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# DETERMINANTS OF HOME DELIVERY BY ANTENATAL CARE - BOOKED WOMEN IN SEKE DISTRICT, MASHONALAND EAST PROVINCE

BY

RATIDZO MUGUMBATE

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**Abstract**

Maternal and neonatal mortality remain public health challenges in Sub-Saharan African countries including Zimbabwe. Antenatal care, skilled birth attendance and postnatal care are key strategies that have been put in place to reduce maternal and neonatal preventable deaths. Impressive ANC uptake rates are now the norm globally but it is the discrepancy between ANC uptake and skilled birth attendance which is of concern. In Mashonaland East province this discrepancy was noted to be increasing between 2017 and 2020 with Seke District consistently being the highest contributor to the home delivery by ANC-booked women rate. The district was also noted to be having an increasing home delivery rate during that same period. This study therefore sought to explore the determinants of home delivery by ANC-booked women in Seke district. A mixed concurrent quantitative-dominant study was carried out using a case-control study design which was complemented by in-depth interviewing of key informants. 115 case/control pairs were conveniently recruited from women who delivered either at home or in health institutions between 2017 and 2021, after ANC uptake. The two hospitals in the district as well as Epworth Polyclinic were purposively selected, while seven of the remaining fifteen health facilities were randomly selected, to give a total of ten participant recruitment facilities out of the eighteen health facilities in the district. Eight health workers were also purposively selected to participate as key informants. Interviewer administered questionnaires and key informant interview guides were used to collect data. Quantitative data was analysed using Epi-info 7 while quantitative data was analysed thematically and triangulated with quantitative findings. Having less than 4 ANC visits (AOR 5.2; 95% CI: 2.44-11.2; $p<0.001$), having an unplanned pregnancy (AOR 2.7; 95% CI: 1.27-5.51; $p=0.009$) and having a parity of 4 and above (AOR 3.9; 95% CI: 1.90-8.30; $p<0.001$) were the independent factors associated with participants being more likely to deliver at home after utilising ANC services. Having a gestational age of less than 16 weeks at the first ANC visit (AOR 0.4; 95% CI: 0.20-0.90; $p=0.028$) was an independent protective factor associated with participants being less likely to deliver at home after ANC uptake. The study also found that there was a statistically significant difference in knowledge levels between those who delivered at home after utilising ANC services, and those who delivered at health institutions ($p<0.010$) with the latter generally being superior in terms of knowledge levels. Qualitative results also complemented quantitative findings as themes of client lack of knowledge, low risk perception and feeling experienced with regards to childbirth emerged during analysis. Other important themes which emerged were the issue of high delivery fees, lack of tolerance of harmless traditional practices at health institutions, lack of resources at health institutions as well as shortage of healthcare staff observed during ANC by clients. The determinants of home delivery by ANC-booked women are interrelated and highlight that the quality and quantity of ANC visits play a crucial role in the choice of place of delivery that women ultimately make. Quality of care during ANC should thus be optimised as ANC is the point of contact for acquiring knowledge and having confidence and the right attitude nurtured to promote use of health facilities for delivery.

**Keywords:** Antenatal Care; determinants; Home delivery; maternal mortality; Seke District

**Declaration Page**

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

| | |
|---|---|
| _Ratidzo Mugumbate_ | R. Mugumbate (7/05/22) |
| Student's Full Name | Student's Signature (Date) |
| Mrs A. Kapfunde | (7/05/22) |
| Main Supervisor's Full Name | Main supervisor's Signature |
| (Date) | (Date) |

## Copyright

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## Dedication

I dedicate this dissertation to my husband Watson Mhlanga and my three awesome sons – Chikomborero, Munesu and Munotida. You had to do without me in many instances when I was tied up, yet you all perfectly understood and supported me. Now Mommy is back and all yours!

## List of Acronyms and Abbreviations

| | |
|---|---|
| ANC | Antenatal Care |
| AUREC | Africa University Research Ethics Committee |
| DCNO | District Community Nursing Officer |
| DMO | District Medical Officer |
| DNO | District Nursing Officer |
| FCH | Family and Child Health |
| HBM | Health Belief Model |
| ID | Institutional Delivery |
| KI | Key Informant |
| MDG | Millennium Development Goals |
| MICS | Multiple Indicator Cluster Survey |
| MMR | Maternal Mortality Ratio |
| MOHCC | Ministry of Health and Child Care |
| NMR | Neonatal Mortality Rate |
| SBAs | Skilled Birth Attendants |
| SDGs | Sustainable Development Goals |
| SSA | Sub-Saharan Africa |
| TBAs | Traditional Birth Attendants |
| VHW | Village Health Worker |

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# CHAPTER 1: INTRODUCTION

## 1.1 Introduction

Maternal mortality remains a major public health challenge despite the considerable progress made in reducing the maternal mortality ratio (MMR) under the Millennium Development Goals (MDGs), from 385 to 216 deaths per 100 000 live births which corresponded to a relative decline of 43.9% (Alkema *et al*., 2016). Sustainable Development Goals (SDGs) 3.1 and 3.2 aim to reduce the global MMR to less than 70 per 100 000 live births by the year 2030 with no country having an MMR of more than twice the global average; and also to reduce the neonatal mortality rate (NMR) to at most 12 per 1000 live births per year across all countries (Morton, Pencheon & Squires, 2017). According to Alkema *et al*. (2016), understanding the drivers of progress in reducing maternal and neonatal mortality and the barriers to progress are important in making informed decisions to achieve these goals

Antenatal care (ANC) interventions, skilled attendance at birth and postnatal care services are important strategies that have been clinically proven to significantly reduce the burden of morbidity and mortality on mothers and their newborns (WHO, 2016). To further avert maternal, neonatal and perinatal deaths, the World Health Organisation (WHO) has called for the development and evaluation of flexible and focused health-based solutions to promote ANC service utilisation and empower women to overcome impediments to care and institutional delivery (WHO, 2016). Identifying and promoting such interventions to improve access to quality healthcare in pregnancy and childbirth has great potential to prevent large numbers of the annual stillbirths, neonatal deaths, and maternal deaths in high risk countries (Lawn

*et al*., 2016) as these key strategies have a crucial role in the reduction of maternal, neonatal and perinatal mortality (Kasaye, Endale, Gudayu & Desta, 2017).

Although ANC offers the opportunity to provide pregnant women with information to address existing social and health conditions and assess for other risk factors, it is not enough to embrace ANC alone, since most of the fatal complications occur during or after childbirth. Consequently, competent institutional delivery is essential for the prevention, early detection, and management of obstetric complications (Ewa, Lasisi, Maduka, Ita, Ibor& Anjorin, 2012). However, despite the expansion of interventions to encourage the use of all essential strategic services, home deliveries attended by unskilled traditional birth attendants (TBAs) have persisted (Dodzo & Mhloyi, 2017).

Home delivery refers to childbirth that takes place outside of health facilities, either at home or on the way to the health institution, without attendance of a qualified health care provider (WHO, 2016). A skilled birth attendant is a certified health professional - such as a midwife, doctor, or nurse-who has been educated and trained to master the skills needed to manage a normal (uncomplicated) pregnancy, childbirth, and the early postnatal period and in the diagnosis, management, and referral of women and newborns with complications (WHO, 2016). Skilled birth attendance at  is encouraged as the single most important factor in preventing maternal mortality (Berhan & Berhan, 2014) and can only usually be accessed in health facilities/institutions especially in the developing world. Facility/Institutional-based delivery in this case thus becomes an important strategy to prevent poor labour outcomes and increase overall health status of mother and child (Zitha & Mokgatle, 2020).

## 1.2 Background to the Study

An estimated 300,000 women die each year as a result of preventable causes related to pregnancy and childbirth with approximately 95% occurring in developing countries. In addition, Sub-Saharan Africa (SSA) accounts for 98% of about 3.3 million international neonatal deaths that occur every year (WHO, 2019). The use of unskilled TBAs during home delivery is argued to be among the reasons for the high maternal and infant mortality rates in SSA in general and in Zimbabwe in particular.

Unfortunately the burden of home birth, which includes unattended births, not only affects the health of the mother, but also leads to perinatal and neonatal morbidity and mortality. According to Chinkhumba, De Allegri, Muula & Robberstad (2014), perinatal mortality was found to be 21% higher in home deliveries as compared to institutional deliveries in SSA while skilled attendance during labour, delivery and in the early postpartum period prevented up to 75% or more maternal deaths. A systematic review of the literature on 500,000 planned homebirths for low-risk women also reported that perinatal mortality rate was three times higher than that of institutional delivery (de Crespigny & Savulescu, 2014).

Home delivery after ANC attendance is a public health concern and is particularly common in developing countries. It poses a serious health risk to many mothers and their babies, hence decreasing the proportion of home deliveries is an important strategic effort to reduce MMR and NMR (Nigatu, Gelaye, Degefie & Birhanu, 2019). Unlike in developed countries like Australia, England and Netherlands where it has been proven that safe delivery can be done at home if there is a permissible environment, the home environment as a place of delivery in developing countries has been proven to be unsafe with high risk for adverse neonatal and maternal

outcomes (WHO, 2016). This is because skilled birth attendants and quality maternal care facilities and services are only available in healthcare institutions.

While ANC uptake has generally been impressive on a global level including in developing countries, it is the disparity between ANC uptake and institutional delivery which continues to exist that needs immediate action. This disparity disrupts the whole continuum of maternal care pathway which is a series of health services ( ANC, skilled birth attendance and postnatal care for both mother and the newborn within 48 hours) offered to pregnant women that has been clinically proven to considerably decrease the burden of maternal, neonatal and perinatal morbidity and mortality.

TBAs who were previously relied on in many countries to be a link between pregnant women in the community and the official healthcare system have now been banned in many settings, Zimbabwe included, as evidence showed that they were unable to manage most obstetric complications arising during labour and delivery eg eclampsia, sepsis, severe post-partum haemorrhage, and birth asphyxia and thus are not considered as skilled birth attendants. This emphasises the need to promote institutional deliveries where skilled birth attendance is available, and ultimately reduce home delivery rates.

In Zimbabwe, the period between 1999 and 2009 was characterised by an increasing trend of home deliveries after which there was a general gradual decline between 2009 and 2015 which was attributed to the introduction of the Health Transition Fund. In more recent years, home delivery rate has been fluctuating although home births have remained about 3 times more common in rural areas than in urban areas. According to the 2019 Multiple Indicator Cluster Survey (MICS), the national home

delivery rate by ANC-booked women was 14% with rural areas having an 18% average while urban areas were at 6%. This is against an ANC uptake rate of 93% which indicates that a disparity exists even at national level.

## 1.2 Statement of the Problem

In line with SDGs 3.1 and 3.2, Zimbabwe has invested in maternal health in an effort to provide quality maternal services and increase availability of skilled birth attendants in healthcare facilities. A significant number of women however utilise ANC services but still go on to shun institutional deliveries - resorting to home deliveries. This often leads to poor maternal and neonatal outcomes.

Despite a 100% national target for institutional deliveries by ANC-booked women, in Mashonaland East Province the proportion of ANC-booked women giving birth at home has been steadily increasing against commendable ANC coverage rates. This increasing disparity between ANC coverage and institutional deliveries is shown in the Table 1.1 below:

*Table 1.1: ANC Coverage vs Institutional and Home Deliveries for Mashonaland East Province 2017-2020*

| YEAR | ANC COVERAGE % (AT LEAST 1 VISIT) | INSTITUTIONAL DELIVERIES % | HOME DELIVERIES % |
|---|---|---|---|
| 2017 | 94.2 | 89.8 | 10.2 |
| 2018 | 93.8 | 88.5 | 11.5 |
| 2019 | 95.6 | 87.9 | 12.1 |
| 2020 | 94.5 | 86.5 | 13.5 |

Within the province, it was further observed that Seke District, with an average of 93.6% ANC coverage between 2017 and 2020, consistently had the highest

percentage contribution towards the provincial home delivery rate by ANC-booked women during this 4 year period. To make matters worse, the home delivery rate in Seke District's home delivery rate was also noted to be on an upward trend during the same 4-year period as shown in the Figure 1.1 below:

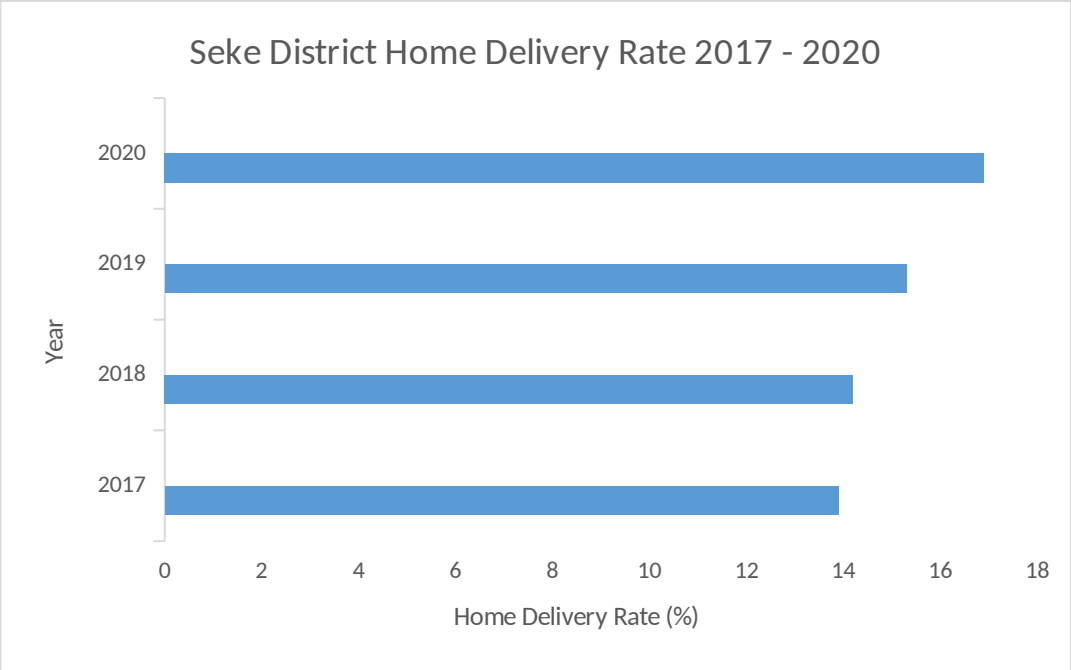


*Figure 1.1: Seke District home delivery rates 2017 - 2020*

This study therefore sought to explore the determinants of home delivery by ANC-booked women in Seke District.

## 1.3 Research Objectives

### Broad Objective

To explore the determinants of home delivery by ANC-booked pregnant women in Seke District, Mashonaland East Province.

### Specific Objectives

i. To determine sociodemographic characteristics of women who delivered at home, between 2017 and 2021, despite having attended ANC sessions.

ii. To determine health system related barriers to institutional deliveries by pregnant women who had been booked for ANC between 2017 and 2021 in Seke District.

iii. To identify obstetric related characteristics of women who delivered at home after ANC uptake between 2017 and 2021 in Seke District.

iv. To assess women's knowledge on obstetric danger signs, the importance of institutional deliveries and risks of home deliveries.

## 1.4 Research Questions

i. What are the socio-demographic factors influencing home delivery among booked women in Seke District?

ii. What are the health system related barriers to institutional deliveries by booked women in Seke District?

iii. What are the obstetric related characteristics of women who deliver at home after ANC uptake?

iv. To what extent are ANC-booked women knowledgeable in terms of obstetric danger signs, importance of institutional deliveries and risks of home delivery?

## 1.5 Significance of the Study

At 462 deaths per 100 000 live births according to the Multiple Indicator Cluster Survey (MICS) of 2019, Zimbabwe’s maternal mortality ratio remains unacceptably high, with thousands of women and newborns still dying from preventable pregnancy and childbirth-related complications. Although ANC attendance has generally been associated with improved rates of skilled facility births, in Mashonaland East there is a worrying steadily increasing discrepancy between ANC coverage and skilled birth attendance which has been noted with 93-96% of pregnant women in Seke District

attending at least one ANC session between 2017 and 2020 yet home delivery rate increased during the same period.

Furthermore, there is a dearth of knowledge on why women in Seke District opt for home delivery after ANC attendance as no research has probed the reasons for this. The factors influencing women to have home births despite ANC attendance must thus be identified and addressed in order to identify gaps in existing similar research, inform interventions aimed at improving rates of skilled facility births and assist in development of effective supportive policies. This will ultimately help reduce Zimbabwe's maternal mortality ratio as well as the perinatal and neonatal mortality rates.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Introduction

Literature review provides essential background and knowledge about similarities and differences between the present study and prior studies done which are relevant to the topic (Burns and Grove, 2010). It is also a systematic identification, location, scrutiny and summary of related published works to gain information about the research topic. The purpose of reviewing literature for this study was to obtain relevant information that is available on the research topic.

The issue of home delivery is a complex issue and there are several reasons why deliveries happen at home whether planned or not as it is a decision influenced by a number of factors including the characteristics of the pregnant woman herself, her immediate circle of influence, the community in which she resides, the health facility that is closest to her and context of her country of residence. The different factors that come into play in the final decision making regarding place of delivery may act singly or synergistically as illustrated in the theoretical framework and as discussed in the review of literature below.

## 2.2 Theoretical Framework

The Health Belief Model (HBM) which describes the influences affecting patients' health- related decisions and actions will be adopted as a theoretical framework for contextualising this study. The HBM is based on the underlying assumption that the pregnant woman's choice of place for delivering her baby is a function of diverse factors. The study will try to identify factors which could influence women's decisions not to deliver their babies at health care institutions with the HBM

presenting a theoretical overview of the factors that might influence women's choices of places to deliver their babies as shown in Figure 2.1 below:

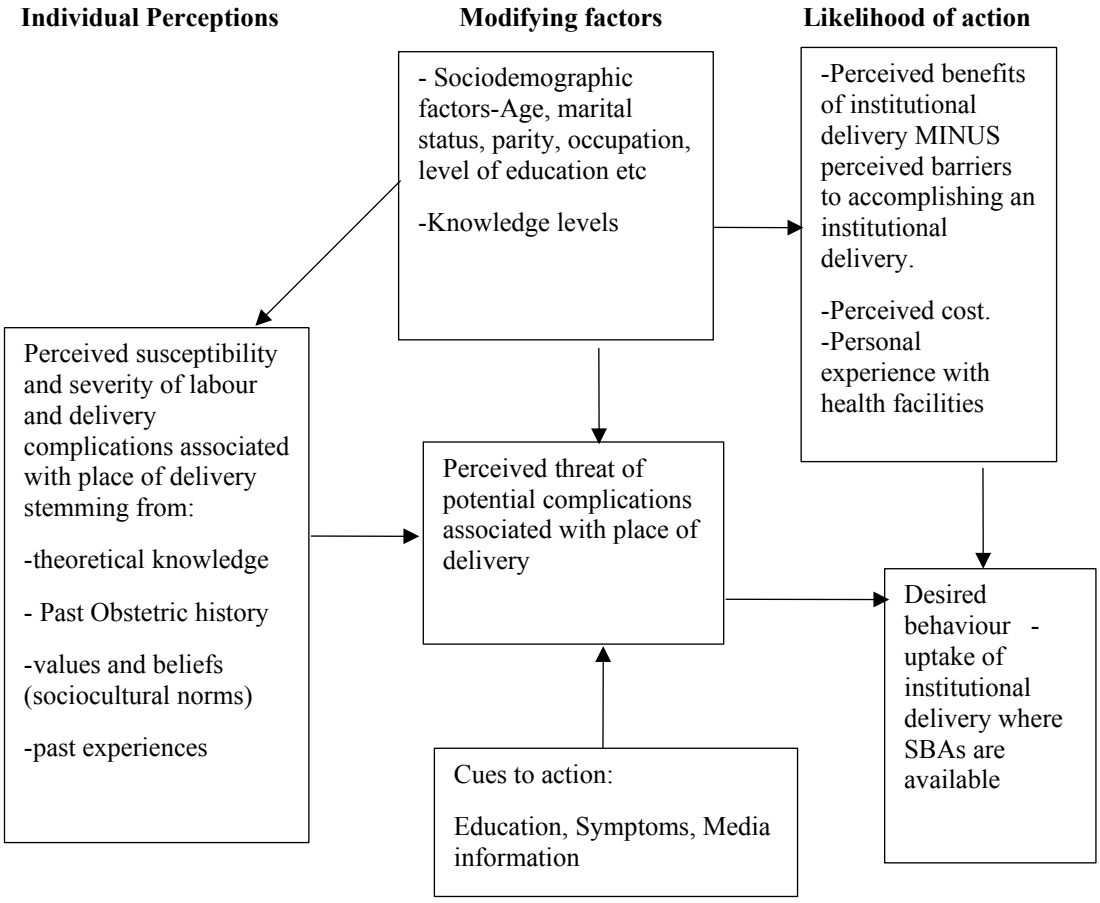


*Figure 2.1: Health Belief Model based Theoretical Framework*

As shown in Figure 2.1 above, the HBM has three major components ie individual perceptions, modifying factors and variables affecting the likelihood of initiating and sustaining actions (Glanz, Rimer & Viswanath, 2008).

Individual Perceptions: Because every pregnancy and childbirth is a unique experience, women's expectations and emotional responses during pregnancy and childbirth stem from a mixture of factors including theoretical knowledge, values and beliefs and the accumulation of past experiences which might influence their

perception of risks (Muranda, 2013) and in this case it would be risks associated with place of delivery-home/institutional.

Modifying Factors: Demographic, socioeconomic and structural variables such as knowledge levels tend to affect an individual's perceptions and thus indirectly influence health-related behaviours (Glanz *et al*., 2008). This means they will have a bearing on how clients perceive threats arising from potential complications associated with the place of delivery thus modifying pregnant women's preferred places for delivering their babies. Cues to action, which also are part of a patient's beliefs and are prompted by symptoms, hearsay, what happened to other pregnant women, will also modify the perceived threat of potential complications associated with the place of delivery.

Variables affecting the likelihood of initiating actions: The likelihood that a pregnant woman initiates actions to opt for the ideal place of delivery ie institutional delivery lies in the difference between their perceived benefits of actions and the barriers to accomplish those actions. Factors considered before any action is taken in this case will include perceived cost of the institutional delivery, personal experiences at health facilities, perceived seriousness of consequences associated with not opting for institutional delivery.

## 2.3 Socio-demographic Factors

Sociodemographic factors are a broad range of characteristics that are usually independent variables inherent to an individual's personality. Research has shown that the desire and willingness to seek health care are influenced by sociodemographic factors such as education, income, age, sex, and occupation type (Adam & Aigbokhaode, 2018) implying that each of these factors or a combination

determine when, where, and how individuals, including pregnant women, decide to seek health care (Adegbe, 2021). Educational level remains one of the consistent demographic variables in research related to the utilization of maternal health services (Idowu *et al*., 2017) because, according to UNICEF, education increases a woman's autonomy, understanding and decision making power within the household unit.

A higher educational level has been associated with a lower likelihood of home delivery as has been demonstrated in several studies for example a study done in Ethiopia showed that being uneducated (AOR = 2.46, 95% CI: [1.10–5.10] was significantly associated with home delivery (Siyoum *et al*., 2018). Nunu, Ndlovu, Maviza, Moyo & Dube (2019) from their study done in Mberengwa District, Zimbabwe also showed that women who had home deliveries were 2.9 times more likely to have only achieved primary level of education compared to those who had institutional deliveries. Furthermore these women were 2.56 times more likely to be unemployed compared to those with institutional deliveries.

Place of residence (rural or urban) is also another factor which has been shown to have a bearing on place of delivery. The broad evidence from different studies suggests that the odds of institutional delivery are lower for rural women than their urban counterparts and that the place of residence has become a consistent predictor for health facility delivery (Adegbe, 2021). Given the obvious urban bias in health care provision, people in the rural areas are isolated from access and thus most likely to resort to home deliveries (Choguya, 2015). An analysis of the Zimbabwean scenario by Dodzo & Mhloyi (2017) showed that in urban areas 85% of births occurred in a health facility compared to only 57% in rural areas.

Other variables which have shown significant association with home delivery are absence of health facility within 30 min distance (AOR = 3.41, 95% CI: [1.42, 8.20]) and not being exposed to media (AOR = 4.46, 95% CI) as revealed in a study done in Ethiopia by Kasaye *et al*. (2017). The spouse's educational level is also a factor to consider given the decision-making roles that husbands have. Egharevba, Pharr, van Wyk & Ezeanolue (2017) observed that a pregnant woman whose husband has tertiary education is 36 times more likely to deliver her baby in a health facility compared with a partner with no education, 11.65 times more likely than if the partner had primary education, and 4.12 times more likely than those with secondary education.

## 2.3 Economic Factors

In resource-constrained settings, home delivery is usually the only cheapest option available. Even in instances when formal hospital fees are low or non-existent, there may be informal fees and other costs that pose as significant barriers to women's use of facility-based services eg transport costs, drugs, food or lodging for family members who are meant to help care for the woman while she is in hospital

Poor access to health facilities ie lack of transport, inaccessible and inadequate ambulance service, lack of prior arrangement for transport, distance and poor roads and financial constraints are factors that contribute to ANC-booked women resorting to home delivery according to a studies by Sendo, Chauke & Ganga-Limando (2020) and Zitha & Mokgatle, (2020) done in Ethiopia. With regards to financial ability, women who delivered at home were found to be 20.92 times more likely to have been unable to afford the cost of health care services in general compared to those who have institutional deliveries according to Nunu *et al*. (2019). This further

illustrates how income has a bearing on the choice of place of delivery given the institutional deliveries' costs and traveling expenses needed (Mugweni, Ehlers & Roos, 2008).

Having a low educational level, which has been shown to be associated with home delivery, also usually translates to be being unemployed, low income status and lack of medical insurance with the opposite being true as shown by a study done by Mrisho *et al* (2009) which pointed out how high socioeconomic status was associated with institutional deliveries as those with higher educational levels had better jobs and earned more which enabled them to be on medical insurance or to afford to cater for institutional delivery associated expenses. Home delivery would thus become ideal to those of low socioeconomic status due to no transport costs needed and the cheaper and flexible payment methods accepted by TBAs.

## 2.4 Cultural Factors

Cultural factors play an essential role in home deliveries in most African settings. Interaction between a person's beliefs, culture and values not only have a bearing on the individual's perceptions but also influence health seeking behaviour. Sociocultural factors surrounding childbirth play an influencing role on health seeking behaviour at individual, household and community level (Montague, Winchester, Valdez, Vaughn-Cooke & Perchonok, 2013).

According to findings from a study by Sendo *et al* (2020), women chose home-based delivery because the supportive presence of family, TBAs and neighbours during childbirth provides physical, social and emotional support during childbirth in addition to the comfort and convenience of the home environment. These findings were consistent with findings of previous studies among the urban poor in India,

Nigeria and Zimbabwe (Das et al., 2010; Olusanya, Alakija & Inem, 2010; Mugweni, Ehlers & Roos, 2008).

According to Dodzo and Mhloyi (2017), Zimbabweans generally attach spirituality when it comes to childbirth matters and TBAs and spiritual midwives whose practices are premised on cultural beliefs and traditionally based on religion respectively, are considered to be sensitive to the cultural and religious maternal care needs of the expectant mothers and their families, which modern health care is largely blind to. This has the effect of swaying even ANC-booked women towards opting for home delivery as they are assured that their cultural and religious needs are respected.

A study in India also revealed pregnant women's lack of autonomy on final decision for place of delivery and this was a decision left to the mother-in-law or husband based on their culture. Added to that, cultural values would not allow women to be assisted by males during childbirth hence once the family knew that a male health worker was available in the health facility, home delivery would inevitably be the preferred option (Wang, Alva, Wang & Fort, 2011).

### 2.5 Client related factors - Obstetric history and knowledge levels

Women's obstetric history for the current pregnancy and experience in the previous pregnancy have an influence on the place of delivery. A study by Kasaye *et al* (2020) revealed that unplanned pregnancy (AOR = 3.47, 95% CI [1.82, 6.61]), perceived privacy during ANC (AOR = 3.69[1.25, 10.91]) and less than four times ANC visit (AOR = 5.04, 95% CI (2.30, 11.04]) were significantly associated with home delivery. In terms of first ANC visit, starting ANC late (>16weeks) (AOR = 2.27, 95% CI: [1.14–4.50] was also noted to be significantly associated with home

delivery in a study done in Ethiopia (Siyoum *et al*., 2018) while Abebe *et al* (2012) noted that those who started attending ANC after 24 weeks of gestation (AOR 8.7, 95% CI: 2.2, 33.3) were more likely to have home deliveries.

Knowledge regarding maternal health services and the labour and delivery period is key as it empowers women to make the safest and best decisions for the best possible outcomes for themselves and their babies. The more knowledge women have about the importance of skilled obstetric care the more likely they have a positive attitude towards skilled obstetric care utilization. The finding of the study done by Sendo *et al* (2020) revealed that women's lack of knowledge about facility-based delivery influenced their decision to give birth at home. The findings of this study are consistent with a study by Abebe *et al* (2012) that also revealed that the likelihood of delivering at home was greater among mothers with inadequate knowledge regarding the benefits of health facility-based childbirth (AOR = 62, 95% CI: 3, 128.4).

Given that the study focuses on home deliveries by ANC-booked women who are expected to be well informed on the importance of institutional delivery, various researchers are of the opinion that ANC workers might not be properly educating women about the importance of institutional delivery and risk associated with home births possibly because of their heavy workload and constrained time due to the different complex issues that their clients have (Bohren et al., 2014; Magoma et al., 2010).

Besides knowledge of importance of institutional deliveries, according to Mugweni, Ehlers & Roos (2008), women's lack of knowledge about danger signs of pregnancy is also associated with home delivery. This notion was supported by a study which

showed that lack of knowledge about danger signs of pregnancy (AOR = 4.18, 95%CI: [1.80–9.70]) was strongly associated with home birth (Siyoum *et al*., 2018). Many other studies also had similar findings where mothers who had poor knowledge in terms of labour and delivery danger signs had a higher chance of delivering at home as compared to those with higher levels of knowledge (De Allegri *et al*., 2015; Degefie, Amare & Mulligan, 2014; Muchabaiwa *et al*., 2012).

## 2.6 Health system related barriers

The quality of services and care offered at healthcare facilities and acceptance of services by pregnant women are factors that can be a barrier and contribute to non-utilisation of institutional delivery services. Basing on personal past experiences, the experiences of other women or the ANC experience, factors like the conduct of health staff, their ability to respect women, maintain privacy and respect traditions and the actual quality of care as well as the ambience of the facility can affect decisions to seek care.

Lack of family support and negative attitudes of institutional midwives leading to a hostile environment and disrespectful maternal care by midwives who are strangers (Zitha & Mokgatle, 2020) are some of the reasons cited for opting for home deliveries from a previous study done. The fact that women's minimal expectations of hygiene and non-disruption during childbirth could be achieved during childbirth at home, combined with the negative perceptions of women about nurses working in health facilities, also influences women's choice to give birth at home, according to Mugweni, Ehlers & Roos (2008).

A study conducted in Uganda had data which revealed significant barriers to women's decisions to deliver at a health care facility to be fear of unresponsive care -

exacerbating the fear of being neglected or abandoned while at the facility; fear of embarrassment and mistreatment by health care providers; preferences for particular birthing practices and their outcome expectations; perceived lack of privacy in public facilities; and perceived poor clinical and interpersonal skills of health providers to adequately explain birthing procedures or support expectant or labouring women and their newborns. This study revealed that anticipation of unsupportive, unresponsive, disrespectful treatment, and the perceived lack of tolerance for simple, harmless traditions prevents women from giving birth in health facilities (Atukunda *et al*., 2020).

# CHAPTER 3: METHODOLOGY

## 3.1 Introduction

Materials and methods for conducting the study are highlighted in this chapter. These include the study design, the setting of the study, sample size calculation, sampling techniques, data collection tools and methods, data analysis as well as the ethical considerations.

## 3.2 Research Design

A mixed concurrent quantitative-dominant study design was carried out to identify determinants of home delivery by ANC-booked women in Seke District. The mixed method design meant there was integration of the two forms of data which allowed for triangulation.

### 3.2.1 Quantitative Component

A 1:1 unmatched case-control study was conducted to identify determinants of home delivery by booked women. This design was chosen because of its efficiency in terms of both time and cost, relative to other analytic approaches. It was also appropriate as the cases and controls were well defined and allowed for comparison of key factors between cases and controls as well as calculation of strength of association between exposure variables and outcome of interest.

A **case** was defined as a mother residing in Seke District at the time of the study, who delivered their last pregnancy at home (between 2017 and 2021) despite having utilised ANC services. A **control** was defined as a mother residing in Seke District at

the time of the study who had an institutional delivery in the district between 2017 and 2021 after utilising ANC services.

### 3.2.2 Qualitative Component

In-depth interviewing in the form of Key informant (KI) interviews, which are an ethnographic research method, was conducted to elicit perceived barriers to institutional deliveries by booked women from the selected health workers. Important findings from the KI interviews were used to complement the quantitative results.

## 3.3 Study setting

The study was carried out at health care centres in Seke District which is one of the nine administrative districts in Mashonaland East. It shares boundaries with Marondera, Chikomba, Goromonzi, Harare, Chitungwiza and Chegutu; and is home to a total population of just over 293 000 people. Seke district has a total of 18 healthcare facilities ie 16 clinics and 2 hospitals (Beatrice Rural District Hospital and Kunaka Hospital). Although Epworth is officially part of Harare Province, it is encompassed in the jurisdiction of Seke Rural District in terms of health service

provision only. Figure 3.1 below is a map illustrating location of Seke District.

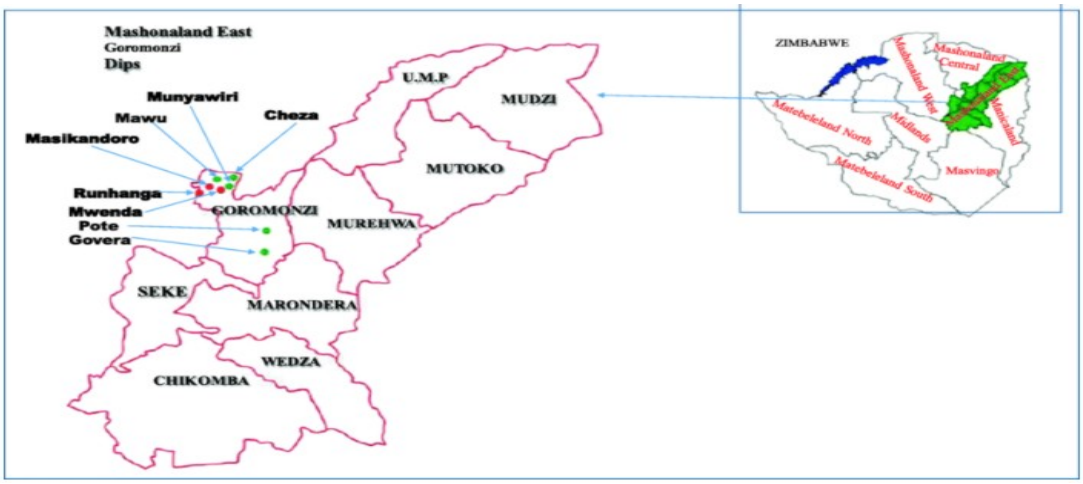


*Figure 3.1: Location of Seke District in Mashonaland East Province*

## 3.4 Study Population

### 3.4.1 Quantitative component

All women who gave birth between 2017 and 2021 in the district either at home or at a health facility after utilising ANC services, and visited the selected health facilities for ANC, postnatal care or immunisation and child health services for their children during interview days, were the source population.

### 3.4.2 Qualitative component

Health workers involved in maternal health at facility and district level were the source population of the key informants who were included in the study.

### 3.5 Sample size

For the case control study, the Fleiss formula in Stat Cal (Epi Info 7) was used to calculate the sample size using the following assumptions:

- 95% level of confidence
- 80% power
- ratio 1:1 for cases and controls
- 75.4% women who had institutional deliveries are from rural areas (controls exposed)
- Odds ratio of 2.83 (likelihood of home delivery by rural residents)

This was based on a case-control study by Tsegay *et al*. (2017) titled 'Determinant factors of home delivery among women in Northern Ethiopia.' Using this formula, a minimum sample size of 111 cases and 111 controls was calculated. Using an anticipated response rate of 95%, 115 cases and 115 controls were eventually recruited as participants for the study.

### 3.6 Sampling procedure

#### 3.6.1 Quantitative Component

Because of limited time and resources, a total of 10 out of the 18 health facilities were recruited into the study. The 2 hospitals in the district (Kunaka and Beatrice Hospital) as well as Epworth Polyclinic were purposively recruited into the study because of their large catchment areas. 7 other clinics were randomly selected ie the

names of the 15 remaining health facilities were scribed on pieces of paper and put in a hat for the 7 to be randomly picked. This gave a total of 10 (>50%) health facilities that were recruited into the study.

Again because of time and resource constraints, convenience sampling was done to select women to be interviewed at each of the 10 study sites. Women, who used ANC services and went on to deliver either at home or at a health facility between 2017 and 2021, seeking services at any one of these selected 10 sites, on the specific days when interviews were conducted at the health care facility concerned, were requested to participate in the study until the required participant number from the sites was met.

The number of women per facility was determined using proportionate-to-population size. Epworth Polyclinic is a high volume site and serves clients from different geographical areas (urban, rural, peri-urban and commercial farms) and so 30 cases and controls were recruited from this site. From the 2 hospitals, because of their relatively larger catchment areas when compared to clinics, 18 cases and 18 controls were derived from each. Finally from each of the 7 randomly selected clinics, because of their small catchment areas, 7 cases and 7 controls were selected and added to the study to give the total number of participants required for the study.

### 3.6.2 Qualitative Component

Purposive sampling was done to recruit 8 key informants who included the DMO (District Medical Officer), the DNO (District Nursing Officer), the DCNO (District Community Nursing Officer), the 2 matrons from the 2 hospitals, the nurse in charge at Epworth Polyclinic as well as two other nurses in charge selected from 2 of the 7

randomly selected facilities which was dependent on their availability on the days of interviews.

## 3.7 Inclusion and exclusion criteria

***Inclusion criteria***

- Women residing in Seke District from selected facilities who delivered their last pregnancy between 2017 and 2021 according to whether they fit the case or control criteria outlined earlier.
- Women 18 years old and above visiting the selected health facilities
- Willingness to participate in the study with ability to give informed consent

***Exclusion criteria***

- Women who attended ANC and delivered outside Seke District
- Mentally incapacitated and severely ill women who were not able to provide information

## 3.8 Variables

**Dependent variable**

The dependent variable (outcome of interest) was place of delivery, whether home or institutional.

**Independent variables**

Independent socio-demographic variables were current age, marital status, religion, cultural beliefs and traditions, woman's level of education, spouse's level of education, average monthly family income, woman's occupation, spouse's

occupation, availability of medical insurance, place of residence, woman's exposure to media, woman's autonomy and distance to nearest health facility.

Age at delivery of last child, parity, number of ANC visits, whether the pregnancy was planned or not, gestation at 1st ANC visit, level of knowledge on obstetric danger signs, level of knowledge on risks associated with home delivery and level of knowledge on advantages of institutional deliveries were the client related independent variables.

Adequacy of health education by nurses, client respect from clinic staff, confidentiality at the clinic, affordability of health facility charges, quality of care received by participants and delays encountered at health facilities were the health system related independent variables.

## 3.9 Data Collection Instruments

### 3.9.1 Quantitative Component

A pretested structured interviewer administered questionnaire was used to collect data from cases and controls. This tool was adapted from 3 similar researches by Mugweni *et al*. (2008), Kent (2011) and Kanu *et al* (2014). Back-translation was done and English and Shona versions of the questionnaire were made available. The questionnaire was divided into 4 main sections which were informed by the study objectives ie Socio-demographic factors, Perceived health system related barriers, Obstetric history and Knowledge levels. The Obstetric history and Knowledge level sections are the two components of 'Client related factors' where mentioned in this report.

### 3.9.2 Qualitative Component

A key informant interview guide with open ended questions was used to conduct face to face interviews with the key informants in order to elicit information on what they perceived to be barriers to institutional deliveries by ANC-booked women and the strategies that could be implemented for improvement.

### 3.10 Pretesting

The questionnaire for the case-control component of the study was administered to 12 cases and 12 controls from the clinics in the district that were not enrolled in the study. The pre-test was used to check the validity and reliability of the questionnaires and to assess if questions were understood and interpreted correctly. Necessary adjustments were then made to the questionnaire.

### 3.11 Data Collection Procedure

#### 3.11.1 Quantitative Data

Selected nurses from study sites were trained to collect data with training focusing on understanding the research questions, ethical conduct, and quality of data collection. Interviews by the trained data collectors then took place in private well ventilated rooms or outside in open secluded spaces away from crowds in order to ensure confidentiality and maintain privacy while maintaining social distance. Proper wearing of face masks was ensured at all times.

#### 3.11.2 Qualitative Data

Appointments were made with key informants who were then interviewed by the principal investigator at their respective workplaces.

### 3.12 Data Analysis

### 3.12.1 Quantitative data

The questionnaire for primary participants was created using Epi Info 7 statistical software, data was cleaned by checking for missing variables and inconsistent responses. The software was then used to generate frequencies of the various independent variables and to calculate Odds Ratios (ORs), corresponding 95% confidence intervals and p-values as measures of association between the different independent variables and place of delivery (home/institutional). Stratified analysis was done to identify possible confounding or effect modification. Forward stepwise multivariable logistic regression analysis was then also done to identify the independent predictors of home delivery by ANC-booked women. All variables that were associated with home delivery with a p-value $\leq 0.25$ in bivariate analysis were included in the multivariate logistic regression model. Variables were introduced one by one starting with the most significant. After data analysis, results were presented in the form of tables.

**3.12.2 Qualitative Data:** Data from key informants was analysed thematically based on responses to specific questions which allowed for identification of patterns that helped provide answers to the research questions. Findings were also illustrated by verbatim quotes and then triangulated with the quantitative data to get more opinions and perceptions on determinants of home delivery after ANC service utilisation.

**3.12.3 Knowledge assessment:** Cases and controls were assessed for knowledge by 3 main questions which looked at obstetric danger signs, risks associated with home deliveries and benefits of institutional deliveries. For danger signs, if a participant knew $\geq 7$ danger signs out of 10 they scored 3; if they knew 4-6 they scored 2; if they

knew 1-3 they scored 1 and if no danger signs were known they scored 0. For risks associated with home delivery, if they knew 3-4 risks they scored 2; if they knew 1-2 risks they scored 1 and if they did not know any they scored 0. For advantages of institutional deliveries, if a participant knew 3-4 advantages they scored 2; if they knew 1-2 they scored 1 and if they could not identify any advantages they scored 0.

Each participant was then given a total score from the 3 knowledge questions, with the highest possible mark being seven and the lowest possible mark being zero. Overall knowledge levels were then assessed on a 7 point Likert scale where those with a score of 0-2 were rated as having poor knowledge, those scoring 3-4 being rated as having fair knowledge and those scoring 5-7 being rated as having good knowledge.

### 3.13 Permission and Ethical Considerations

Permission to conduct the study was sought from the Provincial Medical Director for Mashonaland East and District Medical Officer for Seke District. Ethical Clearance was obtained from AUREC. The purpose and objectives of the study were explained to the participants. Written informed consent was then sought from all participants before they took part in the study ie a consent form was distributed to the participants and they were made aware they could withdraw from the study at any point if they so wished. Confidentiality was ensured and anonymity of the study participants was maintained. Those who could not read and/or write were assisted by their spouse, a close family member or the interviewer.

# CHAPTER 4: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

## 4.1 Introduction

This chapter presents the findings from the study. A brief analysis and interpretation of the findings will be given after data for the different variables is presented.

## 4.2 Quantitative Results

A total of 115 case-control pairs were recruited into the study with a response rate of 100%.

### 4.2.1 Socio-demographic characteristics of study participants

The sociodemographic characteristics of the study participants are shown in Table 4.1 below.

*Table 4.1: Socio demographic characteristics of participants, Seke District, 2022*

| Variable | Cases n=115 (%) | Controls n=115 (%) | OR (95% CI) | p-value |
|---|---|---|---|---|
| Current age(years) | | | | |
| >35 | 82 (71.3) | 57 (49.6) | 2.5 | <0.001 |
| ≤35 | 33 (28.7) | 58 (50.4) | 1.47-4.36) | |
| Marital status | | | | |
| *Single | 47 (40.9) | 42 (36.5) | 1.2 | 0.499 |
| Married | 68 (59.1) | 73 (63.5) | (0.71-2.04) | |
| Educational Level | | | | |
| <Secondary | 68 (59.1) | 46 (40.0) | 2.2 | 0.004 |
| ≥Secondary | 47 (40.9) | 69 (60.0) | (1.28-3.67) | |
| Spouse's Education Level | | | | |
| <Secondary | | | | |
| ≥Secondary | 38 (33.0) | 40 (34.8) | 0.9 | 0.781 |
| | 77 (67.0) | 75 (65.2) | (0.54-1.60) | |
| Church | | | | |
| Orthodox | | | | |
| Non-orthodox | 53 (46.1) | | | |

| | | | | |
|---|---|---|---|---|
| | 62 (53.9) | 60 (52.2) | 0.8 | 0.356 |
| | | 55 (47.8) | (0.47-1.32) | |
| Monthly income(US$) | | | | |
| ≤200 | 61 (53.0) | | | |
| >200 | 54 (47.0) | 48 (41.7) | 1.6 | 0.087 |
| | | 67 (58.3) | (0.94-2.66) | |
| Source of income | | | | |
| Stable | 49 (42.6) | 62 (53.9) | 0.6 | 0.087 |
| Unstable | 66 (57.4) | 53 (46.1) | (0.38-1.07) | |
| Medical Insurance | | | | |
| Yes | 15 (13.0) | 19 (16.5) | 0.8 | 0.458 |
| No | 100 (87.0) | 96 (83.5) | (0.36-1.58) | |
| Area of Residence | | | | |
| Rural | 71 (61.7) | 69 (60.0) | 1.1 | 0.787 |
| Urban | 44 (38.3) | 46 (40.0) | (0.63-1.83) | |
| Media Exposure | | | | |
| Access ≥1 source | 92 (80.0) | 101(87.8) | 0.6 | 0.109 |
| No media access | 23 (20.0) | 14 (12.2) | (0.27-1.14) | |
| Nearest Health Facility | | | | |
| On Foot | | | | |
| ≤1 hour | 49 (42.6) | 52 (45.2) | 0.9 | 0.690 |
| >1 hour | 66 (57.4) | 63 (54.8) | (0.53-1.51) | |
| Place of delivery decision | | | | |
| Autonomous | 76 (66.1) | 87 (75.7) | 0.6 | 0.112 |
| Non-autonomous | 39 (33.9) | 28 (24.3) | (0.35-1.11) | |

Level of statistical significance: $p<0.05$

*Single = never married, divorced, widowed

Cases and controls were comparable with respect to marital status, spouse's educational level, church attended, monthly income, source of income, medical insurance, area of residence, media exposure, distance to nearest facility and decision making for place of delivery. The majority of cases 59.1% (68/115) had lower than secondary educational level as compared to only 40.0% (45/115) of the controls. In terms of age, cases were older than controls with over 70% of cases being over 35

years while just under 50% of controls were more than 35 years. Median ages were 36.5 (Q1=28.5, Q3=42.5) for cases and 30.5(Q1=24, Q3=38) for controls.

Participants who were more than 35 years (OR 2.5; 95% CI: 1.47-4.36) and those with lower than secondary level of education ie.no formal education and primary level of education (OR 2.2; 95% CI: 1.28-3.67) were significantly more likely to deliver at home after ANC service utilisation. There was no statistically significant association between the other socio-demographic variables and home delivery after ANC uptake.

### 4.2.2 Health system related factors associated with home delivery

Table 4.2 below shows health system related factors associated with home delivery:

*Table 4.2: Health system related factors associated with home delivery*

| Factor | Cases n=115 (%) | Controls n=115 (%) | OR (95% CI) | p-value |
|---|---|---|---|---|
| Danger signs not explained | | | | |
| Yes | 87 (75.7) | 43 (37.4) | 5.2 | <0.001 |
| No | 28 (24.3) | 72 (62.6) | (3.00-9.20) | |
| Clinic staff respectful | | | | |
| Yes | 94 (81.7) | 96 (83.5) | 0.9 | 0.728 |
| No | 21 (18.3) | 19 (16.5) | (0.45-1.75) | |
| Delivery fee too high | | | | |
| Yes | 69 (60.0) | 53 (46.1) | 1.8 | 0.035 |
| No | 46 (40.0) | 62 (53.9) | (1.04-2.96) | |
| Importance of ID stressed | | | | |
| Yes | 52 (45.2) | 86 (74.8) | 0.3 | <0.001 |
| No | 63 (54.8) | 29 (25.2) | (0.16-0.48) | |
| Privacy ensured during ANC | | | | |
| Yes | 87 (75.7) | 95 (82.7) | 0.7 | 0.196 |
| No | 28 (24.3) | 20 (17.3) | (0.34-1.24) | |
| Delays during ANC | | | | |

| | | | | |
|---|---|---|---|---|
| Yes | 90 (78.3) | 86 (74.8) | 1.2 | 0.534 |
| No | 25 (21.7) | 29 (25.2) | (0.66-2.24) | |

Level of statistical significance: $p<0.05$

ID=Institutional Delivery

Participants to whom danger signs were not explained during ANC (OR 5.2; 95% CI: 3.00-9.20) and those who felt delivery fees charged were too high (OR 1.8; 95% CI: 1.04-2.96) were significantly more likely to deliver at home after ANC service utilisation. Those who felt that the importance of institutional delivery was stressed during ANC (OR 0.3; 95% CI: 0.16-0.48) were significantly (72%) less likely to deliver at home. There was no statistically significant association between perception that clinic staff were respectful (OR 0.9; 95% CI: 0.45-1.75), perceived privacy during ANC (OR 0.7; 95% CI: 0.34-1.24), perceived delays during ANC (OR 1.2; 95% CI: 0.66-2.24) and home delivery after ANC uptake.

### 4.2.3 Participants' obstetric related factors associated with home delivery

Obstetric related factors associated with home delivery are shown in Table 4.3:

*Table 4.3: Participants' obstetric related factors associated with home delivery*

| Factor | Cases (n=115)% | Controls (n=115)% | OR (95% CI) | p-value |
|---|---|---|---|---|
| Age @ delivery of last child | | | | |
| ≤35 | 40 (34.8) | 79 (68.7) | 0.2 | <0.001 |
| >35 | 75 (65.2) | 36 (31.3) | (0.14-0.42) | |
| Parity | | | | |
| ≥4 | 68 (59.1) | 21 (18.3) | 6.5 | <0.001 |
| ≤3 | 47 (40.9) | 94 (81.7) | (3.55-11.8) | |
| Unplanned pregnancy | | | | |
| Yes | 63 (54.8) | 26 (22.6) | 4.2 | <0.001 |
| No | 52 (45.2) | 89 (77.4) | (2.34-7.34) | |

| | | | | | |
|---|---|---|---|---|---|
| #ANC visits | | | | | |
| <4 | 85 (73.9) | 28 (24.3) | 8.8 | <0.001 | |
| ≥4 | 30 (26.1) | 87 (75.7) | (4.90-16.0) | | |
| Gestatio | | | | | |
| nal age at | | | | | |
| 1st ANC visit | | | | | |
| <16 weeks | 45 (39.1) | 90 (78.3) | 0.2 | <0.001 | |
| ≥16 weeks | 70 (60.9) | 25 (21.7) | (0.10-0.32) | | |

Level of statistical significance: p<0.05

Participants whose pregnancy was unplanned (OR 4.2; 95% CI: 2.34-7.34), those with a parity of 4 or more (OR 6.5; 95% CI: 3.55-11.8) and those who had less than 4 ANC visits (OR 8.8, 95% CI 4.90-16.0) were significantly more likely to have home deliveries even after ANC uptake. Participants of age 35 years and below at last delivery (OR 0.2; 95% CI: 0.14-0.42) and those whose first ANC visit was at less than 16 weeks gestational age (OR 0.2; 95% CI: 0.10-0.32) were significantly (76% and 82% respectively) less likely to deliver at home after utilising ANC services.

### 4.2.4 Stratified analysis: 'Gestational age at 1st ANC visit' was stratified by age to control for confounding and assess effect modification.

The effect of 'gestational age at first ANC visit' on place of delivery after ANC uptake stratified by participants' age is shown in table 4.4 below:

*Table 4.4: The effect of 'gestational age at first ANC visit' on place of delivery after ANC uptake stratified by participants' age, Seke District, 2022*

| Factor | | Cases | Controls | OR | 95% CI | p-value |
|---|---|---|---|---|---|---|
| ≤35 years | | | | | | |
| 1st ANC visit | <16 weeks | 11 (33.3) | 46 (79.3) | 0.1 | 0.05-0.34 | <0.001 |
| | ≥16 weeks | 22 (66.7) | 12 (20.7) | | | |
| >35 years | | | | | | |
| 1st ANC visit | < 16 weeks | 34 (41.5) | 44 (77.2) | 0.2 | 0.10-0.45 | <0.001 |
| | ≥16 weeks | 48 (58.5) | 13 (22.8) | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Crude | | | | | | |
| 1st ANC visit | <16 weeks | 45 (39.1) | 90 (78.3) | 0.2 | 0.10-0.32 | <0.001 |
| | ≥16 weeks | 70 (60.9) | 25 (21.7) | | | |

Level of statistical significance: $p<0.05$

Adjusted OR (MH) 0.2 (0.1- 0.3) $\chi$ 2 =0.6; p=0.5

The test of homogeneity proved that stratum specific ORs were not significantly different (p=0.5), neither were they different from the crude OR. Therefore, the effect of 'gestational age at first ANC visit' on place of delivery after ANC uptake was neither confounded nor modified by participants' ages.

### 4.2.5 Statistically significant variables from bivariate logistic regression

In bivariate logistic regression, the factors found to be statistically significantly associated with home delivery after ANC uptake were current age of participant, educational level, whether or not danger signs were explained, whether or not delivery fees were deemed too high, whether or not importance of institutional delivery was stressed, age at delivery of last child, parity, whether or not pregnancy was planned, number of ANC visits and gestational age at first ANC visit.

From these, variables associated with home delivery at a p-value $\leq 0.25$ were then introduced one by one in the multivariable logistic regression model starting with the most significant to control the effect of confounding variables and identify the determinants of home delivery by ANC-booked women. Adjusted Odds Ratio with 95% confidence interval from the multivariable logistic regression were used to identify presence and strength of association between home delivery by ANC-booked women and possible determinants of home delivery by ANC-booked women.

Variables with a p-value of less than 0.05 in the multivariable logistic regression analysis were then considered to be the independent determinants of home delivery by ANC-booked women; with those that were positively associated being predictive factors associated with participants being more likely to deliver at home after ANC uptake and those that were negatively associated being protective factors associated with participants being less likely to deliver at home after ANC uptake.

### 4.2.6 Independent predictors of home delivery by ANC-booked women

Displayed in Table 4.5 below are the independent predictors of home delivery by ANC-booked women in Seke District:

*Table 4.5: Independent predictors of home delivery by ANC-booked women in Seke District, 2022*

| Factor | AOR | 95% CI | p-value |
|---|---|---|---|
| Number of ANC visits <4 | 5.2 | 2.44-11.2 | <0.001 |
| Unplanned pregnancy | 2.7 | 1.27-5.51 | 0.009 |
| Parity ≥4 | 3.9 | 1.90-8.30 | <0.001 |
| Gestational age at 1st ANC visit <16 weeks | 0.4 | 0.20-0.90 | 0.028 |

**Level of statistical significance: p<0.05**

Having less than 4 ANC visits (AOR 5.2; 95% CI: 2.44-11.2), having an unplanned pregnancy (AOR 2.7; 95% CI: 1.27-5.51) and having a parity of 4 and above (AOR 3.9; 95% CI: 1.90-8.30) were the independent factors associated with participants being more likely to deliver at home after utilising ANC services. Having a gestational age of less than 16 weeks at the first ANC visit (AOR 0.4; 95% CI: 0.20-

0.90) was an independent protective factor associated with participants being less likely to deliver at home after ANC uptake.

### 4.2.6 Knowledge of cases and controls on obstetric danger signs, risks associated with home deliveries and benefits of institutional deliveries.

Displayed in Figure 4.1 below are the knowledge levels of cases and controls on obstetric danger signs, risks associated with home deliveries and benefits of institutional deliveries

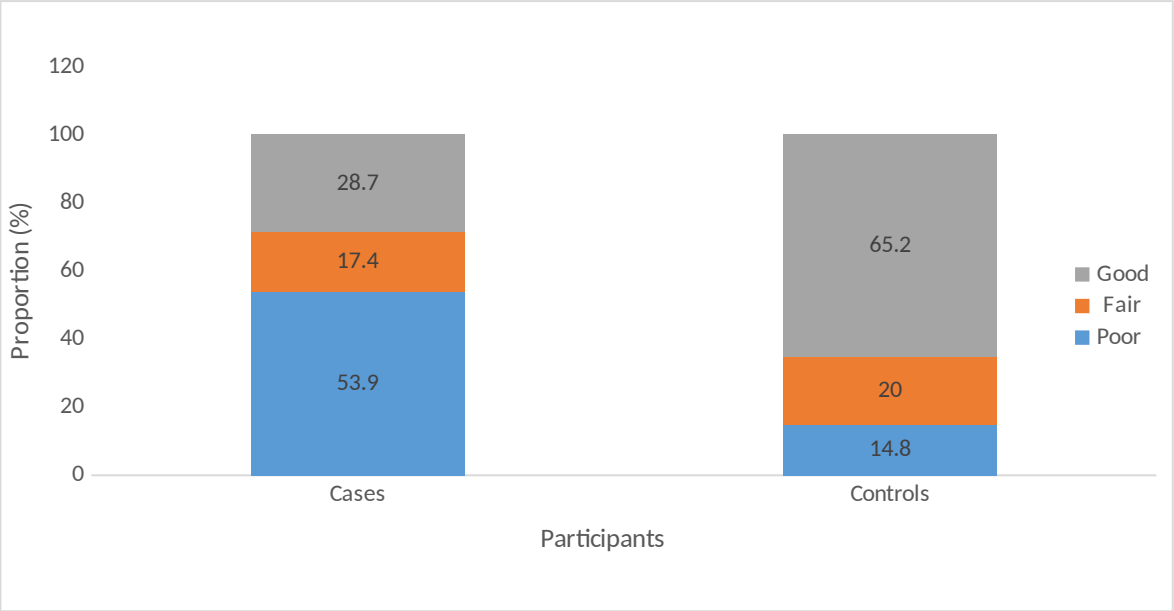


*Figure 4.1: Knowledge levels of participants on obstetric danger signs, risks associated with home deliveries and benefits of institutional deliveries, Seke District, 2022.*

The majority of cases 53.9% (62/115) had poor knowledge as compared to 14.8% (17/115) of controls. A comparable number 17.4% (20/115) of cases and 20.0% (23/115) of controls had fair knowledge. A high proportion 65.2% (75/115) of controls had good knowledge as compared to only 28.7% (33/115) of cases. Cases were less knowledgeable than controls ($p<0.01$).

## 4.3 Qualitative Results

8 key informants were recruited into the study ie the DMO, DNO, DCNO, the 2 matrons from the 2 hospitals, the nurse in charge at Epworth Polyclinic as well as two other nurses in charge from 2 randomly selected facilities. Response rate was 100%.

### 4.3.1 Demographic characteristics of Key Informants

The majority 62.5% (5/8) of key informants were female with males making up 37.5%. Median age was 38.5years ($Q_1 = 34$, $Q_3 = 44$) while median years in service was 9.5years ($Q_1 = 5$, $Q_3 = 15.5$).

### 4.3.2 Themes

During data analysis, four themes related to barriers to institutional deliveries after ANC uptake and four themes related to drivers of home delivery after ANC uptake, emerged. Participants responded to the question on barriers to institutional delivery after ANC uptake. Healthcare staff shortages, lack of resources at health facilities, unaffordable delivery fees and lack of tolerance or integration of traditional birthing practices during delivery at health facilities were the recurring themes which key

informants perceived to be barring ANC-booked women from going on to have institutional deliveries.

Clients' lack of knowledge, their low risk perception, a false sense of being 'experienced 'with regards to delivery and the need for a supportive and loving environment were the themes which emerged under drivers of home delivery after ANC uptake.

Table 4.6 below displays representative quotes from key informants on barriers to institutional deliveries after ANC service utilisation and drivers of home delivery among ANC-booked women in Seke District. 2022.

*Table 4.6: Barriers to institutional delivery and drivers of home delivery after ANC uptake, Seke District, 2022*

| Category | Themes | Quotations |
|---|---|---|
| Barriers to institutional delivery after ANC uptake | Health facility staff shortages | *-Shortage of HCWs in facilities leaves remaining staff overwhelmed and during ANC the clients observe this and opt to deliver at home where they get undivided attention from TBAs*<br>*-Staff shortages tend to be associated with poor services* |
| | Lack of resources at health facilities | *- Health facilities sometimes lack crucial medical supplies and equipment and when clients know this, they may decide delivery at home is better than delivering at a poorly equipped facility* |
| | Delivery Fees | *- Fees charged are steep for some clients so home delivery becomes a cheaper option with more flexible payment plans*<br>*- Not everyone can afford delivery fees because of economic hardships* |
| | Lack of tolerance of traditional birthing practices at health facilities | *- Some clients believe in traditional concoctions to make childbirth easier but we do not accept these in our facilities*<br>*- Others want freedom to follow traditional norms eg for placenta disposal ,so delivery at a health facility will deter them* |
| Drivers of home delivery after ANC-booking | Clients' lack of knowledge | *- Inconsistent and non-standardised client education during ANC results in some clients with poor knowledge on danger signs and home delivery risks*<br>*- Some clients miss ANC visits and lose out on important* |

| | |
|---|---|
| | *client education sessions* |
| Clients' low risk perception | *- Other clients only have 1 ANC visit and miss education sessions hence do not have a clear picture of how home delivery is risky*<br>*- Client education carried out is sometimes not effective enough to fully inform clients on potential pregnancy and delivery dangers* |
| Clients' false sense of being experienced with regards to childbirth | *- Multiparous women who have never had complications tend to assume they can handle delivery with no problems*<br>*- Older clients tend to see themselves as being more experienced than younger mums and think they are able to handle any childbirth issues at home* |
| Need for a supportive and loving environment | *-Many clients want to be in a supportive environment with family surrounding them during delivery which can be done at home*<br>*- Some clients fear that they will be ignored in their time of need by overworked staff and prefer care from a dedicated birth attendant at home* |

### 4.3.3 Further findings from key informants

Responding to the question on what could be done to overcome barriers to delivery at health institutions after ANC uptake, KIs cited the need for intensified health education on obstetric danger signs, benefits of having at least 4 ANC visits as well as institutional delivery and the risks associated with home delivery, '*From the very first ANC visit, the importance of having at least 4 ANC visits and institutional delivery should be addressed and women visiting FCH should also be educated.* Some also mentioned having community outreach programmes aiming to educate adults in communities, '*Educating only those visiting health facilities means you may miss those who don't visit health institutions at all, so doing community educational campaigns with the help of VHWs is better in order to reach out to as many adults as possible'.*

Other key informants were of the opinion that health institutions should not be too rigid with regards to catering for traditional beliefs, '*We should be allowed to reasonably cater for women who may have cultural practices that do not directly*

*interfere with their management eg placenta disposal or allowing mothers-in law to be present during childbirth for the purpose of harmless rituals'.* The issue of delivery fees was also brought up especially considering economic hardships faced by community members, '*Delivery fees should be made more affordable for these clients, maybe even scrap off delivery fees for those who get to do at least 4 ANC visits'.*

The anticipated challenges which were cited with regards to promoting or advocating for institutional deliveries were resistance from community members if their direct needs were not addressed, '*A woman delivering at home because of poverty, even if educated on importance of institutional delivery, will still deliver at home if she cannot afford delivery fees.'* Being understaffed and lack of resources were also cited as anticipated challenges.

# CHAPTER 5: DISCUSSION, CONCLUSION, RECOMMENDATIONS

## 5.1 Introduction

This chapter gives a summary of the study findings with discussions on implications of the study findings as well as similarities and differences with similar research done elsewhere. A conclusion of the study will be made and recommendations to health authorities and policy makers will also be suggested including potential areas of further study to help consolidate findings from this study.

## 5.2 Discussion

Not having ANC follow up at all is one of the most known predictors of home delivery, and yet home delivery rate showed an upward trend among ANC- booked women in Seke District. The study therefore sought to explore the determinants of home delivery by ANC-booked women and found that having an unplanned

pregnancy, having less than 4 ANC visits and a parity of 4 or more were significantly associated with home delivery by ANC-booked women while starting ANC at a gestational age of less than 16 weeks was a protective factor associated with ANC-booked women being less likely to deliver at home. The study also found that there was a statistically significant difference in knowledge levels between those who delivered at home after utilising ANC services, and those who delivered at health institutions with the latter generally being superior in terms of knowledge levels.

The odds of home delivery among women with unplanned pregnancies was 2.65 times the odds among those who had planned pregnancies. While having a child is usually considered rewarding, mental and psychological preparedness as well as financial planning are vital to ensure the pregnancy is well catered for. Maternal motivation and availability of necessities, which enable following of the optimal pregnancy and delivery procedures, are vital. An unplanned pregnancy may therefore mean that the woman has difficulty coming to terms and accepting she is pregnant, there is little or no support from the husband or partner and finances are not in order to cater for the associated costs. This could therefore increase the likelihood of home delivery. Kasaye *et al*. (2016) in their study done in Ethiopia also reported unplanned pregnancy as a significant determinant of home delivery after ANC uptake.

A parity of ≥4 quadrupled the odds of home delivery even after ANC uptake. This finding is consistent with results from studies done in West Africa which revealed that as the number of children increases, the likelihood of an institutional delivery decreases (Moore, Alex-Hart & George, 2014; Manyeh *et al*., 2017). Women with a parity of greater than 4 are considered an obstetric high risk group and should deliver in health institutions where SBAs can manage potential complications. Opting for home delivery exposed them and their babies to potential risks probably because of

low risk perception. Individual perception, one of the constructs of the Health Belief Model, determines how a person views the gravity of perceived health threats they face and the decisions they make (Glanz, Rimer & Viswanath, 2008). Most likely these women expected no harm to befall them and their babies and so opted for home delivery.

Qualitative findings also highlighted the theme of 'a false sense of being experienced with regards to childbirth' as a driver of home delivery after ANC follow up, which was said to be prevalent among multiparous women. Again this further portrays how the individual perception construct of the HBM is at play among women of higher parity. This brings up the need to have targeted health education to high risk groups like the multiparous women and emphasise why they specifically need to have institutional deliveries. Perhaps when health education is carried out for all pregnant women disregarding their parity, they may actually be viewing themselves as being low risk if they have had previous uncomplicated deliveries which could easily be swaying them to opt for delivery at home.

The WHO recommends that pregnant women in LMICs get at least 4 ANC visits. In this study, having less than 4 ANC visits was found to be an important predictor of home delivery after ANC uptake, with the odds of home delivery among those with less than 4 ANC visits being 5 times the odds among those who had 4 or more visits. Studies done by Tsegay *et al*. (2017) and Wodaynew, Fekecha & Abdisa (2018) in Northern Ethiopia also showed significant association between fewer ANC visits and home delivery. This shows that to forecast institutional delivery, it is not just about ANC attendance but more importantly about frequency of ANC visits. This finding could be explained by two themes which were highlighted in the qualitative findings

of this study as drivers of home delivery ie low risk perception and lack of knowledge.

Attending few ANC sessions translates to less knowledge acquired from ANC as well as knowledge gaps with regards to some important ANC topics as ANC is a contact point for women to acquire important knowledge which will help them during the period of pregnancy right through to the postpartum period. This means that clients who only had less than 4 ANC visits may not have gotten a full appreciation of the potential pregnancy problems /risks and dangers associated with home delivery ie low risk perception. Because of less contact between them and the skilled health care providers, they may also not have acquired enough knowledge to help them appreciate services provided at health care facilities during childbirth hence were not influenced to opt for institutional delivery.

Another WHO recommendation is that women have their first ANC visit at less than 16 weeks gestational age, justifiably so, as in this study women who started ANC sessions at less than 16 weeks gestation were 57 % less likely to deliver at home as compared to those who started ANC after 16 weeks gestation. This finding was consistent with findings from a study done by Siyoum *et al*. (2018) which reported that women who started ANC after 16 weeks were 2.3 times more likely to deliver at home compared to those who started before 16 weeks. It can be explained in terms of how starting ANC late will most probably result in fewer than recommended total number of ANC visits leading to knowledge deficits and gaps, low risk perception and more home deliveries as described above. This clearly shows why the WHO ANC recommendations should be adopted as part of efforts to reduce maternal mortality.

Knowledge levels were significantly low among those who delivered at home and interestingly so because 75% of them said that obstetric danger signs were not explained to them during ANC compared to about only 37% of controls. Only 45% of those who delivered at home agreed that the importance of institutional delivery was explained to them compared to 75% of those who had institutional deliveries. This may be explained by the differences in educational levels between cases and controls as educational level was a significant factor in bivariate analysis. The association between educational level and home delivery although weak, was very plausible. Further explanations could thus stem from independent predictors like number of ANC visits and gestational age at 1st ANC both of which could have a bearing on knowledge levels as knowledge has influence on attitude and health related choices.

Other findings worth noting from the qualitative component of the study include the issue of delivery fees which were cited as a barrier for some, to institutional delivery. Although not a predictor of home delivery, delivery fees needs to be reviewed as about 60% of those who delivered at home and 46% of those who had institutional deliveries agreed that the fees were too high, with delivery fees being a significant factor in bivariate analysis.

Shortage of resources (human as well as medical equipment and supplies) was also cited as having a bearing on women's choice of place of delivery. This can be explained by the fact that the shortage challenges met and experienced during ANC can be used as a 'predictor' by the women of the shortages and challenges they will experience in facilities should they opt for institutional delivery. It is thus crucial that health facilities are well equipped and have sufficient medical supplies at all times in

order to provide and restore clients' confidence in how well they will be taken care of during delivery.

Because cultural and traditional beliefs cannot be avoided when dealing with people's health seeking behaviours, an important theme arose from the qualitative findings ie 'lack of tolerance of traditional practices during institutional deliveries'. As much as some women may want to deliver in health facilities, lacking the freedom to carry out harmless and non-invasive rituals can act as a barrier to institutional deliveries which was similarly reported from a study in Uganda by Atukunda *et al*. (2020). It is thus imperative for health authorities to try and be more accommodating especially to non-invasive cultural practices which do not interfere with standard management of the patients. This may go a long way in reducing home delivery rates and ultimately in reducing maternal and neonatal mortality.

### 5.3 Delimitations of the study

Delimitations of this study included accessing only 10 health facilities out of 18 in the district due to financial and time constraints. For the case-control study participants, only women visiting health facilities for ANC, postnatal care and immunization services who met the inclusion criteria were recruited. The use of convenience sampling to select these participants was also another delimitation.

### 5.4 Limitations of the Study

Limitations of this study included selection bias which was inevitable given that participants were selected from mothers visiting health facilities. This may have a bearing on internal validity and also make generalisation of findings difficult. Recall bias from controls may also have been encountered since data were collected from self-reported recall of behavior and participants may have forgotten circumstantial

details of the choices they made and the factors that influenced their choice of place of delivery. Cases and controls were not matched due to financial resource constraints as the study was not funded which could also have introduced a potential source of bias (confounding) in the interpretation of findings. Despite these limitations, insights on the determinants of home delivery by ANC-booked women in the district were obtained.

## 5.5 Conclusion

Unplanned pregnancy, parity of ≥4, having less than 4 ANC visits and starting ANC follow up at more than 16 weeks gestation were the determinants of home delivery by ANC-booked women. These determinants were interrelated and highlighted that it is not simply about ANC visits but the quality and quantity of these visits has a huge bearing on the place of delivery that women ultimately opt for as ANC is the point of contact for acquiring knowledge and having the right attitude nurtured to promote use of health facilities for delivery. High delivery fees as well as age and educational level also had weak but plausible association with home delivery after ANC follow up. Those who delivered at home after ANC uptake had poor knowledge levels when compared to those who had institutional deliveries.

## 5.6 Recommendations

Based on the study findings, the following was recommended:

1). Continuous intensified health education with emphasis on obstetric danger signs, risks of home delivery and benefits of institutional delivery from the very 1$^{st}$ ANC visit – DMO, Nurses in Charge

2). Audience specific behavioural change communication to improve utilisation of institutional delivery services such as having targeted sessions for elderly or multiparous women – DMO, Nurses in charge

3). Health education outreaches to ensure that partners, husbands, family members are also knowledgeable on importance of institutional delivery and become support systems for pregnant women which will allow them to encourage and remind them to deliver in health facilities - VHWs, District Community Nursing Officer, DNO

4). Encouraging and supporting starting ANC early as well as having at list 4 ANC visits as per WHO recommendations - Nurses in charge

5). Flexibility with regards to accommodating non-harmless traditions in health facilities in order to provide a client-friendly environment such as allowing mothers in law to be present to for support during delivery and with immediate neonatal care - DMO, DNO

6). Charges for institutional delivery to be made more affordable especially for financially and economically disadvantaged women – PMD, Permanent Secretary MOHCC

7). Health facilities to be well staffed with highly motivated staff to prevent brain drain and facilities to be well equipped and well stocked at all times in order to restore women's confidence in being assured of high quality of care during delivery at health institutions – DNO, DMO, PMD

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**APPENDIX 1: Approval letter from AUREC**

AFRICA UNIVERSITY
Investing in Africa's future

AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC)

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

Ref: AU2305/22 3 January, 2022

RATIDZO MUGUMBATE
C/O CHANS
Africa University
Box 1320
**Mutare**

**RE: CAUSES OF HOME DELIVERIES BY ANTENATAL CARE - BOOKED WOMEN IN SEKE DISTRICT, MASHONALAND EAST PROVINCE, 2021.(PROPOSAL).**

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

The approval is based on the following.
a) Research proposal
b) Data collection instruments
c) Informed consent guide

- **APPROVAL NUMBER** AUREC 2305/22
  This number should be used on all correspondences, consent forms, and appropriate documents.
- **AUREC MEETING DATE** NA
- **APPROVAL DATE** January 3, 2022
- **EXPIRATION DATE** January 3, 2023
- **TYPE OF MEETING** Expedited
  After the expiration date this research may only continue upon renewal. For purposes of renewal, a progress report on a standard AUREC form should be submitted a month before expiration date.
- **SERIOUS ADVERSE EVENTS** All serious problems having to do with subject safety must be reported to AUREC within 3 working days on standard AUREC form.
- **MODIFICATIONS** Prior AUREC approval is required before implementing any changes in the proposal (including changes in the consent documents)
- **TERMINATION OF STUDY** Upon termination of the study a report has to be submitted to AUREC.

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

**Yours Faithfully**

**MARY CHINZOU –**
**ASSISTANT RESEARCH OFFICER: FOR CHAIRPERSON**
**AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE**

## APPENDIX 2: Informed Consent (ENGLISH)

My name is Ratidzo Mugumbate a final year (Masters of Public Health) student from Africa University I am carrying out a study to determine root causes of home delivery by ANC-booked women in Seke District. I am kindly asking you to participate in this study by answering the questionnaire provided.

**What you should know about the study:**

The purpose of the study is determine the factors which are leading pregnant women who have utilised ANC services to opt for home delivery.

**Procedures and duration**

If you decide to participate you will sign this consent form and answer the questionnaire provided. It is expected that this will take about 15 minutes to answer the questionnaire.

**Risks and discomforts**

There are low foreseeable risks, discomforts or inconveniences to the participant.

**Benefits and/or compensation**

There are benefits to the subject or to others which may reasonably be expected from the results as the investigation will be used to inform interventions and policy aimed at improving skilled facility births and quality of maternal care services.

**Confidentiality**

Your name and other identification details are not going to be used in the study. Any information that is obtained in the study that can be identified with you will not be disclosed without your permission.

**Voluntary participation**

Participation in this study is voluntary. If you decide not to participate in this study, the decision will not affect your future relationship with Africa University. If you choose to participate, you are still free to withdraw your consent and to discontinue participation without penalty.

**Offer to answer questions**

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

**Authorisation**

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

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

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

---

**Signature of Research Participant or legally authorised representative**

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

Name of Researcher – Ratidzo Mugumbate

## APPENDIX 3: Informed Consent (SHONA)

### GWARO RETENDERANO

Zita rangu ndinonzi Ratidzo Mugumbate mudzidzi wegore rekupedzisira (Masters of Public Health) kubva kuAfrica University. Ndiri kuita ongororo yekuona honzeri yekusunungukira mumba kwemadzimai akanyoresa muSeke District. Ndiri kukumbira kuti mupinde mutsvakurudzo iyi nekupindura mubvunzo yakapihwa.

**Zvamunofanira kuziva pamusoro petsvakurudzo iyi:**

Donzvo retsvakurudzo nderekuongorora nyaya dziri kuita kuti madzimai akazvitakura uye vakashandisa mukana wekunyoresa vasarudze kuzosunungikira mumba.

**Zvinoitwa nenguva yazvinotora:**

Kana mukasarudza kupinda mutsvakurudzo muchasaina gwaro retendereno nekupindura mibvunzi inotevera. Zvinotarisirwa kuti zvichatora maminitsi gumi nemashanu kupindura mibvunzo.

**Njodzi nekusagadzikana:**

Hapana njodzi dzakanyanya dzinotarisirwa, kusagadzikana nezvipingaidzo kune ari kupinda mutsvakurudzo

**Zvamunowa kana kudzorerwa:**

Zvamunowana mukupinda mutsvakuruzo zvinotarisirwa kubva mune zvabuda muongororo sezvo ruzivo ruchashandiswa kupa mazano kumitemo yakanangana nekuvandudza kusunguka muzvipatara nemumakiriniki uye kuvandudza mabatirwo aana amai.

**Zvakavanzika:**

Zita renyu nezvimwe zvinoburitsa zita renyu hazvisi kuzoshandiswa mutsvakuridzo ino. Ruzivo ruchawanika kubva mutsvakurudzo nezvinogona kuburitsa zita renyu hazviburitswe pasina tendero yenyu

**Kuzvipira:**

Kupinda mutsvakurudzo isarudzo yenyu. Mukasarudza kusapinda mutsvakurudzo ino, isarudzo yenyu haikanganisi hukama hwenyu ne Africa University. Mukasarudza kupinda, makasununguka kubuda pasina murango.

**Kuzvipira kupindura mibvunzo:**

Musati masayina gwaro iri, ndapota bvunzai chero mibvunzo pane chero cheongororo chisina kukujekerai. Munokwanisa kutora chero nguva yamunofunga kuti mungade kufunga nezvazvo.

**Tendero:**

Kana mazvipira kupinda mutsvakurudzo ndokumbirawo kuti musayine gwaro iri pamutsara wakapihwa pazasi sechiratidzo chekuti maverenge nekunzwisisa zvapihwa pamusoro uye mabvuma kupinda mutsvakurudzo.

**……..** **……**

**Zita remunhu ari kupinda mutsvakurudzo** **Zuva**

**……**

**Sainecha yemunhu ari kupinda mutsvakurudzo kana anomumiririra pamutemo**

Kana muine mubvunzo inoenderena netsvakurudzo ino kana gwaro dzakapfuura idzo dzinopindurwa nemuongorori zvinosanganisira mibvunzo pamusoro petsvakurudzo, kodzero dzenyu semunhu ari kupinda mutsvakurudzo, kana kuti muchinzwa kuti mabatwa zvisizvo uye mungade kutaura nemumwe asiri muongorori, sunungukai kubata Africa University Research Ethics Committee (AUREC) pa (020) 60075 kana 60026 extension 1156 kana kuti munogona kutumira tsamba yemumhepo kuna aurec@africau.edu

Zita Remunhu ari kuita tsvakurudzo - Ratidzo Mugumbate.

## APPENDIX 4: Questionnaire for study participants (ENGLISH)

| Que # | Question | Responses |
|---|---|---|
| | **SECTION A: Sociodemographic factors** | |
| **1.** | Date of birth | DD/MM/YYYY |
| **2.** | Date of delivery of last baby | |
| **3.** | Marital status | ☐ Single ☐ Married<br>☐ Divorced ☐ Widow/ Widower |
| **4.** | Level of education | ☐ No formal education<br>☐ Primary level<br>☐ Secondary<br>☐ Tertiary level |
| **5.** | Spouse's level of education | ☐ No formal education<br>☐ Primary level<br>☐ Secondary<br>☐ Tertiary level |
| **6.** | What is your average family income per month? | |
| **7.** | Occupation/Source of income | ⁋ Farming<br>⁋ Vending<br>⁋ Employed. Specify……..<br>⁋ Spouse employed. Specify……..<br>⁋ Housewife |
| **8.** | Do you have medical insurance (medical aid) | ☐ Yes<br>☐ No |
| **9.** | What area do you reside | ☐ Peri-urban<br>☐ Rural<br>☐ Urban |
| **10.** | What church do you go to | ⁋ Main line ⁋ Apostolic sect<br>⁋ ATR ⁋ Pentecostal |

| | | |
|---|---|---|
| **11.** | Do you have access to any of these? | ☐ Radio ☐ Newspaper<br>☐ Television ☐ Internet<br>☐ None of the above |
| **12.** | Nearest health facility | ☐ Within 30 min distance on foot<br>☐ >30 min to 1 hour on foot<br>☐ > 1 hour on foot |
| **13.** | Who made the final decision on place of delivery for last pregnancy | ☐ Spouse ☐ Myself ☐ Me and spouse<br>☐ Other family members |
| | **SECTION B: Obstetric History** | |
| **14.** | Age when you had last baby | |
| **15.** | How many children do you have | ☐ 1 ☐ 2-4 ☐ ≥5 |
| **16.** | Was your last pregnancy planned | ☐ Yes ☐ No |
| **17.** | How many ANC visits did you have | |
| **18.** | When was your first ANC visit? | ☐ <16 weeks ☐ 16 – 24 weeks<br>☐ >24 weeks |
| **19.** | Place of delivery for last pregnancy | ☐ Hospital<br>☐ Clinic<br>☐ Home<br>☐ Other. Specify…….. |
| | **SECTION C: Knowledge** | |
| **20.** | Mention as many danger signs as you know that are associated with pregnancy, labour and delivery | |
| **21.** | What are the risks associated with home delivery | ☐ Infection<br>☐ Higher risk of maternal death |

| | | |
|---|---|---|
| | | ⁞ Higher risk of neonatal death<br>⁞More severe labour & delivery complications<br>⁞ No risks<br>⁞ I don't know |
| **22.** | What are the advantages of having a health facility delivery? | ⁞ Less risk of infection<br>⁞ Availability of skilled personnel<br>⁞ Availability of drugs, machinery, blood<br>⁞ Prompt management of complications<br>⁞ No advantages |
| | **SECTION D: Perceived health system related barriers** | |
| **23.** | During ANC, did nurses explain clearly what to expect in pregnancy and the danger signs of pregnancy, labour and delivery? | Yes No |
| **24.** | Did nurses respect, listen to and address your questions and concerns during ANC? | Yes No |
| **25.** | How do you perceive delivery fees charged by the health facility? | Affordable Not affordable |
| **26.** | Were you advised on importance of institutional delivery during ANC? | Yes No |
| **27.** | Was privacy ensured during ANC consultations and examinations? | Yes No |
| **28.** | How long on average did it take to receive ANC services after arrival at the centre | within 30 mins<br>30 mins – 1 hour<br>>1 hour |
| **29.** | How did you perceive the quality of care given during ANC? | Poor<br>Satisfactory<br>Good<br>Excellent |

| | | |
|---|---|---|
| **30 (a)** | What were your reasons for delivering at home? Tick all applicable **(ONLY FOR THOSE WHO DELIVERED AT HOME )** | Expensive to deliver at the health facility<br>Bad treatment and attitudes of nurses<br>Husband and family did not allow<br>Health facility services of poor quality.<br>Lack of transport / distance (too far).<br>Uncomfortable about being examined by male health workers.<br>You get appropriate care and love at home.<br>Did not know the importance of delivering at a health facility<br>There is privacy at home.<br>My tradition or religions do not allow me to deliver at a health facility.<br>Other (Specify) ……..<br>…….. |
| **(b)** | Why did you deliver at a healthcare facility?<br>Tick all applicable **(ONLY FOR THOSE WHO HAD INSTITUTIONAL DELIVERIES)** | Advised by health professionals.<br>Prefer to give birth at a health facility.<br>It is safe.<br>No clear reasons.<br>Other (Specify)……<br>…….. |

**……..THE END ……**

## APPENDIX 5: Questionnaire for study participants (SHONA)

| Que # | Mibvunzo | Mhinduro |
|---|---|---|
| | **SECTION A: MAGARIRO ENYU** | |
| **1.** | Zuva rekuberekwa | DD/MM/YYYY |
| **2.** | Zuva rakabarwa mwana wekupedzisira | |
| **3.** | Mamiriro ewanano | ☐ Ndiri ndega ☐ Ndakawanikwa<br>☐ Takarambana ☐ Ndakafirwa |
| **4.** | Danho refundo | ☐ Handina kufunda<br>☐ Puraimari<br>☐ Sekondari<br>☐ Kudzidza kwepamusoro |
| **5.** | Baba vemwana vakadzidza kusvika papi | ☐ Haana kufunda<br>☐ Puraimari<br>☐ Sekondari<br>☐ Kudzidza kwepamusoro |
| **6.** | Munowana marii pamwedzi wega wega semhuri? | |
| **7.** | Basa/Waniro yeraramo | ⁞ Kurima<br>⁞ Kutengesa<br>⁞ Ndiri pabasa. Rei……..<br>⁞ Baba vari pabasa. Rei……..<br>⁞ Kuona nezvepamba chete |
| **8.** | Mune medical aid here? | ☐ Hongu<br>☐ Kwete |
| **9.** | Munogara kupi | ☐ Pedyo nedhorobha<br>☐ Kumaruwa<br>☐ Mudhorobha |
| **10.** | Munoenda kukereke kupi | ⁞ Dzagara dziripo ⁞ Mapositori<br>⁞ Tinoita chivanhu ⁞ Dzemweya |

| | | |
|---|---|---|
| **11.** | Munowana kana kushandisa chimwe chezvinotevera here? | ☐ Wairesi ☐ Bepanhau ☐ Chivhitivhiti ☐ Hindaneti ☐ Hapana |
| **12.** | Chipatara chiri padhuze zvakadini nepamunogara | ☐ Maminitsi makumi matatu (30) netsoka ☐ >30 maminitsi kusvika awa netsoka ☐ kupfuura awa rimwe netsoka |
| **13.** | Ndiani akaita sarudzo yekupedzisira yenzvimbo yekusungukira pakuzvitakura | ☐ Baba vemwana ☐ Ndini ☐ Takaita tose ☐ Vamwe vemhuri |
| | **SECTION B: NHOROONDO YEKUSUNUNGUKA** | |
| **14.** | Zera ramakaita mwana wekupedzisira | |
| **15.** | Mune vana vangani | ☐ 1 ☐ 2-4 ☐ ≥5 |
| **16.** | Makaronga here nhumbu yekupedzisira | ☐ Hongu ☐ Kwete |
| **17.** | Makaita kushanya kwekuzvitakura kungani | |
| **18.** | Makashanya kwekutanga rinhi? | ☐ <16 weeks ☐ 16 – 24 weeks ☐ >24 weeks |
| **19.** | Mimba yekupedzisira makasunungukira kupi | ☐ Chipatara ☐ Kiriniki ☐ Kumba ☐ Kumwe. Tsanangurai…….. |
| | **SECTION C: RUZIVO** | |
| **20.** | Domai njodzi dzese dzamunoziva dzine chekuita nekuzvitakura, kurwadza kwepamuviri nekusununguka | |
| **21.** | Ndedzipi njodzi dzine chekuita nekusunungukira kumba | ☐ Hutachiona ☐Mukana wakakura wekurasikirwa namai |

| | | |
|---|---|---|
| | | ⁞Mukana wakakura wekurasikirwa nemwana<br>⁞ Mukana wakakurisisa wezvinonenetsa pakusununguka<br>⁞ Hapana njodzi<br>⁞ Handizivi |
| **22.** | Ndezvipi zvakanakira kusununguka kuchipatara kana kukiriniki | ⁞ Mukana wakaderera wehutachiona<br>⁞ Kuvepo kwana mazvikokota<br>⁞ Kuvepo kwemishonga, mishina neropa<br>⁞ Kukasika kubatsirwa pazvinetswa<br>⁞ Hapana zvazvakanakira |
| | **SECTION D: ZVINHENGAMUPINI ZVENZIMBO DZEHUTANO** | |
| **23.** | Panguva yekushanya kwekusununguka, vana mukoti vakatsanangura here zvinotarisirwa panguva yekuzvitakura nezviratidzo zvenjodzi dzekuzvitakura, kurwadziwa nekusununguka? | Hongu Kwete |
| **24.** | Vanamukoti vakaremekedza, kuteerera nekupindura mibvunzo nezvinetso zvenyu panguva yekuonekwa pamuviri here? | Hongu Kwete |
| **25.** | Munoona sei mari yekunyoresa yakatarwa kuzvipatara kana kumakiriniki | Inogoneka Haigoneki |
| **26.** | Makawana mazano pamusoro pekukosha kwekusununguki ra panzvimbo dzehutano panguva yamaionekwa pamuviri here? | Hongu Kwete |
| **27.** | Pakavanzika paivepo here panguva yekuongororwa nekutariswa pamuviri | Hongu Kwete |
| **28.** | Zvaitora nguva yakareba zvakadini kuwana rubatsiro pamainoonekwa pamuviri kunzvimbo dzehutano | pasi pemaminitsi 30<br>30 mins – 1 awa<br>kupfuura 1 awa |
| **29.** | Makaona sei hunaku hwemabatirwo amaiitwa pamaionekwa pamuviri | Zvaisagutsa<br>Ndizvowo<br>Zvanga zvakanaka<br>Zvanga zvakanakisisa |
| **30 (a)** | Ndezvipi zvikonzero zvenyu | Kudhurirwa kuchipatara/kukiriniki |

| | | |
|---|---|---|
| | zvekusunungukira kumba? Isai tiki pazvese zvinoenderana nemi.<br><br>**(VAKASUNUNGUKIRA KUMBA CHETE)** | Kubatwa zvakaipa nekuchenamirwa nana mukoti<br><br>Murume nehama vakaramba chipatara nekiriniki<br><br>Kunzvimbo dzehutano hakuna zvakakwana uye hakubatsirwi zvakanaka<br><br>Kushaya chekufambisa kuenda kuchipatara / kuchipatara kure<br><br>Kusagadzikana pakuongororwa namukoti/chiremba wechirume kuchipatara<br><br>Kumba unochengetedzwa zvakanaka nerudo<br><br>Kusaziva kukosha kwekusunungukira kuchipatara/kukiriniki<br><br>Kumba unochengetedzwa zvakavanzika<br><br>Chitendero change hachibvumi kuti ndisunungukire kuchipatara/kukiriniki.<br><br>Zvimwe……<br><br>…… |
| **(b)** | Sei makasunungukira pachipatara kana pakiriniki? Isai tiki pazvese zvinoenderana nemi<br><br>**(VAKASUNUNGUKIRA MUZVIPATARA / MAKIRINIKI CHETE)** | Ndakarumwa nzeve nana mazvikokota vezvehutano<br><br>Ndagara ndinosarudza kubatsirwa panzvimbo dzehutano<br><br>⁞ Hazvina njodzi<br><br>⁞ Handina chikonzero chakajeka<br><br>⁞Zvimwe (Tsanangurai) ……<br><br>……..<br><br>…….. |

**……..MAGUMO ……**

## APPENDIX 6: Key Informant Interview Guide

1. In your view and experience, what are the barriers to institutional delivery by ANC-booked women?

2. In your opinion, what are the major factors which drive ANC-booked women to deliver at home after ANC?

3. Have you made or implemented plans to overcome these barriers? What plans?

4. How are the ANC services? Is there something missing or can they be improved in order to get rid of the ANC/Institutional delivery disparity?

5. As a district, have there been any plans or efforts to raise awareness of importance of institutional deliveries in communities?

6. What challenges have you met or would you anticipate to meet with regards to promoting and advocating for institutional deliveries in the district?