

**PATTERNS AND TRENDS OF ANTENATAL CARE AND DELIVERY CARE
SERVICES UTILISATION IN UGANDA, (1995-2011)**

BY

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DECLARATION

I Ainomugisha Pricky Proxy hereby declare that this work has never been presented to any University or Institution for any award.

Signed.

Date.

APPROVAL

This is to certify that this study has been carried out under my supervision. It is ready for submission with my approval.

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DEDICATION

This work is dedicated to my Parents, brothers and Sisters.

ACKNOWLEDGEMENT

I wish to thank all the people who assisted me in one way or the other to see this work completed. Despite my efforts this work would not have been accomplished without your assistance.

First of all I would like to thank the college of Business and Management for having admitted me in the Faculty to pursue this course. I thank my supervisor Dr. Rutaremwa Gideon for tirelessly reading my scripts and advising me accordingly to finally accomplish the work.

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May God bless you all.

Pricky Proxy Ainomugisha.

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LIST OF ABBREVIATIONS AND ACRONYMS

AMREF	African Medical Research Foundation
ANC	Antenatal Care
HIV	Human Immune Virus
ICPD	International Conference on Population and Development
MOH	Ministry of Health
MDG	Millennium Development Goal
NGOs	Non Government Organization
SPSS	Statistical Package for Social Sciences
TBA'S	Traditional Birth Attendants
UNDP	United Nations Development Programme
UDHS	Uganda Demographic Health Survey
UNICEF	United Nations Children's Emergency Fund
WHO	World Health Organization.
UN	United Nations

ABSTRACT

This study investigated the patterns and trends of Antenatal Care and Delivery care services Utilisation in the recent past in Uganda 1995-2011. The influence of socio-economic and demographic factors on ANC and Delivery care utilization was assessed to see whether it has been consistent in the study period. The demographic factors was Age, and socio economic factors were education, region, wealth index, place of residence and birth order. These factors were the independent factors. The dependent factors were Antenatal care and delivery care.

The study utilized both descriptive and analytical approaches to reach the desired objective. Data analysis was performed using Statistical Package for Social Sciences (SPSS). Cross tabulations were used to investigate the levels or trends of ANC and delivery care services utilization according to demographic factors and socio economic factors. As regards the in depth analysis , multinomial logistic regression was used to determine the socio economic and demographic factors for ANC and Delivery care services utilization.

The findings of the study at all levels of analysis revealed that the percentage of women who received the recommended ANC services was higher in urban areas than in rural areas from 1995 to 2011, this shows that women in rural areas may be facing challenges in accessing the ANC services, like long distances to the health centers. According to the regions, most women in Central region throughout the years (1995-2011) received the recommended ANC visits compared to other regions, and this shows that the services are not fairly distributed among the regions.

It was also revealed that women with birth order one were mostly assisted by qualified health providers during the child birth throughout the years (1995-2011) compared to the women with higher birth orders. Also women who reside in urban areas were assisted by qualified health providers during the child delivery throughout the years compared to those in rural areas, this shows that women in rural areas face challenges of long distances to the health units. To improve on the access of ANC and Delivery care services, policies and recommendations aimed at eradicating socio economic problems should be put in place.

CHAPTER ONE

INTRODUCTION

1.1Background

All over the world, women and babies particularly in poor communities do not have access to or benefit from essential health care that would substantially lessen the dangers they face as concealed by World Health Organization (2000). Expanding access to, and improving the quality of maternal health, fertility regulation services will reduce the numbers of unwanted pregnancies, unsafe abortions and the associated maternal deaths. Thousands of lives will be saved if pregnant women attend ANC and are assisted by skilled attendants during childbirth and able to access emergency obstetric care for complications.

Maternal Health Care is a concept that encompasses family planning, preconception, Antenatal care, childbirth and postnatal care. Goals of preconception care can include providing education, health promotion, screening and interventions for women of reproductive age to reduce risk factors that might affect future pregnancies.

Ante-natal care is the comprehensive care that women receive and provide for themselves throughout their pregnancy. Women who begin prenatal care early in their pregnancies have better birth outcomes than women who receive little or no care during their pregnancies. Postnatal care issues include recovery from childbirth, concerns about newborn care, nutrition, breastfeeding, and family planning. (Inc., 2007)

Obstetric care from a health professional during delivery is recognized as critical for the reduction of maternal and neonatal mortality. Children delivered at home are usually more likely to be delivered without assistance from a trained provider, whereas children delivered at a health facility are more likely to be delivered by a trained health professional.

Regular ANC is helpful in identifying and preventing adverse pregnancy outcomes when it is sought early in the pregnancy and is continued through delivery. In line with WHO guidelines, the MOH recommends that a woman should have at least four ANC Visits, the 1st of which should be made in the first trimester, it is possible during their visits to detect health problems associated with a pregnancy.

Information on antenatal care visits and Delivery care and the stage at which pregnant women seek these services was as follows;

In 1995 results indicate that 80 percent of pregnant women received ANC, and in 2000/2001 it increased to 83 percent and in 2006 it increased to 94 percent and this has almost remained the same up to 2011. In 1995, results show that 37percent of women was assisted by trained medical professionals, in 2001 it increased to 40 percent and it increased slightly to 42 percent in 2006, then to 58 percent in 2011.

In the developed world, maternal mortality ratio averages are around 21 deaths per 100,000 live births and is 20 times higher in the developing world as indicated by Carla 2000. Uganda is among developing countries where more than 500,000 women die in childbirth or from complications during pregnancy each year. In some regions, the ratio may be as high as 1000 deaths per 100,000 live births. In fact, a woman in Africa stands 1 in 16 chances of dying from pregnant related causes; conversely the woman in developed world faces 1 in 2500. The discrepancy between these figures is one of the wildest differentials between the rich and poor countries.

Maternal Health Care is still lacking with high levels of maternal and infant morbidity and mortality a position agreed to by ICPD 2004. Yet there are efforts to address unsafe abortion, re-evaluate the health delivery system, strengthen gender analysis at the macro-economic levels through research on the effects of population programmes on households with a view to reduce maternal, infant mortality and morbidity with special emphasis on the collection of data on families.

Poor maternal health care, inefficient management of delivery and lack of essential care for the newly born child result into nearly 2/3 of the 8 million infant deaths that occur each year and of these deaths, more than half occur in the neonatal period according to Uganda Bureau of Statistics 1995).

It revealed that in Northern Europe the risk of a woman dying as a result of pregnancy or childbirth during her lifetime is about 1 in 30,000 women compared with about 1 in 6 women in the poorest parts of the world. This discrepancy poses a huge challenge to meet MDG 5; to reduce maternal mortality by 75% between 1990 and 2015 (Bryce, J., Boschi-Pinto, C., Shibuya, K., & Black, 2005).

Maternal Health Care needs to improve in order to curb high maternal deaths in sub-Saharan Africa a position reached by IPPF 2010. Progress on MDG 5 has been slow although there is a sense of momentum. At the same time there are good practices in countries such as China and Egypt which have made extraordinary progress in bringing down maternal deaths. Unsafe Abortions contributes to one in seven maternal deaths across the world and the greatest occurring in Africa.

1.2 Problem Statement

In Uganda ANC and Delivery Care challenges have persisted for sometime despite the awareness to the policy makers and stakeholders. Even with government efforts to avert the situation, still there is less utilization of ANC and Delivery care services. Most women and children particularly in poor communities do not have access to or benefit from ANC and delivery care services and this has increased the numbers of maternal deaths.

Extending health centres to the rural areas to be accessed by women, and improving the quality of ANC and Delivery care services would reduce complications among pregnant women hence decline of numbers of maternal deaths. Thousands of lives will be saved if women are assisted by skilled health providers during childbirth and able to access emergency obstetric care for complications. Pregnant women are at a risk of unforeseen complications which would take place due to poor or less utilization of ANC and delivery care services and lack of skilled medical personnel (Malqvist, Hoa, & Thomsen, 2012).

In Uganda, inadequate training of health workers, less utilization or lack of access to ANC services and Delivery Care services is to blame for high maternal mortality rates. Every day, 16 women die in childbirth or soon after or as result of complications during pregnancy. WHO (2010), attest that globally every day 1500 women die due to complications in pregnancy and childbirth. 10,000 babies die per day within the first month of life and an equal number of babies are born dead. Skilled care around the time of birth would greatly reduce the number of these deaths. Maternal Mortality Rate was

506 deaths per 100,000 live births in Nineteen ninety five and rose to 1200 per 100,000 and this was the highest in the region. The rate currently stands at 354 deaths per 100,000 live births from 435 deaths per 100 000 live births in 2006 and is projected to be 131 deaths per 100,000 in 2015 (Uganda Bureau of Statistics (UBOS), 2011)

In Uganda, over 50 percent of mothers do not access ANC and Delivery care services and those who are expected to go for these services at any hospital of their choice vary by age, social-economic backgrounds and educational levels. However, there is a great concern about the decline of the number of pregnant women who turn up for ANC in the country and have the recommended number of visits and also the number of women who are assisted by skilled attendants during the child delivery is not consistent and this has increased maternal deaths, so the study was carried out to find out the determinants for less utilization of ANC and delivery care services.

1.3 Objectives of the Study

The main objective of the study was to analyze the determinants for ANC and Delivery care services utilization among women in Uganda during the period 1995– 2012. Specifically, the study was to:

1. Assess the patterns and trends for socio-economic and demographic factors of ANC and Delivery care utilization in the study period.
2. Examine the differentials for ANC and Delivery care utilization over the study period.

1.4 Hypotheses

The following hypotheses were tested:

1. Mothers in urban areas are more likely to receive the recommended ANC visits compared to mothers in rural areas.
2. Women in Central region are more likely to receive the recommended antenatal care visits compared to those in Northern region.
3. Women in Urban areas are more likely to be assisted by qualified health providers during the child delivery compared to the women in rural areas.
4. Women in Central and Western regions are more likely to be assisted by qualified health providers during the child delivery than women in Northern and Eastern regions.

5. Educated women are more likely to access the recommended Antenatal Care visits compared to women without education.
6. Women with higher education are more likely to be assisted by qualified health providers during the child birth compared to the women without education.
7. ANC attendance over the study period (1995-2011) increased and women who are assisted by qualified health providers also increased over the years.

1.5 Conceptual Framework

The following framework indicates the linkage of maternal health care in form of Ante Natal Care and Delivery Care through Socio-economic factors, demographic factors and intermediate factors.

Figure 1.0

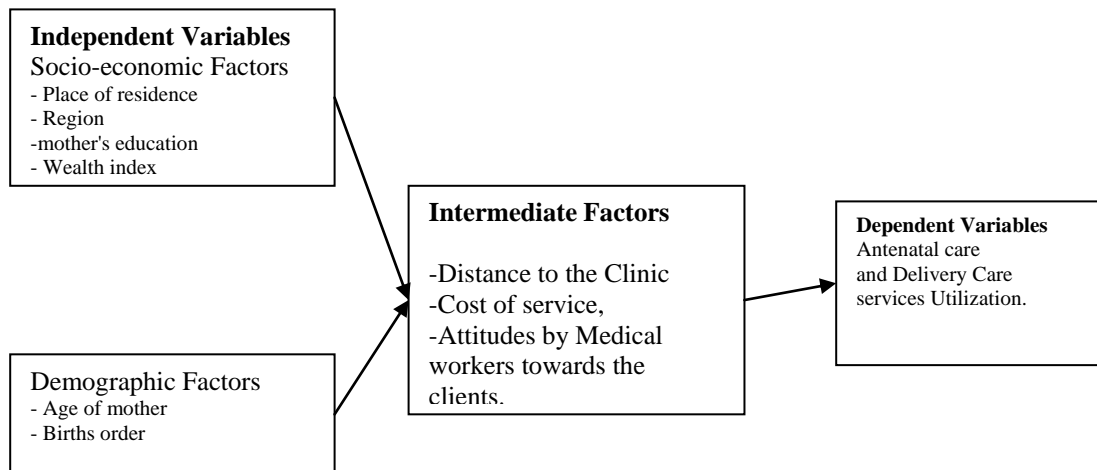


Figure 1.1 shows how dependent variables are influenced by independent and intermediate factors. Women who reside in rural areas may be affected by long distances to the health centers or clinics when there is need to access ANC and Delivery care services. Similarly those without education and in poor class may not manage to pay for ANC and Delivery services which are charged higher costs, and they may also have poor attitudes towards the services thinking that the ANC visits are not important, hence causing less utilisation. Educated women who are rich and reside in urban centres can easily access these services because they can manage to pay for the services and the transport for long distances. Young aged mothers with birth order one are most likely to have the recommended 4 ANC visits and be assisted by skilled health providers during the child delivery .

1.6 Significance of the Study

Estimates of 990,000 women become pregnant in Uganda each year with maternal mortality rate of 354 deaths per 100,000 live births and only 15,184 trained midwives, as stated by Katine 2010. There is some success in improving maternal that is; reduction of maternal mortality rate from 505 deaths per 100,000 live births in 2000 to 354 deaths per 100,000 live births in 2011. Still the country needs to reduce maternal mortality rate to 131 deaths per every 100,000 live births to attain the MDG 5 by 2015. However, there are government intervention programs and NGOs like AMREF are devoted to offer maternal health care to address this phenomenon.

In Uganda, 61,000 women are expected to have died due to maternal causes between 2003 and 2010 if maternal health is not improved. In the next decade, 100,000 women will become infertile and about 1.2 million will suffer from disabilities such as inability to breastfeed, incontinence due to fistula and pelvic pain. Poor maternal health dramatically reduces the capacity of women to work thus constraining their ability to generate income (Survey, 2011).

In Uganda, Maternal mortality rate continues at an unacceptably high level as stated in MNPI 2009. Maternal mortality estimates are roughly between 6,500 and 13,500 women and girls dying each year due to pregnancy-related complications. Moreover, 130,000 to 405,000 women and girls suffer from disabilities caused by complications during pregnancy and childbirth each year.

In light of the above therefore, it is of paramount importance to use national representative data from the Uganda Demographic Health Survey (UDHS) to investigate factors determining ANC utilization and the type of delivery assistance among Ugandan women. The findings of this study can be utilized by health planners, policy makers and other stake holders and it would enlighten our understanding of ANC and delivery care utilisation and would contribute to the promotion of maternal health among women.

1.7 Organization of the Dissertation.

The study is organized in six chapters: The first chapter discusses introduction, the research problem, objectives of the study, Hypotheses, conceptual frame work, significance of the study and organization of the study. The second chapter discusses the literature review, and the third chapter discusses

methodology, data sources, variables and measurements and analysis procedure. The fourth chapter discusses the background characteristics, trends and differentials of ANC and Delivery Care services utilization, the fifth chapter discusses the determinants of ANC and Delivery care and finally the six chapter presents the summary of findings, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses different factors that influence the utilization of ANC and delivery care. This helps in identifying the gaps in knowledge that need to be filled. The chapter has the following sections: demographic factors, socio-economic factors and intermediate factors.

2.2 Demographic Factors

According to Baheiraei, Mirghafourvand, Mohammadi, Charandabi, & Nedjat, (2012) study, Age is often presented as a proxy for accumulated experience, including in the use of health services. Older women are also possibly more confident and influential in household decision-making than younger women, and than adolescents in particular. Furthermore, older women may be told by health workers to deliver in a facility since older age is a biological risk factor. On the other hand, older women may belong to more traditional cohorts and thus be less likely to use modern facilities than young women.

Globally, one third of births take place at home without the assistance of a skilled attendant . In Africa, less than 50% of births are attended by a skilled health worker despite an increase from 43% to 57% between 1990 and 2005 in all developing regions. Consequently, two million women have died in Africa during childbirth since 2000. According to Kenya Demographic Health Survey (2008/9), the percentage of medically assisted deliveries has fallen consistently from 50% in 1993 to 44% of births in 2008; 28% of the mothers have a traditional birth attendant, 21% of mothers are assisted by relatives and/or friends and 7% deliver alone. Utilization of skilled delivery attendance services was still low with a high number of deliveries being attended by unqualified lay persons. There is need to implement cost effective and sustainable measures to improve the quality of maternal health services with an aim of promoting safe delivery and hence reducing maternal mortality.(Wanjira, Mwangi, Mathenge, Mbugua, & Ng'ang'a, 2011)

Women who use ANC services have higher likelihood of having childbirth in health facility or giving birth in the presence of trained birth attendants compared to those who do not use ANC services. Achieving good maternal health requires quality reproductive health services and a series of well-timed

interventions. In most developing countries, the timing of ANC is very essential because it offers an opportunity for the prevention of mother to child HIV/AIDS transmission. Maternal age has been shown to affect both the timing of ANC visit and ANC care utilisation in general. However, there is no consistency in the findings. While some studies found that younger age increases the chances of early antenatal care, delivery assisted by trained personnel and high utilization of antenatal care services, others found otherwise, and yet others found no variation in maternal care utilisation by age. Plausibly, the socio-cultural context of both age and ANC utilisation may explain the differences.(Doku, Neupane, & Doku, 2012)

2.3 Socio-economic Factors

About 90 percent of the Ugandan rural population uses traditional medicine for their health care needs. Women and children constitute a big share of the people reliant on herbal medicine. In Uganda, over 80 percent of childbirths are conducted at home by using herbal remedies. The problem lies in the toxicity levels and the unspecified dosages that may threaten the life of the unborn baby and the mother (Babirye et al., 2011).

Distance to the closest health facility could be a barrier to access Delivery care services The geographical dimension must be taken into consideration when planning interventions for improved neonatal survival, especially when targeting socio-economically disadvantaged groups. There has been an increasing awareness that the perinatal period is a neglected area in recent years, and interventions targeting mothers and newborns have been encouraged . Nearly four million newborns die during the first four weeks of life every year and the rate of maternal mortality has remained basically unchanged in the past decades . Some improvements can be seen, but still the pace is slow, especially in the early neonatal period. Most of these neonatal deaths occur during the first day of life and complications related to delivery care make up a large proportion of the overall neonatal mortality. Skilled assistance at delivery and access to emergency obstetric care are the most effective interventions to prevent these early and intra-partum related deaths . This requires both the availability of such services as well as the will and possibility for pregnant women to seek this care at delivery(Malqvist, Sohel, Do, Eriksson, & Persson, 2010)

There are multiple potential pathways that could explain why "maternal education is consistently and strongly associated with all types of health behaviour". These include increased knowledge of the benefits of preventive health care and awareness of health services, higher receptivity to new health-related information, socialisation to interact with formal services outside the home environment, familiarity with modern medical culture, access to financial resources and health insurance, more control over resources within the household and wiser spending, more egalitarian relationship and better communication with the husband, more decision-making power, increased self-worth and self-confidence, better coping abilities and negotiating skills as well as reduced power differential towards health care providers and thus better communication and ability to demand adequate services (Wu & Zhang, 2010).

According to (Zhao et al., 2012) many migrant women in Shanghai did not receive adequate antenatal care and initiated antenatal care later than the optimal first 12 weeks of pregnancy. Poor antenatal care utilization was associated with low socioeconomic status, education, and certain demographic factors. Tailored health education for both migrant women and their husbands should be strengthened to improve maternal health. Financing supports should be provided to improve the utilization of antenatal care.

In rural China, financial constraints have been proposed as the main use for the under-use of health care in general. Our previous study in western rural areas found that low income women were less likely to have five or more visits than women in the medium and high income groups in 2007. There is also evidence that the means of payment has an association with prenatal care use. Women participating in a health insurance scheme covering the cost of obstetric care made more prenatal visits than non-insured women (MOH 2008).

According to Witter et al. study (2007), in resource-poor countries the high cost of user fees for deliveries limits access to skilled attendance, and contributes to maternal and neonatal mortality and the impoverishment of vulnerable households. A number of countries are experimenting with different approaches to tackle financial barriers to maternal health care like exemption of delivery care fees and national insurance scheme.

It was revealed that Uganda's maternal and child problems include high incidence of malaria during pregnancy, high maternal mortality rate, obstetric fistula or serious injury resulting from prolonged and obstructed labor and lack of modern contraceptives. Seventy percent of all Ugandan mothers give birth for the first time by age 19 and only one out of three pregnancies have a skilled attendant at her birth (UBOS & ICF Macro Inc.2012)

In Uganda, Antenatal care services by type and quality are inconsistent and inadequate and differ greatly in regions. Less than half of pregnant women receive any type of immunization, and no blood (hemoglobin) tests, urinalysis, syphilis screening or voluntary counseling and testing for HIV. Only a few health workers listen to the fetal heartbeat. Moreover, few women are counseled on the risk factors and warning signs and symptoms of complications during pregnancy let alone delivery.

Women are exposed to risks related to pregnancy and childbearing, where fertility is high and basic maternity care is not available, women are particularly vulnerable. In some Sub-Saharan African countries, for example, one out of every seven women will die of pregnancy-related causes. Certain conditions, including hepatitis, anaemia, malaria, and tuberculosis, can be exacerbated by pregnancy. For example, the incidence of viral hepatitis for pregnant women is twice as high as for non-pregnant women and more likely to prove fatal. Complications of pregnancy can also cause permanent damage, such as uterine prolapse and obstetric fistula (Amankwaa-Adansi, A., Bavon, A. I. and Nkansah, 2003)

According to (UNICEF, 2001) almost 11 million children under five years of age would die in 2005 from causes that are largely preventable. Among them 4 million babies will not survive the first month of life. At the same time, more than half a million women will die in pregnancy, childbirth or soon after. The report says that reducing this toll in line with the Millennium Development Goals depends largely on every mother and every child having the right to access to health care from pregnancy through childbirth, the neonatal period and childhood.

Maternal Health Care services and improvements in vaccinations for childhood diseases can cause significant reductions in Infant mortality rates as studied by Sarah et al. 2008, but even under optimistic assumptions about enhancements in health care and education, Uganda may not achieve the Millennium Development Goal 4.

2.4 Intermediate factors

ANC care access depends not only on the availability of healthcare services but also on various other factors such as distance to health care facility; perception of women and their families regarding the need for care; social restrictions on freedom of movement; the opportunity cost of accessing health care; and the interaction between the client and the provider of formal health care system. (Beckman, Louckx, & Putman, 2010)

Compared to women having only one child, women having two or more children were less likely to go for Antenatal care, which is consistent with other studies in China and worldwide. In the three counties, the proportions of women seeking early and adequate prenatal care were higher than national average level in rural China in 2008 and reported levels in other developing countries, although the definition of early and adequate prenatal care use varied from those studies. This suggests that in general women's awareness and acceptance of the need for prenatal care use was relatively high (Zhao et al., 2012).

According to (Malqvist et al., 2012) the lack of clear and effective communication may not only undermine the provider user relationship, but also potentially affect health seeking behavior if patients are unwilling to seek care due to lack of trust. Lack of knowledge about benefits available and claim processes have also been identified as barriers both to uptake of general health services covered by health insurance and successfully claiming against insurance by women in India as well as other studies in China.

Gender-power inequalities which underlie women's limited access to resources and lack of decision-making power are an important barrier to access ANC and delivery care services. For example, in six countries of the WHO-Western Pacific Region (Cambodia, Nauru, Philippines, Samoa, Solomon Islands and Tuvalu), 78- 97% of women aged 15-19 years had one or more problems in accessing health care when they were sick, many of these not related to affordability. About a fifth had problems in getting permission for treatment, 30-66% was not willing to go alone, and a majority in all countries except the Philippines were concerned that no female provider may be available. A gender-sensitive health system can help women overcome many, though not all, of these barriers to maternal health care access. (Ravindran, 2012)

Tetanus remains a significant cause of maternal and neonatal deaths of between 15,000 to 30,000 mothers and 180,000 newborns and most of these fatalities take place in sub-Saharan Africa, according to (UNICEF, 2007). Immunization received during prenatal visits has been among the most significant counteractions against maternal and neonatal tetanus. Tetanus Toxoid proved to be efficacious against the disease with two doses providing protective concentrations of antitoxins in the majority of the cases and almost 100 percent immunity after the third dose.

There is physical and verbal abuse of women in labour and women seeking abortion and STI services by women health workers. A number of possible reasons for the abuse have been identified: the overworked health worker may be passing on her frustrations to patients; it may be a case of discrimination against women from low-income or marginalised communities and in the case of services such as contraception, abortion or STI/HIV care, the health worker may be judging the patient as having transgressed gender norms, such abuses causes women not to utilize ANC services and Delivery care services. Immediate attention to preventing such abuse in the health care setting could make a big difference to women's willingness to return for further care.(Ravindran, 2012)

The literature reviewed addressed Maternal Health in regard to global and local rates and prevalence. However, this study, discusses the Patterns, trends and factors associated with ANC services utilization in the recent past.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the data sources, methods, variables and their categories, analysis and some limitations of the study.

3.2 Data Sources

The data of the study was derived from UDHS 1995, 2000/2001, 2006, and 2011 raw data. These were designed to provide information on demographic, health and family planning status and trends in the country. Specifically the surveys collected information on fertility preferences, marriage, sexual activity, awareness and use of family planning methods and breast feeding practices. Supplementary sources include UN publications and other maternal health published materials. The UDHS are nationally representative surveys of 8531 women aged 15-49 and 2503 men aged 15-54 years and the response rate was 95 percent. The unit of analysis is women who had at least a live birth during the five years preceding the interview.

3.3 Variables and Measurements

Table 3.1 shows the variables considered in this study. There are two sets of variables, the dependent variables and independent variables. The dependent variables are two and these are Antenatal Care Visits and Delivery care, the independent variables are six, namely; birth order, Mother's age, education, region, place of residence and wealth index.

Table 3.1 Variables and their categories

Variable	Description and Category.
Dependent Variables	
Antenatal care visits	0=no visits, 1=1-3visits, 2=4 visits and above(Reference category)
Delivery care	1=qualified health providers, 2=All others, 3=TBAAs(Reference category)
Independent Variables	
Birth Order	1=1child, 2=2-3children, 3=4children(Reference Category)
Mother's age	1=<20, 2=20-29, 3=30-39, 4=40-49(Reference category)
Region	1=Central, 2=Eastern, 3=Northern, 4=Western(Reference category)
Place of residence	1=Urban, 2=Rural(Reference category)
Mother's education	1=no education, 2=primary, 3=secondary, 4=Higher(Reference category)
Wealth index	1=Poor, 2=Middle, 3=Rich(Reference category)

According to Table 3.1 the dependent variables are categorized as follows; Antenatal visits are categorized as no visits, 1-3 visits and 4 visits and above. Delivery care is categorized as qualified health providers which comprise of doctors, mid wives, nurses and clinical officers, and un qualified health providers are relatives, friends which are named as others and TBA's.

The independent variables are categorized as follows; Birth order is categorized as 1 child, 2-3 children and 4 children and above, Mother's age is categorized as below 20 years, 20-29 years, 30-39 years, 40-49 years, region is categorized as Central, Eastern, Northern and Western, Place of residence is categorized as Urban and Rural, Education is categorized as no education, primary, secondary and higher education, and wealth index is categorized as poor, middle and rich.

3.4 Analysis Procedure

This research study was done with descriptive statistics, frequencies and cross tabulations to reveal the factors associated with ANC and Delivery Care in Uganda against some socio-economic and demographic factors. Chi-square test was used to test the statistical association between the indicator and explanatory variables. Multinomial Logistic regression was used to determine the factors responsible for ANC Services Utilization and delivery care services utilization. Data analysis is done using Statistical Package for the Social Sciences (SPSS).

For a dependent variable that has 3 categories, the equation is as follows.

$$\ln \frac{P(Y_i = m)}{P(Y_i = 1)} = a + \sum_{k=1}^k \beta_m X_{ik} = Z_{mi}$$

$$P(Y_i = m) = \frac{\exp(Z_{mi})}{1 + \sum_{h=2}^M \exp(Z_{mi})}$$

When using the multinomial logistic regression, one category of the dependent variable (4 visits and above for ANC or TBA'S for Delivery care) were chosen as the comparison category. Separate risk ratios are determined for all independent variables for each category of the dependent variable except the comparison category, which is omitted from the analysis. The model parameter estimates and the attendant relative risk ratios for multinomial logistic model is that for a unit change in the predictor variable, the logistic of outcome m relative to the reference group is expected to change by its respective parameter estimate given the variables in the model are held constant.

CHAPTER FOUR

BACKGROUND CHARACTERISTICS OF RESPONDENTS

4.1 Introduction

This chapter discusses the background characteristics of respondents. Because the study aims at addressing the specific trends of ANC and Delivery Care Services Utilization, these background characteristics are presented for the different data points, namely; 1995, 2001, 2006 and 2011. The characteristics discussed have been broadly grouped into two categories; demographic factors and socio economic factors.

4.2 Demographic and socio economic factors

The demographic factors discussed are age and birth order and the socio economic factors are region, place of residence, wealth index and education. Table 4.2 shows the trends of back ground characteristics namely; birth order, age of a mother, region, place of residence, education and wealth index from 1995-2011.

Table 4.1 Trends of background characteristics

Background Characteristics	1995	2001	2006	2011
Birth Order				
1	21.1	19.6	16.9	18.5
2-3	33.5	33.5	28.5	31.8
4+	45.3	47.0	54.5	49.7
Age of mother				
<20	10.7	7.2	5.1	6.6
20-29	57.0	57.9	52.1	54.6
30-39	27.3	29.0	34.5	31.9
40-49	5.0	5.9	8.3	7.4
Region				
Central	29.2	30.2	35.0	25.4
Eastern	29.5	27.0	12.6	23.8
Northern	15.8	15.6	30.6	18.9
Western	25.6	27.1	21.8	31.9
Place of residence				
Urban	28.3	23.8	11.0	21.4
Rural	71.7	76.2	89.0	78.6

Table 4.1 (continued)

Background Characteristics	1995	2001	2006	2011
Mother's education				
No education	26.7	23.8	24.3	18.1
Primary	58.2	61.9	61.9	59.5
Secondary	14.9	11.9	11.5	18.3
Higher	0.2	2.4	2.3	4.0
Wealth index				
Poor	-	33.7	47.3	45.4
Middle	-	17.7	18.6	17.8
Rich	-	48.6	34.1	36.7

The results presented in Table 4.2 show that most women in 1995 had birth order 4 and above (45.3%). It increased to 47 percent in 2001, to 54.5 percent in 2006 and reduced slightly to 49.7 percent in 2011. According to Age structure most respondents were in the age bracket of 20-29 years. This accounts for 57 percent in 1995. It increased to 57.9 percent in 2001 and reduced slightly to 52.1 percent in 2006 and then increased to 54.6 percent in 2011.

Most women were in Central region(29.2%) in 1995, it increased to 30.2 percent in 2001 and then to 35 percent in 2006. Then it reduced to 25.4 percent in 2011. In 1995, more women resided in rural areas(71.7%), it increased to 76.2 percent in 2001, and to 89 percent in 2006, then slightly reduced to 78.6 percent in 2011. Most women had primary education (58.2%) in 1995, they increased to 61.9 percent in 2001 and 2006, it then reduced to 59.5 percent in 2011. In 1995 wealth index was not considered. In 2001 most respondents were in the rich class(48.6%), then in 2006 most respondents were of the poor class(47.3%). Similarly in 2011 most women were in the poor class (45.4%).

4.3 Trends of Antenatal Care Services Utilization

During ANC visits screening for complications and advice on a range of issues including place of delivery and referral of women with complications take place. ANC Visits to the health provider occur about once every month for first six weeks. The frequency increase to every two or three weeks of the remainder of the pregnancy. However, with the emergence of evidence based medicine, it was found that four visits, in addition to the first visit are enough. This reduces the burden of both the reproductive health providers and the mothers to be.

Table 4.2: Frequency table of Antenatal Care Visits.

The table below shows the number of antenatal visits pregnant women had for a period from 1995-2011.

Number of visits	Years			
	1995	2001	2006	2011
No visits	8%	6%	4.5%	4.3%
1-3 visits	45%	52%	47.8%	47.7%
4+	47%	42%	47.7%	48%
Total	100%	100%	100%	100%

Table 4.2 shows that the percentage of pregnant women who never attended Antenatal Care reduced from 8% in 1995 to 4.3% in 2011. Pregnant women who had 1-3 ANC visits increased from 45% in 1995 to 52% in 2001, then the percentage decreased to 47.8% in 2006 and to 47.7% in 2011. Pregnant women who had the recommended ANC visits (4 and above) decreased from 47% in 1995 to 42% in 2001 then it increased to 47.7% in 2006 and to 48% in 2011.

Table 4.3: Distribution of respondents with selected background characteristics by number of ANC visits and year of survey

Variables	ANTENATAL VISITS											
	1995			2001			2006			2011		
Birth Order	No	1-3	4+	No	1-3	4+	No	1-3	4+	No	1-3	4+
1	4.8	39.4	55.8	2.7	37.7	59.7	45.4	22.8	31.7	3.5	38.4	58.2
2-3	5.5	40.1	54.4	4.5	47.5	48.0	45.1	26.5	28.4	2.5	42.2	55.3
4+	8.5	42.2	49.2	7.5	50.5	42.0	40.8	30.1	29.1	4.4	47.3	48.3
Age of mother												
<20	6.8	44.6	48.5	4.2	46.5	49.3	17.7	42.1	40.2	4.8	46.9	48.3
20-29	5.2	40.6	54.8	4.9	47.2	47.9	45.2	26.7	28.1	2.9	43.9	53.2
30-39	8.9	41.4	49.7	6.8	47.6	45.5	44.7	26.6	28.6	3.5	45.4	51.1
40-49	11.8	40.4	47.7	9.3	47.8	42.9	35.0	31.0	34.0	7.2	40.2	52.7
Region												
Central	4.3	28.1	67.7	3.8	36.3	59.9	41.8	26.0	32.2	4.4	37.5	58.1
Eastern	5.9	44.8	44.3	4.8	53.8	41.4	44.4	32.4	23.1	6.4	51.6	41.9
Northern	5.9	49.8	53.0	6.0	41.0	52.9	42.7	26.0	31.3	2.1	45.1	52.8
Western	10.3	45.9	43.8	8.5	57.3	34.2	43.5	30.6	25.9	2.0	44.3	53.7
Residence												
Urban	3.8	26.6	69.6	3.1	28.4	68.5	31.1	24.2	44.7	2.3	36.8	60.9

Rural	7.9	46.5	45.6	6.6	54.2	39.2	44.2	28.3	27.5	4.1	46.6	49.3
Education												
None	11.4	47.6	41.0	11.5	52.5	36.1	47.3	27.4	25.3	4.9	45.3	49.8
Primary	6.0	42.2	51.8	4.6	51.8	43.6	43.0	29.1	27.8	3.8	47.4	48.9
Secondary	1.5	24.1	74.4	1.9	26.5	71.6	34.5	24.2	41.3	2.9	38.4	58.7
Higher	.0	11.1	88.9	.0	12.9	87.1	28.7	16.4	54.9	.9	26.6	72.5
Wealth index												
Poor				5.2	46.5	48.3	45.6	28.3	26.1	4.0	47.9	48.1
Middle				5.9	50.9	43.2	43.7	30.8	25.5	4.4	49.5	46.1
Rich				6.0	46.6	47.4	38.4	25.5	36.1	2.9	38.1	59.0

The study findings in Table 4.3 show that in 1995, women with birth order one had the highest percent (55.8 percent) of ANC attendance (recommended visits) compared to women with birth order 2-3 and four and above. Mothers aged between 20-29 years had the highest percent (54.8) of ANC attendance compared to mothers of other age groups. There were many women in central region (67.7%) who went for recommended ANC visits compared to women in other regions. Mothers with higher education level had the highest percent (88.9) of ANC visits attendance. Women in urban areas had the highest percent (69.6) for ANC visits attendance than those in rural areas. Finally rich women had the highest percent of recommended ANC Visits (59%) compared to women in other classes.

In 2001, more women with birth order one (59.7%) received the recommended ANC visits than women with birth order 4 and above (42.0%). More women below 20 years (49.3%) received the four recommended ANC visits than women in other age groups, this increased from 48.5 percent in 1995 to 49.3 percent in 2001. More women in Central region (59.9%) had the recommended ANC visits than women in other regions, this reduced from 67.7 percent in 1995 to 59.9 percent in 2001. Many women in urban areas (68.5%) received the recommended ANC visits than those in rural areas (39.2%), this reduced from 69.6 percent in 1995 to 68.5 percent in 2001. In addition most women (87.1%) with higher education had the recommended ANC visits than women with no education (36.1%), this also decreased from 88.9 percent in 1995 to 87.1 percent in 2001. More poor women (48.3%) received the recommended ANC visits than the rich women (47.4%).

In 2006, more women with birth order one (31.7%) had the recommended ANC visits compared to women with other birth orders. Women below 20 years had the recommended visits (40.2%) compared

to the women of other age groups. This decreased from 49.3 in 2001 to 40.2 percent in 2006. More women in Central region made the recommended ANC visits (32.2%). There was a sharp decrease from 59.9 in 2001 to 32.2 percent in 2006. More urban women (44.7%) had the recommended ANC visits compared to the women in rural areas. This also decreased from 68.5 percent in 2001 to 44.7 percent in 2006. Many women with higher education (54.9%) had the recommended ANC visits compared to women with other educational levels. It reduced from 87.1 percent in 2001 to 54.9 percent in 2006. More rich women had the recommended ANC visits compared to the women in poor and middle class, but they reduced from 47.4 percent in 2001 to 36.1 percent in 2006.

In 2011, women with birth order one (58.2%) had the recommended ANC visits than women with birth order 4 and above (48.3%). Also more women between 20-29 years (53.2%) received the recommended ANC visits than women of other age groups. Most women who reside in urban centers had the highest percent (60.9%) of the recommended ANC visits attendance than women who reside in rural areas (49.3%). More women with higher education (72.5%) had the recommended ANC visits than women with no education (49.8%). Most rich women (59.0%) received the recommended ANC visits than the women in poor class (48.1%).

4.4 Trends of Delivery Care Services Utilization

Generally, four out of every ten births are assisted by qualified health providers during the child delivery. Some women are assisted by traditional Birth Attendants and other unqualified health providers during the child birth and this may cause complications which would lead to death of mothers and the baby.

Table 4.4. Frequency table for Delivery Care Services Utilization for the period 1995-2011

The table below shows how women received delivery care assistance from different health providers for different years.

Type of service provider	Years			
	1995	2001	2006	2011
Qualified health providers	38%	42.6%	43%	58%
All other health providers	45%	42%	34.4%	24%
TBA's	15%	15.2%	23%	18%
Total	100%	100%	100%	100%

The results in the table above show that the percentage of pregnant women who were assisted by qualified health providers increased from 38% in 1995 to 58% in 2011. Then those who were assisted by all other health providers decreased from 45% in 1995 to 24% in 2011. Pregnant women who were assisted by Traditional Birth Attendants increased from 15% in 1995 to 23 % in 2006 and it reduced to 18% in 2011.

Table 4.5 below shows the relationship between delivery care and back ground characteristics which is birth order, age of a mother, region, place of residence, educational attainment and the wealth index. The results in Table 4.4 show that in 1995, the percent of women with low birth order (53.8%) assisted by a skilled health provider during the child birth was higher than that of women with high birth order (36.5%). This result could be attributed to high anxiety and fear that may exist among young women. More young women aged below 20 years and between 20 to 29 years (46.7% and 44.2%) received assistance during child birth from a skilled health provider than older women of 40 to 49 years (31.4). Most women in Central region (60.3%) were assisted by a qualified health provider during child delivery than other women in other regions. Women in urban areas were 2 times higher (72.3%) and most likely to be assisted by a skilled health provider during the child birth than women who reside in rural areas (30.5). More so women with high educational attainment (88.9) were three times more likely to be assisted by qualified health providers during child birth than women with no education (22.5).

In 2001, more women with birth order one (62.7 %) were assisted by qualified health providers during the child delivery than women with birth order 4 and above (35.9%), this was an increase from 53.8

percent in 1995 to 62.7 percent in 2001. More women below 20 years (56.8%) were assisted by qualified health providers than those between 40-49 years(30.3%), this increased from 60.3 percent in 1995 to 62.4 percent in 2001. Also more women in Urban centers (75.9) were assisted by skilled health providers during child birth than women in rural areas (34.2%). This increased from 72.3 percent in 1995 to 75.9 percent in 2001.

Table 4.5: Distribution of respondents with selected background characteristics by delivery care and year of survey

		Delivery care											
		1995			2001			2006			2011		
Birth order		Qualified	OTHERS	TBA'S	Qualified	Others	TBAs	Qualified	Others	TBAs	Qualified	others	TBA's
		1	53.8	31.7	14.5	62.7	24.4	12.9	56.7	25.2	18.1	69.1	18.6
	2-3	43.0	42.8	14.2	44.8	39.6	15.5	44.3	34.4	21.3	58.6	24.1	17.3
	4+	36.5	49.5	14	35.9	48.9	15.1	34.8	43.3	21.9	48.3	32.9	18.8
Age of mother	<20	46.7	35	18.2	56.8	29.1	14.1	55.3	23.7	20.9	68.5	19.0	12.5
	20-29	44.2	42.1	13.7	47.0	38.0	15.0	44.4	34.3	21.3	56.5	25.7	17.8
	30-39	38.8	47.5	13.7	38.1	47.1	14.7	37.2	41.9	20.9	53.0	30.2	16.8
	40-49	31.4	55.4	13.2	30.3	55.3	14.4	29.1	50.4	20.5	47.4	35.1	17.5
Region	Central	60.3	26.9	12.7	62.4	24.2	13.4	61.2	24.7	14.1	73.7	12.4	13.9
	Eastern	44.2	45.4	10.4	47.1	44.1	8.8	39.0	44.4	16.6	58.4	26.8	14.7
	Northern	28.6	42.3	29.1	33.5	34.1	32.5	28.2	39.4	32.5	34.6	40.4	25.0
	Western	28.1	61.0	10.9	27.1	60.6	12.3	28.8	52.4	18.9	51.0	32.2	16.8
resi	Urban	72.3	19.3	8.4	75.9	19.1	5.0	82.7	12.3	5.0	83.8	11.4	4.8
	Rural	30.5	53.1	16.4	34.2	47.9	17.9	36.1	40.8	23.0	47.7	31.8	20.5
education	No educ.	22.5	61.1	16.4	24.9	60.4	14.7	24.2	52.5	23.3	31.3	47.0	21.8
	Primary	42.6	42.5	14.9	43.3	39.8	16.9	40.4	36.9	22.6	53.5	27.4	19.1
	Second	76.3	16.1	7.6	78.0	15.2	6.7	72.2	16.9	10.9	78.0	13.1	8.9
	Higher	88.9	11.1	.0	89.0	8.1	2.9	86.7	7.2	6.2	90.3	5.6	4.1
Wealth	Poor	-	-	-	46.9	36.8	16.3	27.8	45.2	27.1	40.1	38.4	21.5
	Middle	-	-	-	45.8	36.1	18.2	35.3	44.8	19.9	54.7	27.9	17.4
	Rich	-	-	-	41.6	45.7	12.6	63.1	23.5	13.4	74.8	13.7	11.5

In addition more women with higher education level (89.0%) received assistance from qualified health providers during the delivery than women with no education (24.9). It increased from 88.9 percent in 1995 to 89 percent in 2001. More women in the poor class (46.9%) and middle class (45.8%) were assisted by skilled health providers than women in the rich class (41.6%).

In 2006, more women with birth order one (56.7%) were assisted by qualified health providers during the delivery compared to the women with other birth orders. Many women below 20 years (55.3%) were assisted by qualified health providers during the child birth compared to the women of other age groups. More women in Central region (61.2%) were assisted by qualified health providers during the delivery compared to women in other regions. There were many women in Urban centres (82.7%) assisted by qualified health providers compared to the women in rural areas. More women with higher education (86.7%) were assisted by qualified health providers during the child birth compared to the women with other levels of education. More rich women (63.1%) were assisted by qualified health providers during the child delivery compared to women in poor and middle classes.

In 2011, more women with birth order one (69.1%) were assisted by qualified health providers during the child birth than the women with birth order 4 and above (41.6%). More women below 20 years (68.5%) were assisted by skilled health providers during the delivery than women of 20 years and above. There were also more women in Central region (73.7%) who received assistance from a skilled attendant during the child birth than women in other regions. In addition more women in urban areas (83.8%) received assistance from qualified health providers during the child delivery than those in rural areas (47.7%). More women with higher education (90.3%) were assisted by skilled health providers during the delivery than those with no education (31.3%). More rich women (74.8%) received assistance from qualified health providers during the child birth than the poor (40.1%).

CHAPTER FIVE

DETERMINANTS OF ANC AND DELIVERY CARE SERVICE UTILISATION

5.1 Introduction

After discussing the trends of background Characteristics, ANC and Delivery Care service Utilization in the previous chapters, it is imperative to use statistical analysis in order to confirm the results of the descriptive analysis which may be affected by the independent variables. This chapter discusses the main determinants affecting the utilization of ANC and Delivery care services by applying multinomial logistic regression. The output of the regression model includes level of significance and odds ratio. The interpretation of the results is based on the reference categories. The reference categories are selected on the basis that they have the least likelihood of influencing the dependent variable.

5.2 Determinants of Antenatal Care.

The determinants of Ante natal care that were considered were Age of mother, birth order, place of residence, region, wealth index and education level of a mother. Table 5.2 shows the significant and insignificant variables of ANC from 1995-2011.

Table 5.2 shows the factors affecting ANC services utilization for the period 1995 - 2011. In 1995, the log-odds a woman making 1-3 ANC visits as opposed to making 4 and above visits increased 1.5 times among those aged <20 years compared to those aged 40-49 years. In addition women in Central region were less likely to make the recommended four ANC visits compared to their counterparts in Western region (RRR=0.487, p=0.000). Similarly the log odds of making 1-3 visits and not the four visits were lower among women from Northern region (RRR=0.710, p=0.000) compared to those in Western region. Also the log-odds a woman making 1-3 Visits as opposed to making 4 visits and above reduced by 0.52 times among those in urban areas compared to the women in rural areas.

Table 5.1: Multinomial logistic regression predicting the log odds of ANC attendance

Variables		1995	2001	2006	2011
No visits		Exp(β)	Exp(β)	Exp(β)	Exp(β)
Birth Order	1	** .658	**0.305	**1.995	.764
	2-3	.861	**0.626	**1.420	** .625
	4+	1.000	1.000		RC
Age of a mother	<20	1.233	1.850	**0.271	1.17
	20-29	.651	1.076	**1.346	.687
	30-39	.888	0.864	**1.625	.646
	40-49	1.000	1.000	1.000	1.000
Region	Central	** .375	**0.391	1.050	**3.66
	Eastern	** .610	**0.542	1.188	**4.40
	Northern	** .530	**0.398	**0.702	.845
	Western	1.000	1.000	1.000	1.000
Place of residence	Urban	** .560	**0.520	**0.571	.642
	Rural	1.000	1.000	1.000	1.000
Mother's education	No education	1.45	**1.791E8	**3.843	**6.20
	Primary	**7.7E5	**6.979E7	**3.055	3.73
	Secondary	**1.8E6	**2.820E7	**1.748	3.04
	Higher	1.000	1.000	1.000	1.000
Wealth index	Poor		0.851	**1.377	**1.611
	Middle		0.808	**1.262	**1.661
	Rich		1.000	1.000	1.000
1-3 Visits					
Birth Order	1	.872	**0.608	**0.616	** .620
	2-3	.948	0.888	**0.851	** .763
	4+	1.000	1.000	1.000	1.000
Age	<20	**1.580	**1.704	**1.955	**2.013
	20-29	1.165	**1.331	**1.362	**1.48
	30-39	1.151	**1.047	1.101	**1.304
	40-49	1.000	1.000	1.000	1.000
Region	Central	** .487	**0.497	**0.846	.976
	Eastern	1.121	0.869	1.181	**1.482
	Northern	** .710	**0.440	**0.629	.965
	Western	1.000	1.000	1.000	1.000
Residence	Urban	** .524	**0.440	**0.787	.903
	Rural	1.000	1.000	1.000	1.000
Education	No education	4.75	**5.519	**2.697	**1.742
	Primary	3.9	**4.807	**2.515	**1.81
	Secondary	1.98	**2.125	**1.702	**1.53
	Higher	1.000	1.000	1.000	1.000
Wealth index	Poor	-	1.034	**1.363	**1.23
	Middle	-	0.974	**1.355	**1.36
	Rich	-	1.000	1.000	1.000

Note: The base model was those who made at least 4 ANC visits and above.

The log odds of a woman making no ANC visits and not 4 visits and above were lower among women with birth order 1 (RRR=0.658, p=0.000) compared to the women with birth order 4 and above. The log odds of a woman making no visits and not 4 visits were lower among women in central region (RRR=0.375, p=0.000), eastern region (RRR=0.610, p=0.000) and northern region (RRR=0.530, p=0.000) compared to their counterparts in western region. More so the log odds of making no visits and not 4 visits were lower among women in urban areas compared to those in rural areas. In addition the log odds of making no visits and not visits were higher among women with primary education (RRR=7.7E5, p=0.000) and relatively higher among women with secondary education (RRR=1.8E5, p=0.000) compared to those with higher education.

In 2001, the log odds of making no ANC visits and not the recommended visits were lower among women with birth order one (RRR=0.305, p=0.000) and birth order 2-3 (RRR=0.626, p=0.000) compared to those with birth order 4 and above. The log odds of making no visits and not 4 visits were lower among women in central (RRR=0.391, p=0.000), eastern (RRR=0.542, p=0.000) and Northern (RRR=0.398, p=0.000) compared to the women in western region. Women who reside in urban areas (RRR=0.520, p=0.000) were less likely to make no visits compared those who reside in rural areas. In addition the log odds of making no ANC visits and not the recommended visits were higher among women without education (RRR=1.791E8, p=0.000). Similarly women with primary education (RRR=6.979E7), (p=0.000) and secondary education (2.820E7, p=0.000) were most likely to make no ANC visits and not the recommended visits compared to the women with higher education.

The log odds of making 1-3 ANC visits and not 4 visits were lower among women with birth order 1 (0.608). The log odds of making 1-3 visits and not 4 visits were higher among women below 20 years (1.704), the same apprise to those between 20-29 years (RRR=1.331, p=0.000) and 30-39 years (RRR=1.047, p=0.000) compared to those with 40-49 years. Also the log odds of making 1-3 visits and not 4 visits were lower among women in Central region (RRR=0.497, p=0.000) and Northern region (RRR=0.440, p=0.000) compared to the women in western region. Women who reside in urban areas were less likely to make 1-3 ANC visits compared to the women in rural areas. The log odds of making 1-3 visits and not 4 visits were higher among women without education (RRR=5.519, p=0.000). Similarly women with primary education (RRR=4.807, p=0.000) and secondary education

(RRR=2.125, p=0.000) were most likely to make 1-3 ANC visits and not the recommended visits compared to the women with higher education.

In 2006, the log odds of a woman making no visits and not 4 visits and above were higher among women with birth order 1 (RRR=1.9, p=0.000) and birth order 2 compared to the women with birth order 4 and above. The log odds of a woman making no visits and not the recommended visits were higher among women aged between 20-29 (RRR=1.346, p=0.000) and 30-39 (RRR=1.625, p=0.000) compared to those of 40-49. More so the log odds of making no visits and not 4 visits and above were lower among women in northern Uganda (RRR=0.702, p=0.000) compared to those in western region. Women in urban areas (RRR=0.571, p=0.000) were less likely to make no visits compared to those in rural areas. The log odds of a woman making no visits and not 4 visits were higher among women without education (RRR=3.843, p=0.000), primary education (RRR=3.055, p=0.000) and secondary education (RRR=1.748, p=0.000) compared to the women with higher education. Women in the poor class (RRR=1.377, p=0.000) and middle class (RRR=1.262, p=0.000) were most likely to make no visits and not the recommended visits compared to the women in the rich class.

The log odds of a woman making 1-3 visits and not 4 visits and above were lower among women with birth order one (RRR=0.616, p=0.000) and birth order 2-3 (RRR=0.851, p=0.000) compared to their counterparts with birth order 4 and above. Women below 20 years (RRR=1.955, p=0.000) and those between 20-29 (RRR=1.362, p=0.000) were most likely to make 1-3 visits and not 4 visits compared to the women aged between 40-49 years. The log odds of a woman making 1-3 visits and not 4 visits and above were lower among women in central region (RRR=0.846, p=0.000) and northern region (RRR=0.629, p=0.000) compared to their counterparts in western region. More so the log odds of a woman making 1-3 visits and not 4 visits were lower among women in urban areas (RRR=0.787, p=0.000) compared to the women who reside in rural areas. The log odds of a woman making 1-3 visits and not 4 visits were higher among women without education (RRR=2.697, p=0.000) and women with primary education (RRR=2.515, p=0.000) compared to those with higher education. Similarly women with secondary education (RRR=1.702, p=0.000) were most likely to make 1-3 visits and not 4 visits compared to their counterparts with higher education. Women who are poor (1.363, p=0.000) and those in the middle class (RRR=1.355, p=0.000) were most likely to make 1-3 visits and not 4 visits and above compared to the rich women.

In 2011, the log odds of making no visits and not 4 visits and above were lower among women with birth order 2-3 (RRR=0.625, p=0.000) compared to those with birth order 4 and above. The log odds of a woman making no visits and not 4 visits were higher among women in central region (RRR=3.66, p=0.000) and eastern region (RRR=4.40, p=0.000) compared to their counterparts in western region. The log odds of making no visits and not 4 visits were higher among women with no education (RRR=6.20, p=0.000) compared to those with higher education. The log odds of making no visits and not 4 visits were also higher among the poor women (RRR=1.611, p=0.000) and middle women (1.661, p=0.000) compared to the rich women.

In addition the log odds of a woman making 1-3 visits and not making 4 visits were lower among women with birth order 1(0.620, p=0.000) and birth order 2-3(RRR=0.763, p=0.000) compared to those women with birth order 4 and above. The women below 20 years (2.013), 20-29(RRR=1.48, p=0.000) and 30-39 years (RRR=1.304, p=0.000) were most likely to make 1-3 ANC visits not 4 visits compared to women aged between 40-49 years. The log odds of a woman making 1-3 visits and not 4 visits were higher among women in eastern region (RRR=1.482) compared to the women in western region. More so women with no education (RRR=1.742, p=0.000), with primary education (RRR=1.81, p=0.000) and secondary education (RRR=1.53, p=0.000) were most likely to go for 1-3 visits not 4 visits compared the women with higher education. Finally the log odds of making 1-3 visits and not 4 visits were higher among poor women (RRR=1.23, p=0.000) and middle women (RRR=1.36, p=0.000) compared to the rich women.

5.3 Determinants of Delivery care services

The independent variables that were considered were age of a mother, birth order, region, wealth index, place of residence and education level of a mother. Table 5.3 shows the significant variables that influenced the delivery care.

Table 5.2: Multinomial Logistic regression predicting the log Odds of Delivery Care attendance

Variables		1995	2001	2006	2011
Qualified		Exp(B)	Exp(B)	Exp(B)	Exp(B)
Birth Order	1	**1.568	**1.617	**1.847	**1.557
	2-3	1.116	1.059	**1.286	1.081
	4+	1.000	1.000	1.000	1.000
Age of a mother	<20	**_.595	0.972	.845	1.084
	20-29	.845	0.910	.840	.780
	30-39	1.016	1.071	.993	.969
	40-49	1.000	1.000	1.000	1.000
Region	Central	**1.40	**1.500	**2.100	.952
	Eastern	**1.719	**2.218	**1.718	**1.353
	Northern	**_.377	**0.447	**0.712	**_.579
	Western	1.000	1.000	1.000	1.000
residence	Urban	**3.671	**5.813	**5.438	**4.887
	Rural	1.000	1.000	1.000	1.000
Mother's education	No education	**5.279E-7	**0.167	**0.256	**_.196
	Primary	**7.842E-7	**0.185	**0.286	**_.255
	Secondary	**1.856E-6	0.479	**0.492	**_.483
	Higher	1.000	1.000	1.000	1.000
Wealth index	Poor	-	1.053	**0.582	**_.757
	Middle	-	1.195	0.705	.941
	Rich	-	1.000		1.000
ALL OTHERS					
Birth Order	1	.799	**0.617	0.961	.973
	2-3	1.001	0.860	0.976	.886
	4+	1.000	1.000	1.000	1.000
age	<20	.636	0.882	**0.543	.860
	20-29	.862	0.736	**0.690	.821
	30-39	.901	0.776	0.850	.931
	40-49	1.000	1.000		1.000
region	Central	**_.413	**0.291	**0.666	**_.489
	Eastern	**_.797	1.006	1.013	1.003
	Northern	**_.255	**0.201	**0.386	**_.725
	western	1.000	1.000	1.000	1.000
residence	urban	.870	**1.754	**1.799	**2.458
	rural	1.000	1.000	1.000	1.000
education	No education	**2.052E-6	1.734	**2.305	1.386
	Primary	**1.598E-6	0.884	1.518	9.39
	Secondary	1.175E-6	0.836	1.348	1.121
	Higher	1.000	1.000	1.000	1.000
Wealth index	Poor	-	**0.557	**1.198	**1.528
	Middle	-	**0.464	**1.233	**1.435
	Rich	-	1.000	1.000	1.000

Note: The base model was those who were assisted by TBA's during the child delivery.

The results in Table 5.3 show that in 1995, Women with birth order 1 (RRR=1.568, p=0.000) were most likely to be assisted by qualified health providers not TBA's compared to women with birth order 4 and above. Women below 20 years (RRR=0.595, p=0.000) are more likely to be assisted by qualified health providers not TBA's compared to women who are 40-49 years. The log odds of being assisted by qualified health providers and not TBA's during the delivery were higher among women in central (RRR=1.40, p=0.000) and eastern region (RRR=1.719, p=0.000) compared to their counterparts in western region. In addition the log odds of being assisted by skilled health providers and not TBA's were lower among women in Northern region (RRR=0.377, p=0.000) compared to those of western region. The log odds of being assisted by skilled health providers and not TBA's were higher among women in urban areas (RRR=3.671, p=0.000) compared to those in rural areas. Also the log odds of being assisted by skilled health providers during the child birth was higher among women without education (RRR=5.279, p=0.000), and those with primary (RRR=7.842, p=0.000) and secondary education (RRR=1.856, p=0.000) compared to those with higher education.

The log odds of being assisted by other health providers and not TBA's during the delivery were higher among women in Central region (RRR=0.413, p=0.000), Eastern region (RRR=0.797, p=0.000) and Northern region (RRR=0.255, p=0.000) compared to their counterparts in western region. In addition women without education (RRR=2.052E6, p=0.000) were most likely to be assisted by other health providers not TBA's compared to those with higher education. Similarly women with primary education (RRR=1.598E6, p=0.000) were most likely to be assisted by other health providers during the child birth compared to the women with higher education level.

In 2001, the log odds of being assisted by qualified health providers during the child birth and not TBA's were higher among women with birth order one (RRR=1.617, p=0.000) compared to those with birth order 4 and above. The log odds of being assisted by skilled providers at birth were also higher among women in Central region (RRR=1.500, p=0.000) compared to their counterparts in western region, the same applies to women in Eastern region (RRR=2.218, p=0.000). Women in Northern region (RRR=0.447, p=0.000) were less likely to be assisted by qualified health providers compared to those in western region. The log odds of being assisted by skilled health providers and not TBAs were higher among women in urban areas (RRR=5.813, p=0.000) compared to those who reside in rural areas. More so the log odds of being assisted by qualified health providers and not TBAs were lower

among women without education (RRR=0.167, p=0.000) compared to the women with higher education. Similarly women with primary education (RRR=0.185, p=0.000) were less likely to be assisted by qualified health providers compared to their counterparts with high education.

According to assistance by other health providers, the log odds of being assisted by these other providers and not TBA's during the child birth were lower among women with birth order one (RRR=0.617, p=0.000) compared to those with birth order 4 and above. Women in Central region (RRR=0.291, p=0.000) were less likely to be assisted by other health providers during the delivery compared to those in western region. Similarly those in Northern region (RRR=0.201, p=0.000) were less likely to be assisted by other providers during the child birth compared to their counterparts in western region. The log odds of being assisted by other health providers and not TBAs were higher among women in urban areas (RRR=1.754, p=0.000) compared to the women who reside in rural areas. In addition the log odds of being assisted by other health providers during the child birth were lower among poor women (RRR=0.557, p=0.000) and women in the middle class (RRR=0.464, p=0.000) compared to the women who are rich.

In 2006, the log odds of a woman being assisted by qualified health providers and not TBA's during the child birth were higher among women with birth order one (RRR=1.847, p=0.000) and birth order 2-3(RRR=1.286) compared to those with birth order 4 and above. Women in central region (RRR=2.100, p=0.000) and Eastern region (RRR=1.718, p=0.000) were most likely to be assisted by qualified health providers during the delivery compared to those in western region. Women in Northern region (RRR=0.712, p=0.000) were less likely to be assisted by qualified health providers during the child birth compared to their counterparts in western region. More so the log odds of a woman being assisted by qualified health providers and not TBA's were higher among women in urban areas (RRR=5.438, p=0.000) compared to those in rural areas. The log odds of a woman being assisted by qualified health providers and not TBA's were lower among women with no education (RRR=0.256, p=0.000) and those with primary education (RRR=0.286, p=0.000) compared to highly educated women. Similarly the women with secondary education (RRR=0.492, p=0.000) were less likely to be assisted by qualified health providers during the child birth compared to those with higher education. The log odds of a woman being assisted by qualified health providers and not TBA's were lower among poor women (RRR=0.582, p=0.000) compared to the rich women.

The log odds of a woman being assisted by other health providers and not TBA's during the child birth were lower among women below 20 years (RRR=0.543, p=0.000) and women between 20-29years (RRR=0.690, p=0.000) compared to the women aged 40-49 years. Women in Central region (RRR=0.666, p=0.000) and Northern region (RRR=0.386, p=0.000) were less likely to be assisted by other health providers compared to the women in western region. The log odds of a woman being assisted by other health providers during the child delivery were higher among women in urban areas (RRR=1.799, p=0.000) compared to those who reside in rural areas. Women without education (RRR=2.305, p=0.000) were most likely to be assisted by other health providers during the child birth compared to the women with higher education. The log odds of a woman being assisted by other health providers during the child delivery were higher among poor women (RRR=1.198, p=0.000) and women in the middle class (RRR=1.233, p=0.000) compared to the rich women.

In 2011, the log odds of a woman being assisted by qualified health providers and not TBA's during the child birth were higher among women with birth order one (RRR=1.557, p=0.000) compared to those with birth order 4 and above. Women in Eastern region (RRR=1.353, p=0.000) were most likely to be assisted by qualified health providers and those in northern region (RRR=0.579, p=0.000) were less likely to be assisted by qualified health providers during the delivery compared to their counterparts in western region. Also women who reside in urban areas (RRR=4.887, p=0.000) were most likely to be assisted by qualified health providers and not TBA's compared to those who reside in rural areas. In addition women without education (RRR=0.196, p=0.000) were less likely to be assisted by qualified health providers compared to those with higher education. Similarly women with primary education (RRR=0.255, p=0.000) and secondary education (RRR=0.483, p=0.000) were less likely to be assisted by qualified health providers during the child birth compared to those with higher educational level. The log odds of being assisted by qualified health providers and not TBA's during the delivery were lower among the poor women compared to the rich women.

According to assistance provided by other health providers, women in central region (RRR=0.489, p=0.000) and Northern region (RRR=0.725, p=0.000) were less likely to be assisted by other health providers compared to their counterparts in western region. The log odds of being assisted by others by other health providers was higher among women in urban areas (RRR=2.458, p=0.000) compared the women in rural areas. More so poor women (RRR=1.528, p=0.000) and those in middle class

(RRR=1.435, p=0.000) are most likely to be assisted by other health providers not TBA's compared to their counterparts in the rich class.

5.4 Discussion of the answers to hypotheses

This study Sought to provide answers to six hypotheses. Three of these hypotheses were supported by the findings while the remaining three were contrary to what was hypothesized.

According to the findings of utilization of ANC services, the log odds of a woman making 1-3 visits and not 4 visits were lower among women in urban areas compared to the women who reside in rural areas. This does not support the hypothesis which stated that mothers in Urban areas are more likely to receive the recommended ANC visits compared to mothers in rural, so the null hypothesis is rejected.

The log odds of making 1-3 visits and not 4 visits were lower among women in Central region and Northern region compared to the women in western region. This does not support the second hypothesis which stated that women in central region are more likely to receive the recommended ANC visits compared to those in western region

The log odds of making 1-3 visits and not 4 visits were higher among women without education, this does not support the 5th hypothesis that educated women are more likely to access the recommended ANC visits compared to those without education.

According to the findings of delivery care utilization, in the year 1995, 2001 and 2006 the log odds of being assisted by skilled providers at birth were higher among women in Central region compared to their counterparts in western region, this supports the 4th hypothesis which stated that women in central region are more likely to be assisted by qualified health providers compared to women in other regions while the findings of 2011 showed that women in Eastern region were more likely to be assisted by qualified health providers during the delivery compared to other regions. This does not support the 4th hypothesis.

According to the findings of the study period women who reside in urban areas were most likely to be assisted by qualified health providers and not TBA's during the child birth compared to those who

reside in rural areas. This also supports the third hypothesis which stated that mothers in urban areas are more likely to be assisted by qualified health providers compared to those in western region.

In addition women without education (RRR=0.196, $p=0.000$) were less likely to be assisted by qualified health providers during the delivery compared to those with secondary education and above. This supports the sixth hypothesis in the study.

According to the findings of the study ANC attendance in Central region increased over the study period (1995-2011) and the women who were assisted by qualified health providers also increased over the years and this supports the seventh hypothesis.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the conclusion of the main findings of the research and policy recommendations. This study examined the trends, patterns and determinants of ANC and Delivery care services utilization in Uganda, from 1995 to 2011. The study found out that ANC and Delivery Care service utilization were influenced by a woman's birth order, age, region, place of residence, educational attainment and wealth status.

6.2 Summary of Findings

Antenatal care service utilization was associated with birth Order, region, place of residence, education level of mothers, age and wealth index. The percentage of women who received the recommended ANC services was higher in urban areas than in rural areas from 1995 to 2011, this shows that women in rural areas may be facing challenges in accessing the ANC services, like long distances to the health centers. In 2006, the percentage of women who received the recommended visits slightly decreased.

Women below the age of 20 and between 20-29 years were most likely to make the recommended ANC visits throughout the years compared to the women with other age groups. Most women in Central region throughout the years (1995-2011) received the recommended ANC visits compared to women in other regions, and this shows that the services are not fairly distributed among the regions. Most women with birth order one and 2-3 received the recommended visits compared to other women with higher birth orders. This may be due to fear of complications by young women. Most women with higher education made the recommended ANC visits compared to the women without education.

The variables that differentiate qualified health providers during child birth that showed significant but negative association in 1995 were mother's age and education while region, place of residence and birth order had a positive association with qualified health providers during the delivery.

In 2001, 2006, and 2011 birth order, region, place of residence and education had a positive association with qualified health providers during the child delivery. Similarly in 2006 and 2011 wealth index was positively significant.

The findings show that the women with birth order one were mostly assisted by qualified health providers during the child delivery throughout the years (1995-2011) compared to the women with higher birth orders. Most women who reside in urban areas were assisted by qualified health providers throughout the years compared to those in rural areas, this shows that women in rural areas face challenges of long distances to the health units.

Women without education were less likely to be assisted by qualified health providers during the child birth in 2001, 2006 and 2011. Similarly women with primary and secondary education were less likely to be assisted by qualified health providers compared to the women with higher level of education.

Most women in Central region and Eastern region were assisted by qualified health providers during the child birth in 1995, 2001 and 2006. In 2011 women in Eastern region were most likely to be assisted by qualified health providers during the child delivery compared to women in other regions. Then women in Northern region were less likely to be assisted by qualified health providers during the child delivery in 2011 compared to women in other regions and this shows that there is poor or less utilization of delivery care services among regions.

Women in poor class were less likely to be assisted by qualified health providers during the child birth in 2006 and 2011 compared to the women in the rich class, this shows that the poor women were most likely to be assisted by unqualified health providers and this increases complications and puts the unborn babies in danger which may lead to deaths.

6.3 Conclusions

In conclusion, Social economic and demographic factors greatly influenced ANC and Delivery care services utilization throughout the years (1995-2011). The less utilization of ANC and Delivery care services requires a search for solutions based on a full knowledge of facts, policy analysis and evaluation of policy options. According to the findings of Antenatal care services utilisation, the

significant factors in 1995 and 2001 were similar namely; Birth order, Age, region, residence and education. In 2006, Birth order, Age, region, residence, education and wealth index were significant and in 2011 the significant variables were Birth order, age, region, education and wealth index. The significant variables of Delivery care in 1995 were Birth order, age, region, place of residence and level of education. In 2001, Birth order, region, place of residence and education level were significant. In 2006 and 2011, the significant variables were similar namely; birth order, region, place of residence, education level and wealth index.

It was revealed that most women in urban centers received the recommended ANC visits and were assisted by qualified health providers during the child delivery compared to those in rural areas. Similarly most women in central region and those who are educated received recommended ANC visits and were assisted by qualified health providers during the child birth compared to women who are not educated and in other regions.

ANC and delivery care services were mostly utilized by women with birth order one and those who are rich compared to the women with higher birth orders and poor women. This shows that the services with higher charges in health centers may not be utilized by the poor, so the government should intervene to solve such social problems and make it easy for all to access ANC and delivery care services.

6.4 Recommendations

Since ANC and Delivery care services are important in social economic development of our country, the following recommendations would alleviate the gap between the haves and the have-nots of this area of study, that is less utilization of these services.

ANC and Delivery care services are less utilized in some regions and highly utilized in other regions, and this shows that there is poor distribution of health services among regions so the government should promote regional equity by having national planners to coordinate economic and spatial development policies and programmes at both national and regional levels for more efficient distribution of Health centers to provide ANC and Delivery care services among women in different regions.

The government and other agencies should commit themselves in promoting and attaining the goals of universal and equitable access to quality education and support girl child education, this would give a chance to women with lower education who do not access better ANC and Delivery care services to have a higher quality of education that would help them access better ANC and Delivery care services.

Since most pregnant women in rural areas do not make the recommended ANC visits and are not assisted by qualified health providers during the child birth, the government should intervene by creating clinics, provide ambulances for transporting of clients and referral then advocate for child delivery at a health center. This would solve the problem of long distances to the health centres. Also the maternity fees should be subsidized or abolished so as to reduce the scare of hospital bills among pregnant women.

Girl child education should be encouraged and primary health care and reproductive health should be emphasized by government so as to redress problems like, frequent consultations of traditional doctors and other unqualified health providers for ANC and Delivery care services. Most pregnant mothers have fallen prey of such situations and lost their lives.

There should be commitment by the government authorities and non-governmental agencies to eradicate poverty in the area through decisive national actions and international cooperation as an ethical social, political and economic imperative of human kind. Programmes and strategies should be put in place to eradicate poverty and this can be done through credit access to the disadvantaged such as needy schemes of poor women. This would also help the poor women to get money to access better health services during the delivery.

Social Protection Health Schemes and Conditional Cash Transfers should be free of conditionality and administrative procedures which may exclude the most marginalized women. Cash incentives made available as part of CCTs should be adequate to protect women from catastrophic health expenditures.

Attention to gender differences in factors affecting health seeking behavior should inform the location and timing of services. Services available closer to home or workplace and at times suitable to women

or men are more likely to be utilized, and could make a big difference to identification of morbidity and effective treatment and cure.

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