 2019 Mar 8;7(2): e000057. doi: 10.1136/fmch-2018-000057. PMID: 32148704; PMCID: PMC6910737.

47. Motlatso Godongwana, Nellie Myburgh, Sunday A. Adedini, Clare Cutland, Nomasonto Radebe,
48. Knowledge and attitudes towards maternal immunization: perspectives from pregnant and non-pregnant mothers, their partners, mothers, healthcare providers, community, and leaders in a selected urban setting in South Africa, Heliyon, Volume 7, Issue 1,2021,
49. Chimukuche, R.S.; Ngwenya, N.; Seeley, J.; Nxumalo, P.S.; Nxumalo, Z.P.; Godongwana, M.; Radebe, N.; Myburgh, N.; Adedini, S.A.; Cutland, C. Assessing Community Acceptance of Maternal Immunisation in Rural KwaZulu-Natal, South Africa: A Qualitative Investigation. *Vaccines* **2022**,*10*,415. https://doi.org/ 10.3390/vaccines10030415.

APPENDICES

WITS UNIVERSITY

PARTICIPANT CONSENT SHEET

Project Title: Community perceptions, knowledge and attitudes on causes of stillbirths

1. I have been given a Participant Information Sheet which explains the nature and processes involved in this study, which is attached hereto.
2. I was given time to read it, or had it read to me, in the language I best understand.
3. I was given time to ask any questions I wanted to and found any answers given to me to be reasonable and satisfactory.
4. I believe I fully understand why the study is being conducted and what the intended outcomeswill be.
5. I understand that there will be no immediate benefit to me, should I agree to participate, nor will I receive any payment; conversely, participation will not cost me anything but my time.
6. I understand that, even if I initially consent to take part in the study, I may subsequently withdraw at any time and would not be required to give any reasons; if that happened, any data collected about me for the purposes of the study would immediately be destroyed,unless I give consent for it to be retained
7. I have been given a range of contact details, listed below. If I require further information or become concerned about any aspect of this study, I am free to speak to any of these contacts.

Contact details:

Principal Investigator: Dr. Olabisi Rosemary Eso-Obaleye on telephone number 065 935 9180, or on e-mail at esoobaleyeolabisi@gmail.com

Supervisor: Dr Nellie Myburgh on telephone number 011 983 4277, or on e-mail at myburghn@rmpru.co.za

Professor CB Penny, Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand, on telephone no. 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za.

Ms. Z Ndlovu or Mr Rhulani Mkansi, Committee Secretariat, telephone nos.: 011 717 2700 or 1234, or by e-mail at: Zanele.Ndlovu@wits.ac.za or Rhulani.Mkansi@wits.ac.za

Name of Participant: _____ Date: _____
Place: _____ Signature or mark _____

Witnessed by:

Name of Witness: _____

Signature: _____ Date: _____

CONSENT FORM FOR AUDIO RECORDING OF STUDY PARTICIPATION

Project Title: Community perceptions, knowledge and attitudes on causes of stillbirths

I hereby consent to audio recording of the interview

.

I understand that:

- The recording will be stored in a secure location (a locked cupboard or password protected computer) with restricted access to the researcher and the research supervisor.
- The recording will be transcribed and any information that could identify me will be removed,
- The recordings will be erased within either (a) two (2) years of the publication of the research findings, or (b) six (6) years, if no publications arise from this research
- Anyone wishing to access this information in the future will first have to obtain the approval of the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg
- Direct quotes from my interview, without any information that could identify me, may be cited in the research report or other write-ups of research.

Name of Participant: _____ Date: _____
Place: _____ Signature or mark _____

Witnessed by:

Name of Witness: _____ Signature: _____ Date:
_____

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

Participant Information Sheet: For FathersQualitative Study

Good day, my name is Dr. Eso- Obaleye Olabisi Rosemary. I am a postgraduate master's student, studying vaccinology at Wits University and a member of Alive, a division of the Wits Health Consortium based at Chris Hani Baragwanath Hospital. I would like to invite you to participate in the study entitled: **COMMUNITY PERCEPTIONS, KNOWLEDGE, AND ATTITUDES ON CAUSES OF STILLBIRTHS** in Soweto, South Africa.

We invite you to take part in the qualitative part of the study as we believe that you have relevant and valuable information that you can share with us.

In this qualitative section of the study, the researchers' aim is to understand the experiences of stillbirth from your perspective. Thus, you will be interviewed as an affected father to understand your perceptions on the causes of stillbirth. A Key-informant interview which will last about 1 hour each, will be conducted among women who experienced stillbirths within the past year and among traditional birth attendance and Hospital midwives. This process will also include , midwives, traditional birth attendances, and religious leaders. Cultural, religious, and social norm practices towards stillbirth and their perception towards the acceptance of maternal immunization information will also be passed across.

Your participation is voluntary, and you are free to stop the interview at any time if you feel that you cannot continue. Your refusal to participate will not involve any penalty, nor your ability to access health care services. Contact of a grief counselling resource within Wits- Vida will be made available on site for you for comfort if needed. In the same vein, you will not be coerced or given a monetary reward for participating in the study.

We, as researchers, will ensure that your participation in the study remains anonymous andeverything you say will be treated with the utmost confidentiality. To ensure this, your name or any identification markers will be removed from the data so that it wouldn't be traced back to you.

At the end of this process, the findings of the study will be made available to the public through research reports, publications for academic purposes and the findings will also be used to change policy and program-related activities. Your participation in the study will be acknowledged.

If you want any information regarding your rights as a research participant, or complaints regarding this research study, you may contact Prof C. B. Penny, Chairperson of the University of the Witwatersrand, Human Research Ethics Committee (HREC), which is an independent committee established to help protect the rights of the research participants at (011) 717- 2301.

Consent

I have read the information sheet and I consent voluntarily and understand that if I decline permission this will not have any negative consequences for me or my family and that I can choose to stop participating at any time even if the discussion is not complete.

Participant:

_____

Name

_____

Signature

_____/_____/_____ Date

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

Participant Information Sheet: For MothersQualitative Study

Good day, my name is Dr. Eso- Obaleye Olabisi Rosemary. I am a postgraduate master's student, studying vaccinology at Wits University and a member of Alive, a division of the Wits Health Consortium based at Chris Hani Baragwanath Hospital. I would like to invite you to participate in the study entitled: **COMMUNITY PERCEPTIONS, KNOWLEDGE, AND ATTITUDES ON CAUSES OF STILLBIRTHS** in Soweto, South Africa.

We invite you to take part in the qualitative part of the study as we believe that you have relevant and valuable information that you can share with us.

In this qualitative section of the study, the researchers' aim is to understand the experiences of stillbirth from your perspective. Thus, you will be interviewed as an affected mother to understand your perceptions on the causes of stillbirth. A Key-informant interview which will last about 1 hour each, will be conducted among women who experienced stillbirths within the past year and among traditional birth attendance and Hospital midwives. This process will also include fathers, midwives, traditional birth attendances, and religious leaders. Cultural, religious, and social norm practices towards stillbirth and their perception towards the acceptance of maternal immunization information will also be passed across.

Your participation is voluntary, and you are free to stop the interview at any time if you feel that you cannot continue. Your refusal to participate will not involve any penalty, nor your ability to access health care services. Contact of a grief counselling resource within Wits- Vida will be made available on site for you for comfort if needed. In the same vein, you will not be coerced or given a monetary reward for participating in the study.

We, as researchers, will ensure that your participation in the study remains anonymous andeverything you say will be treated with the utmost confidentiality. To ensure this, your name or any identification markers will be removed from the data so that it wouldn't be traced back to you.

At the end of this process, the findings of the study will be made available to the public through research reports, publications for academic purposes and the findings will also be used to change policy and program-related activities. Your participation in the study will be acknowledged.

If you want any information regarding your rights as a research participant, or complaints regarding this research study, you may contact Prof C. B. Penny, Chairperson of the University of the Witwatersrand, Human Research Ethics Committee (HREC), which is an independent committee established to help protect the rights of the research participants at (011) 717- 2301.

Consent

I have read the information sheet and I consent voluntarily and understand that if I decline permission this will not have any negative consequences for me or my family and that I can choose to stop participating at any time even if the discussion is not complete.

Participant:

_____

Name

_____

Signature

_____/_____/_____ Date

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

Participant Information Sheet: FOR MIDWIVESQualitative Study

Good day, my name is Dr. Eso- Obaleye Olabisi Rosemary. I am a postgraduate master's student, studying vaccinology at Wits University and a member of Alive, a division of the Wits Health Consortium based at Chris Hani Baragwanath Hospital. I would like to invite you to participate in the study entitled: **COMMUNITY PERCEPTIONS, KNOWLEDGE, AND ATTITUDES ON CAUSES OF STILLBIRTHS** in Soweto, South Africa.

We invite you to take part in the qualitative part of the study as we believe that you have relevant and valuable information that you can share with us.

In this qualitative section of the study, the researchers' aim is to understand the experiences of stillbirth from your perspective. Thus, you will be interviewed as a midwife to understand your perceptions on the causes of stillbirth and mothers you have managed perception on stillbirth. A Key-informant interview which will last about 1 hour each, will be conducted among women who experienced stillbirths within the past year and among traditional birth attendance and Hospital midwives. This process will also include fathers, midwives, traditional birth attendances, and religious leaders. Cultural, religious, and social norm practices towards stillbirth and their perception towards the acceptance of maternal immunization information will also be passed across.

Your participation is voluntary, and you are free to stop the interview at any time if you feel that you cannot continue. Your refusal to participate will not involve any penalty, nor your ability to access health care services. Contact of a grief counselling resource within Wits- Vida will be made available on site for you for comfort if needed. In the same vein, you will not be coerced or given a monetary reward for participating in the study.

We, as researchers, will ensure that your participation in the study remains anonymous andeverything you say will be treated with the utmost confidentiality. To ensure this, your name or any identification markers will be removed from the data so that it wouldn't be traced back to you.

At the end of this process, the findings of the study will be made available to the public through research reports, publications for academic purposes and the findings will also be used to change policy and program-related activities. Your participation in the study will be acknowledged.

If you want any information regarding your rights as a research participant, or complaints regarding this research study, you may contact Prof C. B. Penny, Chairperson of the University of the Witwatersrand, Human Research Ethics Committee (HREC), which is an independent committee established to help protect the rights of the research participants at (011) 717- 2301.

Consent

I have read the information sheet and I consent voluntarily and understand that if I decline permission this will not have any negative consequences for me or my family and that I can choose to stop participating at any time even if the discussion is not complete.

Participant:

_____

Name

_____

Signature

_____/_____/_____ Date

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

Participant Information Sheet: For traditional birth attendant.Qualitative Study

Good day, my name is Dr. Eso-Obaleye Olabisi Rosemary. I am a postgraduate master's student, studying vaccinology at Wits University and a member of Alive, a division of the Wits Health Consortium based at Chris Hani Baragwanath Hospital. I would like to invite you to participate in the study entitled: **COMMUNITY PERCEPTIONS, KNOWLEDGE, AND ATTITUDES ON CAUSES OF STILLBIRTHS** in Soweto, South Africa.

We invite you to take part in the qualitative part of the study as we believe that you have relevant and valuable information that you can share with us.

In this qualitative section of the study, the researchers' aim is to understand the experiences of stillbirth from your perspective. Thus, you will be interviewed as a traditional birth attendant to understand your perceptions on the causes of stillbirth. A Key-informant interview which will last about 1 hour each, will be conducted among women who experienced stillbirths within the past year and among traditional birth attendance and Hospital midwives. This process will also include fathers, midwives, traditional birth attendances, and religious leaders. Cultural, religious, and social norm practices towards stillbirth and their perception towards the acceptance of maternal immunization information will also be passed across.

Your participation is voluntary, and you are free to stop the interview at any time if you feel that you cannot continue. Your refusal to participate will not involve any penalty, nor your ability to access health care services. Contact of a grief counselling resource within Wits- Vida will be made available on site for you for comfort if needed. In the same vein, you will not be coerced or given a monetary reward for participating in the study.

We, as researchers, will ensure that your participation in the study remains anonymous andeverything you say will be treated with the utmost confidentiality. To ensure this, your name or any identification markers will be removed from the data so that it wouldn't be traced back to you.

At the end of this process, the findings of the study will be made available to the public through research reports, publications for academic purposes and the findings will also be used to change policy and program-related activities. Your participation in the study will be acknowledged.

If you want any information regarding your rights as a research participant, or complaints regarding this research study, you may contact Prof C. B. Penny, Chairperson of the University of the Witwatersrand, Human Research Ethics Committee (HREC), which is an independent committee established to help protect the rights of the research participants at (011) 717- 2301.

Consent

I have read the information sheet and I consent voluntarily and understand that if I decline permission this will not have any negative consequences for me or my family and that I can choose to stop participating at any time even if the discussion is not complete.

Participant:

_____

Name

_____

Signature

_____/_____/_____ Date

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

FACULTY OF HEALTH SCIENCES

PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

I ESO-OBALEYE OLABISI ROSEMARY (Student number: 2287217) am a student

registered for the degree of MASTERS IN MEDICINE, VACCINOLOGY in the 2020 . academic year

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.
- I have included as an appendix a report from "Turnitin" (or other approved plagiarism detection) software indicating the level of plagiarism in my research document.

Signature: _____ Date: 31ST OF MARCH 2022

ANTITATIVE SURVEY FOR: COMMUNITY PERCEPTIONS, KNOWLEDGE, ANDATTITUDES ON CAUSES OF STILLBIRTHS

Good day, my name is Dr. Eso-Olabisi Rosemary. I am a postgraduate master's student, studying vaccinology at Wits University and a member of Alive, a division of the Wits Health Consortium based at Chris Hani Baragwanath Hospital. I would like to invite you to participate this study entitled: **COMMUNITY PERCEPTIONS, KNOWLEDGE, AND ATTITUDES ON CAUSES OF STILLBIRTHS** in Soweto, South Africa.

This quantitative study aims to describe and capture information on your knowledge and understanding of stillbirth, your preceptive about the cause of stillbirth, and your attitude towards the stillbirth. The essential of this surveyis to enhance the knowledge, attitude, and practices of the community towards causes of stillbirth, to identify what is known and done toward causes of stillbirth among individuals and households in the community, and your perceptive towards the acceptance of maternal immunization

Additionally, the study team would like to identify if you have any concerns or fears about vaccinating pregnant women and how well maternal immunization (MI) is accepted in general. The study will be conducted in Soweto South Africa, an urban (Soweto, Johannesburg, Gauteng). The study researchers would also like to understand the social and cultural factors which impact how well maternal immunization is accepted. This part of the study will involve a series of the cross-sectional face-to-face survey with a semi-structured questionnaire. Which will be conducted within individuals and households.

Please indicate your chosen answer with an 'X'

Do you consent to taking this survey?

Yes		No	

Section 1: DEMOGRAPHIC INFORMATION

What is your gender?	
1. Male	
2. Female	

What age category do you fall? (Select one) <18 years	
1. 20-30 years old	
2. 30-40 years old	
3. 40-50 years old	
4. 50-60 years old	
5. >60 years old	

What is your ethnic group	
1. white	
2. Black	
3. colored	
4. lndian	
5. Mothers	

What is your religion	
1. Christianity	
2. Muslim	
3. Traditionalist	
4. Others	

3) How many people live in your household including yourself? [CORE] _____

position in the Household.

What best describes your position in the Household? (Select one)	
1. Father-in-law	

2. Mother-in-law	
3. Husband	
4. Relative	
5. others	

SECTION 2: STILLBIRTH:

Knowledge

Do you understand what stillbirth is? (Select one)	
1. Yes	
2. No	
3. Not sure	

What do you think is the cause of stillbirth?	
1. Medical reason	
2. Natural occurrence	
3. Witchcraft	
4. Mother' Negligence	
5. Lack of traditional practice	
6. others	

ATTITUDE

How did you react to the news of the still birth	
1. Disappointed	
2. Expected	

3. supportive	
4. Needed an explanation	

5. others	

PRACTISES : Immunization of pregnant women

Do your advice antenatal care services to pregnant women?	
1. Yes	
2. No	
Do you understand maternal immunization?	
1. Yes	
2. NO	
3. NOT VERY WELL	

Do you recommend immunizations for pregnant women in your care?	
1. Yes	
2. No	

How would you rate your knowledge surrounding the benefits of maternal immunization?	
1. Good: I understand all the benefits of maternal immunization	
Average: I understand some benefits of maternal immunization butcould know more	
3. None: I don't know anything about maternal immunization	

How would your advice affected mother in prevention of still Birth?	
1. Adequate medical attention	
2. Traditional practice	

3. Religion practice Others	

N

Questionaries for Qualitative part of the study: **COMMUNITY PERCEPTIONS, KNOWLEDGE, ANDATTITUDES ON CAUSES OF STILLBIRTHS**

Questionaries for Qualitative part of the study: **COMMUNITY PERCEPTIONS, KNOWLEDGE, ANDATTITUDES ON CAUSES OF STILLBIRTHS**

SECTION 1:
FOR MOTHERS WHO HAVE EXPERIERENCED STILLBIRTH

DEMOGRAPHICS

i. Age: How old are you?
ii. Marital status: What is your marital status?
iii. What is your ethnic group? Black African, Colored, White, Indian/Asian.

STILLBIRTHS

(NB: I would like to ask you very personal questions. If you do not want to answer them, please let me know and we will stop the interview immediately. Are you alright if we continue? Yes, no (If no, the interview will be stopped immediately andapologies for any distress caused. At this point an option to reach out to the Grief Counsellor who will provide grief counselling will be suggested). If yes, we continue with the interviews.

ANTENATAL CARE:

a. Tell me a brief story about your pregnancy.
b. Number of children: How many times have you given birth? How many alive? Howmany deceased?
c. Did you attend antenatal classes, clinic, what? during the course of the pregnancy?
d. (If yes). Did you keep all your antenatal appointments?
e. Maternal immunization (vaccine intake and acceptance):
i. Are you aware of vaccines given during pregnancy?
ii. Did you receive any vaccine during your antenatal period? (If yes, doyou know which one), (if no, why didn't you?)
iii. If there was a vaccine to protect you against stillbirths, would you bewilling to accept it? Give your reasons.

STILLBIRTHS: KNOWLEDGE/PERCEPTIONS

a. What would you say is the meaning of a stillbirth? (YOUR OWNUNDERSTANDING)
b. What do you think caused your previous still birth?
c. Is there anything you think you might have done differently?

STILLBIRTHS: ATTITUDES

a. What was your reaction towards the news when you had still birth?What was your family reaction towards the news when you had still birth?

SECTION 2:
FOR FATHERS WHO HAVE EXPERIERENCED STILLBIRTH

DEMOGRAPHICS

iv. Age: How old are you?
v. Marital status: What is your marital status?
vi. What is your ethnic group?

STILLBIRTHS

(NB: I would like to ask you very personal questions. If you do not want to answer them, please let me know and we will stop the interview immediately. Are you alright if we continue? Yes, no (If no, the interview will be stopped immediately andapologies for any distress caused. At this point an option to reach out to the Grief Counsellor who will provide grief counselling will be suggested). If yes, we continue with the interviews.

ANTENATAL CARE:

f. Tell me a briefly story about your partner's pregnancy.
g. Number of children: How many times have your partner given birth? How manyalive? How many deceased?
h. Did you attend antenatal visits with your partner during the course of thepregnancy?
i. (If yes). Did she keep all your antenatal appointment?
j. Maternal immunization (vaccine intake and acceptance):
i. Are you aware of vaccines given during pregnancy?
ii. Did your advice your partner to receive any vaccine during antenatalperiod? (If yes, do you know which once), (if no, why didn't you?)
iii. If there was a vaccine to protect you against stillbirths, would you bewilling to accept it? Give your reasons.

STILLBIRTHS: KNOWLEDGE/PERCEPTIONS

a. What would you say is the meaning of a stillbirth? (YOUR OWNUNDERSTANDING)
b. What do you think caused the stillbirth you experienced?

c. Is there anything you think you might have done differently?

STILLBIRTHS: ATTITUDES

b. What was your reaction towards the news when you had still birth?
c. What was your family reaction towards the news when you had stillbirth?

SECTION 3:
MIDWIFES:

DEMOGRAPHIC

a. Age: How old are you?

b. Marital status: What is your marital status?
c. Gender: male or Female.
d. What is your ethnic group?
e. What is your education level?
f. Work experience.
i. How would you best describe your practice/job?
ii. How many years of experience do you have?
iii. How often do you attend to mothers and family with stillbirth cases?

STILLBIRTH

ANTENATAL CARE

a. Do you offer antenatal care at your clinic?
b. From what gestational age do the antenatal care starts?
c. What practices do you offer during antenatal visits?
d. Maternal immunization (vaccine intake and acceptance):
i. Do you offer maternal immunization at your clinic?
ii. (If yes) Which one, do you recommend/offer?
iii. How do pregnant patient responses to receiving vaccines duringpregnancy?

KNOWLEDGE\PERCEPTION

a. How do you understand and explain stillbirth?

ATTITUDE

I. What do you explain to your patients and family is the cause of stillbirth?
II. What is mostly their reaction towards, and the reasons shared with you that couldhave caused their experience?

SECTION 4:
TRADITIONAL BIRTH ATTENDANT

DEMOGRAPHIC:

a. Age: How old are you?
b. Marital status: What is your marital status?
c. Gender: male or Female.
d. What is your ethnic group?
e. What is your education level?
f. Work experience:
i. How best would you describe your practice/job?
ii. How many years of experience do you have in this field/job?

STILLBIRTHS

ANTENATAL CLINIC ATTENDANCE:

a. Do you offer antenatal care during the cause of the pregnancies?
b. (If yes). What is the routine of the antenatal care you offer?
c. Does your patient attend according to appointed dates?
d. Maternal immunization (vaccine intake and acceptance):

I. Are you aware of vaccines given during pregnancy?
II. Do you encourage your patients to go for recommended vaccine during antenatal? (If yes,which once), (if no, why didn't you?)
III. If there was a vaccine for a/some disease that causes stillbirths, would encourage your patient toaccept it? Give your reasons.

KNOWLEDGE\PERCEPTION

a. What would you say is the meaning of a stillbirth?
b. Have you handled any stillbirth case? If yes how many?
c. What do you think caused the still birth of the affected patients?
d. What do you think you would have done differently to prevent theoccurrence?

ATTITUDES

i. What did you tell your patient who have experienced stillbirth was the cause of thestill birth?
ii. What was their reaction towards the news when they had still birth?
iii. Is there any traditional practice that could have been done to prevent stillbirth?

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

SECTION 5
RELIGIOUS AND CULTURAL LEADERS

DEMOGRAPHIC:

a. Age: How old are you?
b. Marital status: What is your marital status?
c. Gender: male or Female.
d. What is your ethnic group?
e. What is your education level?

a. How best would you describe your practice/job position in thecommunity?
b. How many years of experience do you have in this field/job with thisposition?
c. What kind of counselling do you offer to the community?

STILLBIRTHS:

KNOWLEDGE\PERCEPTION

a. What would you say is the meaning of a stillbirth?
b. Have you handled any case of stillbirth? if yes, how many?
c. What do you think causes still birth?
d. What do you think caused the stillbirth of the affected mothers that havecome to you for counselling?

ATTITUDES

a. Is there practice done to prevent still birth?
b. What would the affected parent have done to prevent the previous stillbirth?
c. What type of advice and counselling do you offer to parents that comes to you insuch situation?
d. Maternal immunization (vaccine intake and acceptance):

i. Are you aware of vaccines given during pregnancy?
ii. Do you encourage parents that comes to you during pregnancy to gofor recommended vaccine during antenatal? (If yes, which once), (ifno, why didn't you?)
iii. If there was a vaccine for a/some disease that causes stillbirths, wouldencourage your patient to accept it? Give your reasons.

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG	HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

Office of the Deputy Vice-Chancellor (Research and Innovation)

TO:	Dr OR Eso-Obaleye School of Pathology Wits VIDA - Vaccines and Infectious Diseases Analytics Research Unit Medical School University E-mail: esoobaleyeolabisi@gmail
CC:	Supervisor: Drs N Myburgh and C Cutland <myburghn@rmpru.co.za> and <HREC-Medical Research Office@wits.ac.za>
FROM:	Mr Iain Burns Human Research Ethics Committee (Medical) Tel: 011 717 1252 E-mail: Iain.Burns@wits.ac.za
DATE:	2021/11/16
REF:	R14/49
PROTOCOL NO:	**M210671** (This is your ethics application reference number. Please quote it in all enquiries, oral or written, relating to this study.)
PROJECT TITLE:	*Community perceptions, knowledge and attitudes on causes of stillbirths*

Please find attached the Clearance Certificate for the above project. I hope it goes well and that an article in a recognized publication comes out of it. This will reflect well on your professional standing and contribute to Government funding of the University.

MSWorks2000/Iain0007/Clearscan.wps

UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG

R49 Dr OR Eso-Obaleye

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M210671

NAME: **(Principal Investigator)**	Dr OR Eso-Obaleye
DEPARTMENT:	School of Pathology Wits VIDA - Vaccines and Infectious Diseases Analytics Research Unit Medical School University
PROJECT TITLE:	*Community perceptions, knowledge and attitudes on causes of stillbirths*
DATE CONSIDERED:	2021/06/25
DECISION:	Approved unconditionally
CONDITIONS:	
NOTE:	If contact information regarding student study participants is required, please contact the Registrar's office - <Nicoleen.Potgieter@wits.ac.za>
SUPERVISOR:	Drs N Myburgh and C Cutland
APPROVED BY:	CB Penny Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	2021/11/16

This Clearance Certificate is valid for 5 years from the date of approval. An extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office secretariat on the 3rd floor, Phillip Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.

I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated from the research protocol as approved, I/we undertake to submit details to the Committee. **I agree to submit a yearly progress report**. When a funder requires annual re-certification, the application date will be one year after the date when the study was initially reviewed. In this case, the study was initially reviewed in June and therefore reports and re-certification will be due in the month of **June** each year. Unreported changes to the study may invalidate the clearance given by the HREC (Medical).

Signature of Principal Investigator _____ Date _____

PARTICIPANT INFORMATION SHEET

Project Title: Community perceptions, knowledge and attitudes on causes of stillbirths

Participant Information Sheet: For community leadersQualitative Study

Good day, my name is Dr. Olabisi Rosemary Eso-Obaleye. I am a postgraduate Master's student, studying vaccinology at Wits University and a member of Alive, a division of the Wits Health Consortium based at Chris Hani Baragwanath Hospital. I would like to invite you to participate in thestudy entitled: COMMUNITY PERCEPTIONS, KNOWLEDGE, AND ATTITUDES ON CAUSES OF
STILLBIRTHS in Soweto, South Africa.

I and my research team will like to invite you to take part in the qualitative part of the study as webelieve that you have relevant and valuable information that you can share with us.

In this section of the study, Our aim is to understand the experiences of stillbirth from your perspective. Thus, you will be interviewed at the convenience of your home ,at your approved time.The interview will be written and audio recorded for a clearer analysis. You would be interviewed asa community leader who has attended to mothers and fathers who has experienced stillbirth and also to understand your perceptions on the causes of stillbirth. An interview, which will last about 1hour each, will be conducted among women who experienced stillbirths within the past year and among traditional birth attendants, hospital midwives, fathers and religious leaders. Cultural, religious and social attitudes towards stillbirth and participants' attitudes towards maternal immunization will also be discussed.

Your participation is voluntary, and you are free to stop the interview at any time, if you feel that you cannot continue. Your refusal to participate will have no effect on your rights to access health care services. If the interview causes you any distress, we will refer you to an on-site counsellor immediately and at no cost to you. There is neither cost nor payment involved in taking part in thestudy.

We, as researchers, will ensure that your participation in the study remains confidential. To ensurethis, you will only be identified by a study number and not your real name. No individual will be identified by name in any report of the study which is written. [The recording will be erased after 2 years if a publication emerges from the study, otherwise after 6 years if there is no publication

At the end of this process, a summary of the findings of the study will be made available to participants on request and the findings will be presented to a wider audience through an academicpublication or report. The findings may also have an impact on health policy.

If you have any questions about the study, please contact either of the undernoted:

Principal Investigator: Dr. Olabisi Rosemary Eso-Obaleye on telephone number 065 935 9180, or one-mail at esoobaleyeolabisi@gmail.com

Supervisor: Dr Nellie Myburgh on telephone number 011 983 4277, or on e-mail at myburghn@rmpru.co.za

This study has been approved by the Human Research Ethics Committee (Medical) of the Universityof the Witwatersrand, Johannesburg ("Committee"). A principal function of this Committee is to safeguard the rights and dignity of all human subjects who agree to participate in a research projectand the integrity of the research.
If you have any concern over the way the study is being conducted, please contact the Chairpersonof this Committee who is Dr Clement Penny, who may be contacted on telephone number 011 7172301, or by e-mail on Clement.Penny@wits.ac.za. The telephone numbers for the Committee secretariat are 011 717 2700/1234 and the e-mail addresses are Zanele.Ndlovu@wits.ac.za and Rhulani.Mukansi@wits.ac.za

Thank you for reading this Study Information Sheet.October 2021

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

MEDICAL ADVISORY COMMITTEE

CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL

PERMISSION TO CONDUCT RESEARCH

Date: 4 November 2021

TITLE OF PROJECT:

Community Perceptions, Knowledge, and Attitudes on Causes of Stillbirths (CPKACS)

UNIVERSITY: Witwatersrand

Principal Investigator: O R Eso-Obaleye

Department: Virology / Wits VIDA

Supervisor/s : Dr N Myburgh/Dr C Cutland

Permission Head Department (where research conducted): Yes

NHRD No.

The Medical Advisory Committee recommends that the said research be conducted at Chris Hani Baragwanath Academic Hospital. The CEO / management of Chris Hani Baragwanath Academic Hospital is accordingly informed and the study is subject to:-

- Permission having been granted by the Committee for Research on Human Subjects of the University of the Witwatersrand.
- The Hospital will not incur extra costs as a result of the research being conducted on its patients within the hospital
- The MAC will be informed of any serious adverse events as soon as they occur
- Permission is granted for the duration of the Ethics Committee Approval.

Recommended
(On behalf of the MAC)
2021/11/04

Approved/~~Not Approved~~
Hospital Management Date:
Date: 05/11/2021