



**COLLEGE OF BUSINESS AND MANAGEMENT SCIENCES**

**SCHOOL OF STATISTICS AND PLANNING**

**FACTORS ASSOCIATED WITH CHOICE OF PLACE OF DELIVERY FOR  
MIDDLE AGE MOTHER'S (40-49) IN UGANDA**

**BY**

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## **DECLARATION**

I hereby declare that this research dissertation is original and has never been submitted or published to Makerere University or any other institution of learning and/or training for an academic award.

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## **APPROVAL**

This research dissertation has been submitted for examination with my approval as the university supervisor.

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## **DEDICATION**

I dedicate this dissertation to my Dad Kayizzi Peter, mum Deborah Kyakuwa, genuine friends and with high regards to my wondrous brothers Ivan Kyeyune for his support and encouragement.

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## TABLE OF CONTENTS

|  |             |
|--|-------------|
| <b>DECLARATION</b> .....                                 | <b>i</b>    |
| <b>APPROVAL</b> .....                                    | <b>ii</b>   |
| <b>DEDICATION</b> .....                                  | <b>iii</b>  |
| <b>ACKNOWLEDGEMENT</b> .....                             | <b>iv</b>   |
| <b>TABLE OF CONTENTS</b> .....                           | <b>v</b>    |
| <b>LIST OF TABLES</b> .....                              | <b>vii</b>  |
| <b>LIST OF FIGURES</b> .....                             | <b>viii</b> |
| <b>ACRONYMS</b> .....                                    | <b>ix</b>   |
| <b>ABSTRACT</b> .....                                    | <b>x</b>    |
| <b>CHAPTER ONE:INTRODUCTION</b> .....                    | <b>1</b>    |
| 1.1 Back ground of the study.....                        | 1           |
| 1.2 Problem statement .....                              | 2           |
| 1.3 Objectives of the study .....                        | 3           |
| 1.4 Hypothesis of the study .....                        | 3           |
| 1.5 Significance of the study .....                      | 4           |
| 1.6 Conceptual frame.....                                | 4           |
| <b>CHAPTER TWO:LITERATURE REVIEW</b> .....               | <b>6</b>    |
| 2.0 Introduction .....                                   | 6           |
| 2.1 Factors influencing choice of place of delivery..... | 7           |
| <b>CHAPTER THREE:RESEARCH METHODOLOGY</b> .....          | <b>12</b>   |
| 3.0 Introduction .....                                   | 12          |
| 3.1 Data source .....                                    | 12          |
| 3.2 Measures of the outcome variable .....               | 12          |
| 3.3 Measures of explanatory variables .....              | 12          |
| 3.4 Data Analysis .....                                  | 13          |
| 3.5 Ethical consideration .....                          | 15          |
| 3.6 Limitations of the study .....                       | 15          |

|  |           |
|--|-----------|
| <b>CHAPTER FOUR:PRESENTATION AND DISCUSSION OF RESULTS .....</b>             | <b>16</b> |
| 4.0 Introduction .....   | 16        |
| 4.1 Results .....  | 16        |
| 4.2 Discussion.....  | 21        |
| <b>CHAPTER FIVE:SUMMARY OF RESULTS, CONCLUSION, AND RECOMMENDATIONS.....</b> | <b>23</b> |
| 5.1 Summary of results.....  | 23        |
| 5.2 Conclusion.....  | 23        |
| 5.3 Recommendations .....  | 23        |
| <b>REFERENCES .....</b>  | <b>24</b> |

## **LIST OF TABLES**

|  |    |
|--|----|
| Table 4.1: Distribution of women by their demographic, social-economic characteristics and their attitudes towards the place of delivery ..... | 18 |
| Table 4.2: Logistic regression for the women's choice of place of delivery and their socio-economic and intermediate factors .....             | 19 |



## **LIST OF FIGURES**

|  |    |
|--|----|
| Figure 1.1: Conceptual Frame work .....                                | 4  |
| Figure 4.1: Choice of place of delivery among mothers aged 40-49 ..... | 16 |

## ACRONYMS

|               |   |
|---------------|---|
| <b>ANC</b>    | Antenatal care                                |
| <b>CI</b>     | Confidence intervals                          |
| <b>MDG</b>    | Millennium Development Goal                   |
| <b>MMR</b>    | Maternal Mortality Rate                       |
| <b>NFPA</b>   | United Nations Population Fund                |
| <b>OPD</b>    | Out Patients Department                       |
| <b>OR</b>     | Odds Ratio                                    |
| <b>ref</b>    | reference category                            |
| <b>SDA</b>    | Seventh Day Adventist                         |
| <b>SDG</b>    | Sustainable Development Goal                  |
| <b>TBA</b>    | Traditional Birth Attendant                   |
| <b>UDHS</b>   | Uganda Demographic and Health Survey          |
| <b>UNHS</b>   | Uganda National Household Survey              |
| <b>UNICEF</b> | United Nations Initiative for Children's Fund |
| <b>WHO</b>    | World Health Organization                     |

## ABSTRACT

The place women choose to deliver is considered an important factor which has the potential to affect the health and well-being of the mother and the newborn. The main objective of the study is to identify factors associated with place of delivery for middle age mothers (40-49).

Using data from the Uganda Demographic and Health Survey (UDHS), a weighted sample of 910 women aged 40-49 who had given birth in the last 5 years preceding the survey were selected for the choice of place delivery. Frequency distributions were used to describe the background characteristics of the women and their partners. Pearson's chi-squared ( $\chi^2$ ) tests were used to investigate the associations between place of delivery and explanatory variables. Multivariable logistic regression analyses were used to examine the association between place of delivery and explanatory variables.

More than half (65%) of the women delivered in a health facility. Choice of place of delivery was significantly associated with the mothers' wealth index, region, education level, residence, ANC attendance. The odds of delivery in health facility increased with increase in education level, wealth, region and ANC attendance but decreased in rural areas.

Ideally to increase health facility delivery for women in the study population, emphasis on women education, adequate ANC attendance and improved access to the health facility by rural communities by increasing the number of health facilities, road networks as well as transport services in rural areas should be intensified.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Back ground of the study

Maternal mortality and neonatal mortality has been identified by most studies as a global challenge that has seen African countries contributing around 99% to the global burden. Everyday 830 women die from preventable causes of pregnancy and child birth related complications around the world. Pregnant women are vulnerable, with an estimated risk of dying of 1 in every 5 child births (Hirsi, 2011).

Press, (2016) argues that if women give birth unsupervised by trained health personnel, this risk easily translates into reality and cannot be prevented. During child birth, there are complications that tend to arise (e.g severe bleeding, preeclampsia, eclampsia and infections) which require trained health personnel supervision and management that the presence of a skilled birth attendant in such circumstances ensures successful births and reduces the chances of the woman and their child dying during the delivery process (Envuladu, Agbo, Lassa, Kigbu, & Zoakah, 2013). Timely management of these complications is possible, unlike in home deliveries where women are not attended by a skilled birth attended (Dolamo, Supervisor, & Monareng, 2010). Similarly, new born mortality in low developing countries is 27 deaths per 1000 births as compared to high income countries of 3 deaths per 1000births. New borns that are not assisted by a skilled attendant are 50 times more likely to die compared to that receive skilled birth attendance (UNICEF, 2015).

In Uganda, The estimate of the maternal mortality ratio is 336 deaths per 100,000 live births (Uganda Demographic and Health Survey (UDHS), 2016). Majority of maternal and newborn deaths in Uganda are due to preventable causes that can be significantly reduced by access to midwifery care during pregnancy, at birth, and after birth, particularly the first 48 hours. Health providers, provide the appropriate intervention or referral to prevent majority of maternal and newborn deaths as well as disability due to pregnancy complications such as obstetric fistula (Midwifrey Services, 2017). Low skilled birth attendance contributed to the inadequate progress towards achieving Sustainable Development Goal 3, target 1 and 2 of reducing the global maternal mortality ratio to less than 70 per 100,000 live births and ending preventable deaths of

newborns and under five children respectively by 2030 (UNFPA, 2017). In recognizing the importance of delivery in health facilities in reducing maternal and newborn deaths and hence achieving SDG3, target 1 and 2 the government of Uganda has improved its network for primary health facilities with maternity health care services, as well as health promotion campaigns targeting women and children via mass media.

Furthermore, the government of Uganda has also mandated that maternal and child health services including delivery, be exempted from fees at any government facility (Health, Performance, & Year, 2017). To achieve Millennium Development Goals on reduction of child and maternal mortality it is required that at least 80% of deliveries to take place in health facilities (Lwelamira & Safari, 2016). To enhance utilization of health facilities during delivery in the country, barriers/determinants for utilization of health facility during delivery among women need to be identified across all geographical regions.

## **1.2 Problem statement**

The government of Uganda implemented the safe motherhood programmes more than two decades ago but maternal mortality in Uganda is still high; 364/100,000 live births UBOS, (2017). These include abolition of user fees in Public Health facilities and increasing subsidies from Government to Private not for Profit (PNFPs) health facilities. These reforms led to increased utilization of health services for example Out-patients Departments (OPDs) as evidenced by several studies and reports. However, utilization of maternity services still remains low (WHO, 2012).

However, despite government efforts, in 2017/18 FY a total of 1,111 maternal deaths were reported through the MoH HMIS compared to 1,118 in 2016/17. Of these 555 (50%) were notified and reviewed (audited) compared to 267 (24%) reviewed (audited) in 2016/17. This is a 108% increase in the number of maternal deaths reviewed. Basing on the MOH, (2016), the proportion of deliveries by skilled healthy providers drops with birth order 86% of the first birth are delivered by skilled providers as compared with 64% of sixth or higher birth orders thus calling for more research among women in the middle age group (40-49). Mothers in this age bracket are more likely to have had six or more children and are too vulnerable to obstetric complications as a result of age. Most studies focus on teenagers and the reproductive age group

as women age 40-49 need special attention being a risky reproductive age group. In view of this background, this study sought to extract factors associated with place of delivery for middle age mothers (40-49).

### **1.3 Objectives of the study**

#### **1.3.1 Main objectives**

The general objective of the study is to identify factors associated with place of delivery for mothers age (40-49).

#### **1.3.2 Specific objectives**

1. To determine the association between maternal demographic, social-economic factors and the choice of place of child delivery.
2. To determine the association between health-access factors and the choice of place of child delivery.
3. To determine the association between ANC attendance and the choice of place of child delivery

### **1.4 Hypothesis of the study**

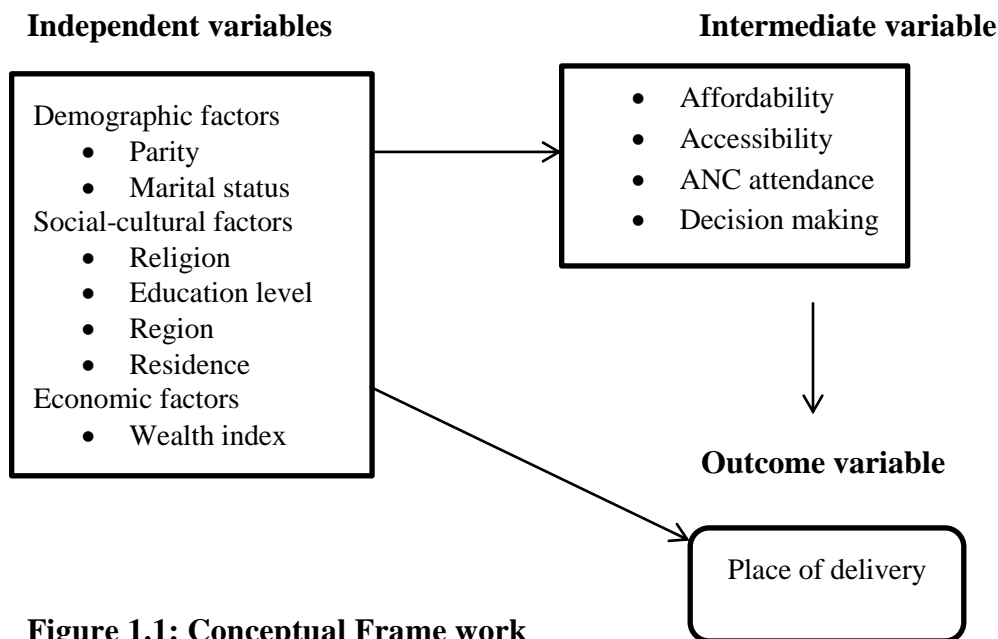
1. The following hypothetical statement was tested during the study;
2. Mothers of middle age (40-49) are more likely to opt for home deliveries as compared to facility deliveries.
3. Poor mothers are more likely to choose home delivery as compared to facility delivery.
4. Mothers in the central region are more likely to deliver at health facility delivery.
5. ANC attendance increases the odds of health facility delivery
6. Women with no education are more likely to have home delivery

### 1.5 Significance of the study

The study is to inform policymakers and programmer designers on the factors associated with choice of place of delivery for mothers age (40-49) and act as a point of reference to current and future students who are and/or will be interested in the knowledge of choice of place of delivery as well as a useful complement to the existing literature of the factors influencing choice of place of delivery in Uganda. Most studies focus on teenagers and the reproductive age group as women age 40-49 need special attention being a risky reproductive age group.

### 1.6 Conceptual frame

The conceptual framework, this portrays the relationship between variables. It illustrates how explanatory variables interact to influence the outcome variable. Factors that influence a woman’s choice of place of delivery were categorized into two, dependent and intermediate factors. Choice of place of delivery is influenced by a number of factors including accessibility, ANC attendance, affordability and the individual background factors.



**Figure 1.1: Conceptual Frame work**

Background factors include parity, educational level, religion, ethnicity and marital status and the intermediate variables directly influence choice of place of delivery. Despite the direct influence, background factors can also influence the choice of place of delivery through the

intermediate variables. These background factors exert dual influence as they also influence intermediate factors for choice of place of delivery such as accessibility, antenatal care attendance and affordability, frequency of antenatal visit which influence utilization of institutional delivery. These intermediate variables are equally influenced by the background factors as listed above. The interplay of these factors contributes to determining the ultimate decision of a woman to choose where to give birth from.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

Chapter two consist of the literature review that supports the study. The literature review presented according to the objectives of the study and the conceptual framework.

#### **Birth attendance/ place of delivery**

Several studies have demonstrated that delivery is a risky event hence timely and adequate medical care for women who experience obstetric complication is an option for mitigating the risk. Therefore, women are encouraged to deliver at health facilities as a strategy to implement maternal health outcomes (Laurel et al, 2007). Home delivery is associated with high incidence of maternal and perinatal mortality (WHO, 2009).

In Europe, more than 90% of women deliver in a health facility with skilled attendants while only 46% of women in Sub - Saharan Africa and 58% women in East, South-East Asia and North Africa have skilled attendants at delivery (UNFPA, 2010). For example in Uganda, less than 40% of deliveries take place in a health facility; TBAs handle 15%, relatives 35% and 12% are unassisted (Uganda Demographic and Health Survey (UDHS), 2016). Differences for these variations can be attributed to (i) socio-cultural factors, (ii) perceived benefit/need of skilled attendance, (iii) economic accessibility and (iv) physical accessibility (Sabine & Campbell, 2009). In contrast, high income countries have well established emergency obstetric care facilities and sufficient number of skilled personnel thus enabling women to access skilled attendants at delivery both at home and in hospital (Feyissa & Genemo, 2014).

The World Health Organization (WHO) recognizes that one key step to take in order to reduce maternal morbidity and mortality is to ensure that every baby is delivered in a healthcare institution where the opportunity exists for the delivery to be done with the assistance of a skilled birth attendant. Therefore, to reduce maternal deaths, it is essential for lower-income countries to promote utilization of institutional delivery services such that complications arising during delivery can be handled swiftly as timely management and treatment can avert deaths (WHO, 2012).

## **2.1 Factors influencing choice of place of delivery**

There are numerous factors that influence the choice of place of delivery including obstetric complications. Research findings point to the fact that choice of place of child birth is affected by multitude of factors including availability, distance, cost, and quality of service, and also personal health beliefs (Ahmed, 2010; Kidanu, Degu, & Tiruye, 2017). As illustrated in the Anderson's model of health service utilization (conceptual framework adapted from Kebebe, Hassen, and Teklehaymanot 2016), these factors are categorized into predisposing factors, enabling factors, need factors, health services related factors and economic factors.

### **2.1.1 Maternal age**

It was found that women delivering at younger age were more likely to use antenatal care, receive skilled attendance at delivery and use postnatal care (Habtom, 2017). However, a study by Aremu et al., (2011) concluded that maternal age was not significantly associated with the use of place of delivery delivery.

In a pooled sample of women from 34 SSA countries including Ghana, 52.1% of women aged 15–19 had a facility-based delivery for their first birth, as against 64.9% of those aged 20–24 years and 78.7% of those aged  $\geq 25$  (Dunlop et al., 2018). The older the age of the pregnant woman at first birth, the increased likelihood of the use of facility based delivery for sub-Saharan Africa (Dunlop et al., 2018). A study conducted in Ghana by Manyeh and colleagues also found that younger women were least likely to use skilled birth care at delivery (Manyeh et al., 2017).

### **2.1.2 Parity**

A number of studies have recognized the association of parity with a women's choice of place of delivery (Gabrysch & Campbell, 2009; Moyer et al., 2014; Tey & Lai, 2013); Boah et al., 2018 ). Boah and his colleagues also established that in the Upper East Region of Northern Ghana, a woman with one child was more likely to use a health facility for delivery compared to a woman with two or more children (Boah et al., 2018). Similarly lower rates of health facility usage for delivery were recorded among women who had over four births in across-sectional study conducted in Uganda (Anyait et al 2012). A study conducted in Pakistan showed that 50% of women utilized SBA during their first birth and 28% used SBAs after their fifth birth (Agha &

Carton, 2011).The low usage of institutions for delivery by women with multiple births has been attributed to their past maternity knowledge and also because they feel more confident (Tey & Lai, 2013).

### **2.1.3 Maternal education**

Women’s educational level has been shown in systematic reviews as an important predictor for utilization of skilled delivery service (Moyer et al., 2014).In Uganda Institutional deliveries increase steadily with increasing mother’s education; 61% of births to women with no education take place in a health facility, as compared with 96% of births to women with more than a secondary education (UDHS, 2016).

A study conducted in Ghana by Esena and Sappor (2013) established an important association between mother’s level of education and place of delivery. Women with a higher level of education had an increased likelihood of delivering in health facilities than their counterpart without formal education. Improving the girl child education can go a long way in increasing the usage of SSA and hence reduce MM.

### **2.1.4 Mother’s marital status**

The marital status of the mother has been identified in a large number of populations as risk determinants of obstetric complications. In several studies, marital status is defined either in legal terms (married, separated, divorced, widowed, single) or by the mother’s relationship with the father (married, cohabiting, single mother) (Zeitlin, Ancel, & Group, 2002). There are several interrelated reasons why being unmarried could increase the risk of having obstetric complications. Bassani, Surkan, & Olinto, (2009) argues that unmarried mothers face greater economic insecurity than married mothers. Lack of social or emotional support and depression during pregnancy have been associated with the risk of un supervised delivery and may be more common among unmarried women. Unmarried women and/or those in short-term duration unions are more likely to attend late or never attend ANC (McCaw-Binns et al., 1995). This is because most cultures and societies tend to stigmatize those who get pregnant before marriage which may discourage them from attending to ANC services on time. Due to the polygamous stature of most cohabiting men, they may tend to offer

less social, economic and psycho-social support and care to their pregnant partners (Rurangirwa, Mogren, Nyirazinyoye, Ntaganira, & Krantz, 2017).

Married women are more likely to access, attend ANC timely and receive services from health professionals unlike the unmarried (Dairo & Owoyokun, 2010; M. A. Magadi, Madise, & Rodrigues, 2000; Mekonnen & Mekonnen, 2003). They are also more interested in seeking ANC than the single mothers during pregnancy (Glei et al., 2002). Simkhada and colleagues argue that in low developing countries (LDCs), married women were capable of opting for facility delivery more than the unmarried (Simkhada et al., 2008).

### **2.1.5 Wealth Index**

A study conducted in Uganda revealed that women from richer households were more likely to opt for facility delivery compared to those from poor households (Bbale, 2011). Choice of place of delivery involves both direct and indirect costs (Pell et al., 2013). While investigating the effect of wealth on maternal health, Arthur, Ntui, and colleagues found out that place of delivery is associated with the costs of consultation and buying of recommended medicines alongside transportation (Arthur, 2012; Ntui et al., 2013). This implies that women from poor households cannot afford facility delivery and their related costs (Titaley, Dibley, & Roberts, 2010). In some areas of Kenya and Malawi where cheap bicycle transport means were available, pregnant mothers reported higher facility delivery (Pell et al., 2013).

### **2.1.6 Mother's Religion**

Religious affiliation is as well a key predictor of choice of place of delivery. In Kenya, mothers who do not associate with any religion were found to be five times less likely to use health facility delivery compared to their religious counterparts (A. Banke-Thomas et al., 2017). A study in Ghana found out that Catholic mothers were found of opting for healthy facility delivery unlike the traditional believers (Overbosch et al., 2004). Most religious women like Christians and Muslims utilize ANC services from health facilities unlike those who believe in cultural or traditional practices (C. Bhatia & Cleland, 1995; Celik & Hotchkiss, 2000; Glei et al., 2002; Kawungezi et al., 2015; Navaneetham &

Dharmalingam, 2002). Women who follow traditional beliefs are less likely to use a health facility (M. A. Magadi et al., 2000; Mekonnen & Mekonnen, 2003).

### **2.1.7 Accessibility**

#### **Distance to a health institution**

Studies have shown that availability and accessibility of a health facility to women increases institutional delivery (Wilunda et al., 2014; Gebrehiwot et al., 2014; Treacy et al., 2018). Adequate physical infrastructure is essential to create an encouragement for women to have an institutional delivery and consequently decrease MMR (Patel and Ladusingh 2015).

Caulfield et al., (2016) also identified distance to health as being a big challenge for women in the rural areas and hence they decide to deliver at home mostly delivered by a Traditional Birth Attendant (TBA). Studies in Northern Nigeria as well established that, the long distance pregnant women had to cover to reach a health facility coupled with the lack of transportation was responsible for the low utilization of skilled birth attendance (Nesbitt et al., 2016).

Distance to the nearest health facility was found to be one of the major determinants of institutionalized delivery in Asia and Tanzania in East Africa. For example in Nepal, people who were close to the roads were more likely to use health services than people who were far away (Bimal et al. 2002) while in Tanzania, women could not access health facilities due to long distance (Mrisho et al. 2009). A cross-sectional study done in 8 selected Kenyan Districts found that most women cited distance as the major reason for not using maternity service (MoH, 2001; KHDS, 2009). Nationally, only 32% of women in Kenya lived within the 5 km of health facility that offers delivery care, this study assessed the effect of distance on utilization of maternity services among women (Hirsi et al., 2011).

#### **2.1.8 Decision making**

Women's autonomy, social standing and feelings of independence were positively associated with skilled birth attendance in Nigeria and Uganda. Several studies established that women's empowerment was not only significantly associated with modern contraception, but also skilled birth attendance (Kwagala, Nankinga, Wandera, Ndugga, & Kabagenyi, 2016). Another study in Busia-Uganda, involvement of other people such as a spouse in making decisions regarding place of delivery had a positive association with skilled birth attendance.

Some men or husbands tend to deny their wives or partners rights to access ANC services and the limited autonomy of women consequently impacts their financial independence which negatively affects their decision to attend ANC (Glei et al., 2002; Matsumura & Gubhaju,

#### **2.1.9 Affordability (cost)**

Women's use of maternity service is greatly influenced by their economic status. A prospective cohort study done in India found that 94% of Uter Pradesh women delivered at home because of cost of transport and/or hospital charges for delivery (UNICEF, 2002). Studies done in India, Indonesia, rural Tanzania and Western Kenya have all mentioned cost as a hindrance to health services utilization for antenatal and delivery care (Van Eijk et al, 2006; Babalola & Adesegun 2009; Mrisho et al. 2009; Titaley et al. 2010). Studies done in other three selected Kenyan Districts found that women were apprehensive to go to health facilities even when they have complications, citing lack of money to pay for the cost of delivery services (WHO, 2009; Sabine et al. 2009; Josephine et al. 2008; KEMRI/CDC, 2005). Cost was also found to be a determinant of maternal health services use in Ghana (Overboscha, Nsowah-Nuamahb, Booma & Damnyagb, 2011). This study focused on socio-cultural and economic accessibility variables, variables of perceived benefit/need and physical accessibility to determine whether women in Garissa District share this experience.

#### **2.1.10 ANC attendance**

Antenatal Care visit is proven to be associated with the use of institutional delivery services (Mehari 2014; Teferra et al. 2012) and also act as a window for uptake of skilled birth attendance. A minimum of four ANC visits is recommended for every pregnant woman without complications (UN 2011) and Uganda has adopted this protocol.

Abeje et al. (2014) found that women who registered for ANC during the first trimester were about five times more likely to give birth at a health facility, twice as likely when registered during the second trimester as compared to those who reported in the third trimester. In Ghana, only 45.1% of pregnant women visited ANC within the first trimester of their pregnancy in 2013. The majority (>50%) reported for ANC during their second and third trimester (Zeitlin et al., 2002).

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

This chapter, however, describes the data and methods. It highlights the study design, measures, and statistical analysis.

#### **3.1 Data source**

This study used data from the 2016 Uganda demographic and health survey (UDHS). The UDHS data were accessed with permission from Measure DHS to investigate the factors associated with choice of place of delivery in Uganda. The UDHS was a cross-sectional survey that used stratified two-stage cluster sampling design, which was used in the 2002 population and housing census. Detailed description of sampling procedures is reported in the UDHS. The 2014 UDHS interviewed 18506 women age 15 -49 years. In the study women of age 40-49 and had given birth in the last 5 years preceding the survey were selected for the choice of place delivery.

This resulted into a weighted sample 910 women. The survey was carried out based on World Health Organization's (WHO) ethical and safety recommendations for research on pregnancy and postnatal care.

#### **3.2 Measures of the outcome variable**

The dependent variable “place of delivery” was measured using the question: Where did you give birth? Response to the question was obtained from women who at least had a child in the last years preceding the survey. Respondents who delivered a way from a health facility (respondent's home or other home) were recoded as home and all the other ones as health facility. Thus the outcome place of delivery was recorded as binary outcome.

#### **3.3 Measures of explanatory variables**

Explanatory variables included women's background factors. Women's background factors included age group, region of residence, wealth index, religion, educational level, and number of children ever born. Number of ANC visits were captured from the responses on the question of how many times the respondent received antenatal care during pregnancy. Since WHO guidelines recommend at least four visits, women who reported four or more times were grouped

into having adequately attended ANC and those who had less than four visits were grouped as not having adequately attended ANC.

Number of children ever born (parity) was recoded into three categories: 1 = one child, 2 = 2–4 children, and 3 = 5+ children. Region was recoded as central, eastern, northern and western regions. Religion was recoded as Catholics, Protestants, Muslims and Pentecostals/ Others. The category ‘Others’ comprised smaller religious groups, such as Seventh Day Adventists [SDAs]. Wealth status was assessed using wealth index. Wealth index is a composite measure of a household’s cumulative living standard. It is calculated using data on a household’s ownership of assets, such as televisions and bicycles; materials used for housing construction; and types of water access and sanitation facilities. For this study it was recoded into four quintiles: poorest, poorer, middle, and rich (combined richer and richest due to smaller numbers in each of these categories). Women’s education level was recoded into three categories: none, primary and secondary or higher (Kwagala et al., 2016).

### **3.4 Data Analysis**

#### **3.4.1 Univariate Analysis**

Univariate, bivariate and multivariate analysis were used. Univariate analysis was used to establish the different patterns in the distribution of respondents basing on socio-economic and demographic characteristics using frequency distributions and percentages which describe and summarize the variables. This formed the basis on which further statistical analyses between the dependent and independent variables were performed.

#### **3.4.2 Bivariate Analysis**

The relationship between each explanatory and dependent variable was established at a bivariate level and the association tested using the chi-square test, set at  $p < 0.05$ . Significance was attained given the p-value of less than 0.05.

The chi-square formula used is as indicated below;

$$X^2 = \sum_{i=1}^r \sum_{j=1}^c \frac{(o_{ij} - E)^2}{E_{ij}}$$



Where

$X^2$  Is the chi-square test

$O_{ij}$  Is the total number of observed frequencies

$E_{ij}$  Is the total number of expected frequencies

$r$  Is the number of rows

$c$  Is the number of columns

### 3.4.3 Multivariate Analysis

Logistic regression was used at a multivariate level to determine the net effect of each explanatory variable on the dependent. It was chosen among others because of the dichotomous nature of the dependent variable. It estimated the probability of falling into any of the two dichotomous values of the dependent variable given the effects of the independent variables.

The model takes the form;

$$\text{logit} \left( \frac{p}{1-p} \right) = \alpha + b_1x_1 + b_2x_2 + b_3x_3 + \dots + b_kx_k$$

Where

$P$  probability of home delivery

$1-p$  probability of health facility delivery

$\alpha$  constant

$b$  coefficient associated with independent variables

$x$  independent variables.

### **3.5 Ethical consideration**

The ethical clearance to access that dataset was sought and obtained from the demographic and health survey (DHS) website called dhsprogramme.com. By answering the questions asked to me at the site and giving the appropriate reasons as to why I needed dataset, I waited for a few days after which I was given permission through my email to download and use the dataset.

### **3.6 Limitations of the study**

When dealing with secondary data, it is often very difficult to measure cross-sectional studies since we cannot determine what happened first between the dependent and independent variables thus making the data to be inappropriate.

Secondary information is not timely in that you may get out of date information that is not applicable to the current situation.

## CHAPTER FOUR PRESENTATION AND DISCUSSION OF RESULTS

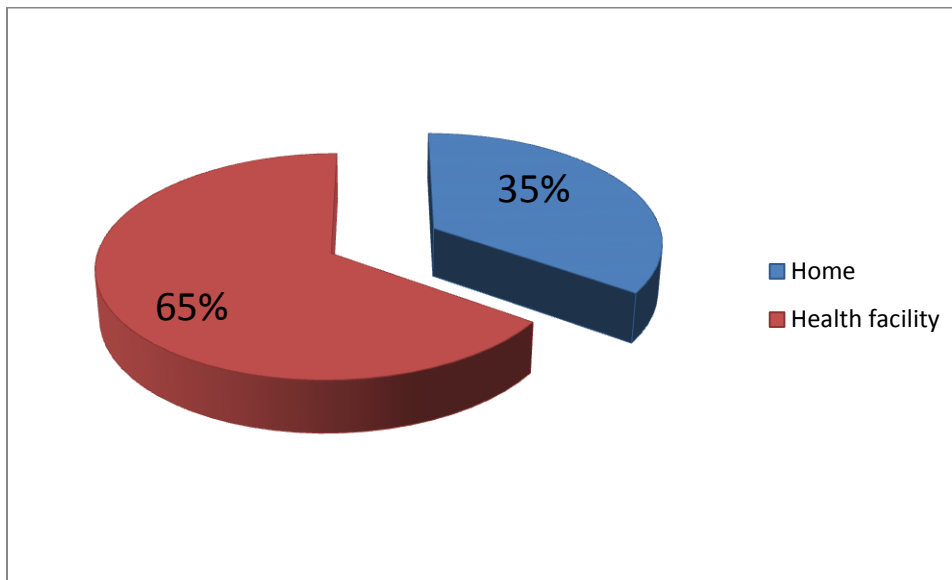
### 4.0 Introduction

This chapter presents the results and their discussion.

### 4.1 Results

Out of the 910 mothers, more than half (65%) had given birth from a health facility.

**Figure 4.1: Choice of place of delivery among mothers aged 40-49**



### Descriptive characteristics

From table 1, The majority of respondents (77.3%) were age 40-44, had no education (87.7%) and were from rural areas (84%). Majority of the respondents were Christian; (40.2% were Catholics and 32.4% were Anglicans) and were currently married (84.3%). About a third (31%) of the respondents lived in the Eastern region and most (94.3%) had five or more children. There was nearly an even distribution of women by wealth index, although more than a quarter (27.7%) were from the Rich wealth quintile.

Concerning measures of women's intermediate factors, Over half (53%) had adequate ANC attendance. Majority mothers participated in decision making since (94.8%) had no big problem of getting permission to go to the health facility. With respect to the access factor, more than half

(59.1%) had a big problem of getting money needed for treatment and (54.8%) had no access challenges since distance was not a big problem of getting to the health facility.

Table 1 also presents results of the cross tabulation (chi-square test) between choice of place of delivery and the selected factors. Choice of place of delivery was significantly associated with the mothers' wealth index, region, education level, residence, ANC attendance, getting money needed for treatment and access to the health facility, but was not significantly associated with the mothers' age, religion, parity, marital status and decision making.

Among the independent factors, choice of place of delivery was significantly associated with wealth index, mother's education level, region and place of residence. Though for the intermediate factors only decision making did not show significance to mother's choice of place of delivery. The majority (81.3%) of the rich mothers' wealth quintile opted for health facility delivery and majority 90.2% mothers of higher education level also delivered from health facilities. Mothers who lived in the central region 73% delivered from health facilities and most 87% of the mothers who lived in urban areas opted for health facility delivery.

With respect to ANC attendance, getting money needed for treatment and access factors, most 76.1% mothers who adequately attended ANC had health facility delivery where as 71.5% of the mothers who delivered from a health facility had no big problem with distance to the health facility. Majority 69.6% of women who could afford money needed for treatment opted for health facility delivery.

**Table 4.1: Distribution of women by their demographic, social-economic characteristics and their attitudes towards the place of delivery**

|                            | Frequency | % of women | % Place of delivery |                 | <i>P- value</i> |
|----------------------------|-----------|------------|---------------------|-----------------|-----------------|
|                            |           |            | Home                | Health facility |                 |
| <b>Age group</b>           |           |            |                     |                 | 0.065           |
| 40-44                      | 703       | 77.3       | 33.1                | 66.9            |                 |
| 45-49                      | 207       | 22.8       | 40.1                | 59.9            |                 |
| <b>Parity</b>              |           |            |                     |                 | 0.129           |
| 0-4                        | 52        | 5.7        | 26.5                | 73.5            |                 |
| 5+children                 | 858       | 94.3       | 35.3                | 64.7            |                 |
| <b>Marital status</b>      |           |            |                     |                 | 0.110           |
| Currently Married          | 767       | 84.3       | 33.6                | 66.4            |                 |
| Not currently married      | 143       | 15.7       | 40.6                | 59.4            |                 |
| <b>Residence</b>           |           |            |                     |                 |                 |
| Urban                      | 146       | 16.0       | 13.0                | 87.0            | <0.000          |
| Rural                      | 764       | 84.0       | 38.9                | 61.1            |                 |
| <b>Education level</b>     |           |            |                     |                 | <0.000          |
| No-Primary education       | 798       | 87.7       | 38.2                | 61.8            |                 |
| Secondary-Higher education | 112       | 12.3       | 9.8                 | 90.2            |                 |
| <b>Region</b>              |           |            |                     |                 | <0.018          |
| Central                    | 163       | 17.9       | 27.0                | 73.0            |                 |
| Eastern                    | 282       | 31.0       | 36.2                | 63.8            |                 |
| Northern                   | 247       | 27.1       | 32.0                | 68.0            |                 |
| Western                    | 218       | 24.0       | 41.7                | 58.3            |                 |
| <b>Religion</b>            |           |            |                     |                 | 0.132           |
| Anglican                   | 295       | 32.4       | 35.3                | 64.7            |                 |
| Catholic                   | 385       | 42.3       | 37.9                | 62.1            |                 |
| Muslim                     | 85        | 9.3        | 27.1                | 72.9            |                 |
| Others                     | 145       | 15.9       | 29.7                | 70.3            |                 |
| <b>Wealth index</b>        |           |            |                     |                 | <0.000          |
| Poorest                    | 238       | 26.2       | 43.3                | 56.7            |                 |
| Poorer                     | 208       | 22.9       | 43.3                | 56.7            |                 |
| Middle                     | 212       | 23.3       | 35.9                | 64.1            |                 |
| Rich                       | 252       | 27.7       | 18.7                | 81.3            |                 |
| <b>ANC attendance</b>      |           |            |                     |                 | <0.000          |
| not adequately attended    | 425       | 46.7       | 47.1                | 52.9            |                 |
| adequately attended        | 485       | 53.3       | 23.9                | 76.1            |                 |

| <b>Table 4.1 continued Distribution of women by their demographic, social-economic characteristics and their attitudes towards the place of delivery</b> |     |       |      |      |        |
|--|-----|-------|------|------|--------|
| <b>Getting permission to go to HF</b>  |     |       |      |      | 0.831  |
| big problem  | 47  | 5.16  | 36.2 | 63.8 |        |
| not a big problem  | 863 | 94.84 | 34.6 | 65.4 |        |
| <b>Getting money needed treatment</b>  |     |       |      |      | <0.022 |
| big problem  | 538 | 59.12 | 37.7 | 62.3 |        |
| not a big problem  | 372 | 40.88 | 38.4 | 69.6 |        |
| <b>Distance to HF</b>  |     |       |      |      | <0.000 |
| big problem  | 411 | 45.16 | 42.3 | 57.7 |        |
| not a big problem  | 499 | 54.84 | 28.5 | 71.5 |        |

### Determinants of place of delivery among older women of age

Basically from table 2, 2 models were fitted to measure the relationship between choice of place of delivery and independent variables with respect to the intermediate variables. In these models variables that were not significant at the bivariate level of analysis were excluded, though variables whose association was approximate to 0.08 were also added.

**Table 4.2: Logistic regression for the women's choice of place of delivery and their socio-economic and intermediate factors**

| Variable  | Model-1 |             | Model-2 |             |
|---|---------|-------------|---------|-------------|
|   | OR      | 95% CI      | OR      | 95% CI      |
| <b>ANC attendance</b> (rc=not adequately attended)                      |         |             |         |             |
| Adequately attended   | 2.8***  | [2.11-3.73] | 2.59*** | [1.93-3.49] |
| <b>Getting permission to go to the health facility</b> (rc=big problem) |         |             |         |             |
| Not a big problem   | 0.93    | [0.49-1.76] | 1.05    | [0.54-2.03] |
| <b>Getting money needed for treatment</b> (rc=big problem)              |         |             |         |             |
| Not a big problem   | 1.08    | [0.77-1.49] | 0.9     | [0.63-1.30] |
| <b>Distance to the health facility</b> (rc= big problem)                |         |             |         |             |
| Not a big problem   | 1.77*** | [1.29-2.43] | 1.45    | [1.04-2.03] |

**Table 4.2 continued logistic regression for the women’s choice of place of delivery and their socio-economic and intermediate factors**

|  |  |  |         |             |
|--|--|--|---------|-------------|
| <b>Wealth index</b> ( rc= poorest)               |  |  |         |             |
| Poorer   |  |  | 1.24    | [0.81-1.91] |
| Middle   |  |  | 2.04**  | [1.29-3.24] |
| Rich   |  |  | 2.81*** | [1.67-4.75] |
| <b>Residence</b> ( rc=Urban)                     |  |  |         |             |
| Rural  |  |  | 0.4***  | [0.23-0.69] |
| <b>Education level</b> (rc=no-primary education) |  |  |         |             |
| Secondary-High education                         |  |  | 2.77**  | [1.38-5.58] |
| <b>Region</b> ( rc= Central)                     |  |  |         |             |
| Eastern  |  |  | 1.23    | [0.76-2.01] |
| Northern   |  |  | 2.06*** | [1.18-3.60] |
| Western  |  |  | 0.8     | [0.51-0.69] |
| <b>Age group</b> (rc=40-44)                      |  |  |         |             |
| 45-49  |  |  | 0.76    | [0.54-1.08] |

Source,UDHS data, 2016; \*\*\*p<0.01; \*\*p<0.05; rc= reference category; CI=Confidence interval

Model-1; Considers the main determining factors

Model-2; Added social-economic factors

Choice of place of delivery was first modeled with intermediate variables of which ANC and distance to the health facility had significant relationship with place of delivery. Women who adequately attended ANC had increased odds (OR=2.8; CI 2.11-3.73) of delivering in a health facility as compared to those that had inadequate ANC attendance and Women who reported that distance to the health facility was not a big problem (OR=1.77; CI 1.29-2.43) had increased odds of health facility delivery as compared to those where it was a big problem. In the second model social-economic characteristics were added to the intermediate variables. Choice of place of delivery was significantly associated with ANC attendance, distance to the health facility, education level, region, place of residence and wealth index as discussed below.

ANC attendance and distance to the health facility remained significantly associated to the mothers' choice of place of delivery. Although in the second model ANC attendance and distance to the health facility received significant but odds slightly tend to reduce ((OR=2.59; CI 1.93-3.49) adequately attended ANC and distance to the health facility not a big problem (OR=1.45; CI 1.04-2.03). Women with high education were two times more likely to deliver in health facility compared to those with no education (OR = 2.77; CI, 1.38-5.58). The odds of delivering at a health facility were higher among the rich (OR= 2.81; CI 1.67-4.75) and middle (OR=2.04; CI 1.29-3.24) wealth quintiles relative to their (poorest and poorer) counterparts. Women who were from the Northern region were twice more likely to deliver in a health facility as compared to those in the central region. Women's' place of residence was significantly associated with place of delivery. Women from rural areas (OR=0.4; CI 0.23-0.69) had decreased odds of delivering from a health facility. Amazingly getting money needed for treatment did not show significant relationship to place of delivery.

#### **4.2 Discussion**

The proportion of health facility delivery among women of the older age group (65%) is lower than the national prevalence of 73%. Significant predictors of place of delivery were ANC attendance, distance to the health facility, women's education level, region, wealth index and place of residence.

In contrast with other studies decision making and parity did not significantly associated with place of delivery. This is contrary to the findings of Lwelamira's study in central Tanzania which indicated that decision making was significantly associated with place of delivery. As established in other studies in Kenya, Ghana, Tanzania and Busia- Uganda, ANC attendance, distance to the health facility, wealth index, place of residence and women's education level were significantly associated with place of delivery. Getting money needed for treatment did not show any significant relationship with place of delivery when fitted in the two models.

Women with higher education were two times more likely to deliver in health facility compared to those with no education. Increased chance of delivery in health facility with increase in education level is consistent with results of most of previous studies conducted in Uganda and other African countries (Nigussie *et al.*, 2004; Mrisho *et al.*, 2007). Increased likelihood for



health facility delivery with increase in education level could be related to increase in level of exposure (i.e., access to right information with regard to delivery).

Women who had adequate ANC attendance during their last pregnancy were two times more likely to deliver in health facility in their most recent birth compare to those who did not adequately attend their ANC. This was similarly reported by Nigussie *et al.* (2004) and Lwelamira & Safari,( 2016). This could be attributed to advice given to women by health personnel during antenatal care visits which include among others advice on delivery in health facility. This stressed the need for encouraging women to attend to antenatal care services and the use of this opportunity to educate women on the importance of delivery in health facility for their health as well as health of newborn.

Women from rich and middle income group were two times more likely to deliver in health facility compared to those from (poorest and poorer) income group. Women from poor families may fail to use health facilities for delivery due to lack of money for transport fare when the facility is located at a distant place and lack of money to pay for delivery kit as well as food while at health facility as it is in agreement with the studies of Mrisho *et al.*,( 2007); Dolamo & Monareng, (2010).

## CHAPTER FIVE

### SUMMARY OF RESULTS, CONCLUSION, AND RECOMMENDATIONS

#### 5.1 Summary of results

The prevalence of women in the study population that uses health facility for delivery that is still low when compared to the national prevalence (73%).

Women's, residence, wealth index, region, place of residence, ANC attendance, distance to the health facility, getting money needed for treatment and mother's education levels were significantly associated with place of delivery. Women with adequate ANC attendance, higher education level, women in a wealth quintile, urban areas and those from the Northern region were more likely to deliver in a health facilities. However, there were no significant relationships between decision making with respect to getting permission for going to the health facility, marital status, parity and getting money needed for treatment

#### 5.2 Conclusion

The prevalence of women in the study population that used a health facility for delivery is still low when compared to the national prevalence (73%). With respect to the hypothesis, adequate ANC attendance, higher education level and women in a wealth quintile was accepted. Whereas age and region were rejected.

#### 5.3 Recommendations

To increase of health facility delivery by women in a study population, emphasis on women education should be highly considered. Furthermore, efforts to improve accessibility of health facilities by rural communities by increasing number of health facilities, road networks as well transport services in rural areas should be intensified. Women in higher parities and women from poor families. Since poverty (low income) and hence lack of money to cater for health services was also a barrier for seeking assistance of health professional during delivery, advancing affordable facilities to women and encouraging them to engage in small scale businesses for income generation could be of much help.

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