UTILIZATION OF SKILLED BIRTH ATTENDANTS AMONG WOMEN OF REPRODUCTIVE AGE IN CENTRAL DISTRICT, KITUI COUNTY

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SEPTEMBER 2012
DECLARATION

This thesis is my original work and has not been presented for award of a degree or diploma in any other University or other institution of higher learning.

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We confirm that the work reported in this thesis was carried out by the candidate under our supervision as University supervisors.

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This thesis is dedicated to my mother Patricia Kanini and sister Agatha Mwende for their immense support and providing a conducive environment to pursue the master’s degree.
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# TABLE OF CONTENTS

Declaration ........................................................................................................................................ i  
Dedication ....................................................................................................................................... ii  
Acknowledgement .......................................................................................................................... iii  
Table of Contents ........................................................................................................................ iv  
List of Tables .................................................................................................................................. vii  
List of Figures ............................................................................................................................... viii  
Abbreviations and Acronyms ......................................................................................................... ix  
Operational Definitions ................................................................................................................ xi  
Abstract .......................................................................................................................................... xiii  

## CHAPTER ONE: INTRODUCTION ..............................................................1

1.1 Background of the Study .................................................................................................1  
1.2 Statement of the Problem ...............................................................................................3  
1.3 Justification .....................................................................................................................4  
1.4 Research Questions .........................................................................................................5  
1.5 Research Objectives .........................................................................................................5  
1.6 Null Hypothesis ...............................................................................................................6  
1.7 Significance and Anticipated Output ..............................................................................6  
1.8 Delimitations and Limitations .........................................................................................7  
1.9 Assumptions .....................................................................................................................7  
1.10 Conceptual Framework .................................................................................................7  

## CHAPTER TWO: LITERATURE REVIEW ..............................................9

2.1 Introduction .....................................................................................................................9  
2.2 Global Situation of Maternal Morbidity and Mortality .................................................10  
2.3 Sub – Saharan Africa ......................................................................................................14  
2.4 Kenyan Situation .............................................................................................................15  
2.5 Policy Context ................................................................................................................15  
2.6 Need for Skilled Birth Attendants .................................................................................16  

## CHAPTER THREE: METHODOLOGY ..................................................17

3.1 Introduction .....................................................................................................................17  
3.2 Study Design ................................................................................................................17
3.3 Study Variables ...............................................................................................................17
3.4 Study Area .......................................................................................................................17
3.5 Target Population ............................................................................................................18
3.6 Study Population .............................................................................................................19
3.7 Construction of Research Instruments .............................................................................19
3.8 Sampling Technique and Sample Size Determination ....................................................19
   3.8.1 Sampling Technique .................................................................................................19
   3.8.1 Sample Size Determination ......................................................................................20
3.9 Inclusion/Exclusion Criteria ...........................................................................................21
3.10 Pre-testing of the Study Tools .......................................................................................21
   3.10.1 Validity ...................................................................................................................21
   3.10.2 Reliability ...............................................................................................................22
3.11 Data Collection Techniques ..........................................................................................22
3.12 Data Analysis and Presentation ......................................................................................23
3.13 Ethical Considerations ....................................................................................................24

CHAPTER THREE: METHODOLOGY .................................................................................25
4.1 Introduction .....................................................................................................................25
4.2 Results .............................................................................................................................25
   4.2.1 Socio-Demographic Characteristics of the Study Population ..................................25
   4.2.2 Antenatal Services Offered to the Respondents .......................................................29
   4.2.3 Knowledge on Danger Signs in Pregnancy, Labour and Delivery .........................32
   4.2.4 Information on Individual Birth Plan ........................................................................33
   4.2.5 Health Promotion in ANC .......................................................................................34
   4.2.6 Complications Developed During ANC .................................................................35
   4.2.7 Information on Last Delivery of the Respondents ....................................................36
   4.2.8 Delivery Services for the Respondents ...................................................................38
   4.2.9 Awareness of Obstetric Emergencies ......................................................................39
   4.2.10 Health Facility Factors ..........................................................................................39
   4.2.11 Qualitative Data from Key Informants and FGDs .....................................................40
   4.2.12 Distribution of Independent Variables against Delivery by SBAs ..........................45
   4.2.13 Factors Determining Utilization of Skilled Birth Attendants .................................46
4.3 Discussion of Findings ........................................................................................................51
4.3.1 Antenatal Care Services ..............................................................................................51
4.3.2 Delivery Services .........................................................................................................52
4.3.3 Factors Determining Utilization of Skilled Birth Attendants ......................................53
4.3.4 Barriers to Utilization of Skilled Birth Attendants ......................................................61

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS ..........64
5.1 Introduction ......................................................................................................................64
5.2 Summary .........................................................................................................................64
5.3 Implication of Findings ....................................................................................................65
5.4 Conclusion .......................................................................................................................66
5.5 Recommendations ..........................................................................................................67
5.6 Further Research ............................................................................................................68

REFERENCES ..........................................................................................................................69
APPENDICES ..........................................................................................................................73
Appendix 1: Consent Form ....................................................................................................73
Appendix 2: Questionnaire ....................................................................................................74
Appendix 3: Interview Guide .................................................................................................81
Appendix 4: Authority from the KU Graduate School .........................................................85
Appendix 5: Authority from The Ministry of Higher Education, Science and Technology 86
Appendix 6: Authority from The Provincial Administration ................................................87
Appendix 7: Authority from The Ministry of Education .......................................................88
Appendix 8: Authority from the Ministry of Health ..............................................................89
Appendix 9: Kitui District Health Indicators 2010 ...............................................................90
Appendix 10: Kitui North District Health Statistics 2010 ..................................................91
Appendix 11: Kitui North District Map ...............................................................................92
<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Distribution of Study Population According to Socio-Demographic Characteristics</td>
<td>27</td>
</tr>
<tr>
<td>4.2</td>
<td>ANC Characteristics of the Respondents</td>
<td>30</td>
</tr>
<tr>
<td>4.3</td>
<td>Knowledge of Danger Signs in Pregnancy, Labour and Delivery</td>
<td>33</td>
</tr>
<tr>
<td>4.4</td>
<td>Information on Individual Birth Plan</td>
<td>34</td>
</tr>
<tr>
<td>4.5</td>
<td>Health Promotion in ANC</td>
<td>35</td>
</tr>
<tr>
<td>4.6</td>
<td>Complications Developed during Pregnancy by the Respondents</td>
<td>35</td>
</tr>
<tr>
<td>4.7</td>
<td>Delivery Services for the Respondents</td>
<td>38</td>
</tr>
<tr>
<td>4.9</td>
<td>Information on Health Related Facility Factors by the Respondents</td>
<td>39</td>
</tr>
<tr>
<td>4.10</td>
<td>Distribution of Independent Variables against Delivery by SBAs</td>
<td>45</td>
</tr>
<tr>
<td>4.11</td>
<td>Socio-Economic Factors Determining Utilization of SBAs</td>
<td>47</td>
</tr>
<tr>
<td>4.12</td>
<td>Health Facility Factors Determining Utilization of SBAs</td>
<td>50</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1.1 Conceptual Framework .................................................................8
Figure 4.1 Distribution of the Respondents according to Age group ..............27
Figure 4.2 Distribution of the Respondents according to Parity ....................29
Figure 4.3 Facility for ANC Services by the Respondents ............................31
Figure 4.4 Trimester for Start of ANC Clinic by the Respondents ................31
Figure 4.5 Place of Last Delivery by the Respondents ................................36
Figure 4.6 Assistance during Delivery for the Respondents ..........................37
### ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
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<tr>
<td>AMREF</td>
<td>Africa Medical Research Foundation</td>
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<tr>
<td>ANC</td>
<td>Ante Natal Care</td>
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<tr>
<td>AOP</td>
<td>Annual Operation Plan</td>
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<tr>
<td>BBA</td>
<td>Born Before Arrival</td>
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<tr>
<td>CBS</td>
<td>Central Bureau of Statistics</td>
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<tr>
<td>CEDAW</td>
<td>Convention on the Elimination of All forms of Discrimination against Women</td>
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<tr>
<td>CHVs</td>
<td>Community Health Volunteers</td>
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<tr>
<td>CHWs</td>
<td>Community Health Workers</td>
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<tr>
<td>C/S</td>
<td>Caesarean Section</td>
</tr>
<tr>
<td>DC</td>
<td>District Commissioner</td>
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<tr>
<td>DDPHN</td>
<td>Deputy District Public Health Nurse</td>
</tr>
<tr>
<td>ESP</td>
<td>Economic Stimulus Program</td>
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<tr>
<td>FBOs</td>
<td>Faith Based Organizations</td>
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<tr>
<td>FGDs</td>
<td>Focused Group Discussions</td>
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<td>GOK</td>
<td>Government of Kenya</td>
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<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>IBP</td>
<td>Individual Birth Plan</td>
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<tr>
<td>ICPD</td>
<td>International Conference on Population and Development</td>
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<tr>
<td>IMR</td>
<td>Infant Mortality Rate</td>
</tr>
<tr>
<td>KDHS</td>
<td>Kenya Demographic and Health Survey</td>
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<td>Kshs</td>
<td>Kenya Shillings</td>
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<td>KU</td>
<td>Kenyatta University</td>
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<td>LLITNs</td>
<td>Long lasting Insecticide Treated Nets</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>MMR</td>
<td>Maternal Mortality Ratio</td>
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<td>MNH</td>
<td>Maternal and Neonatal Health</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MOMs</td>
<td>Midwives and Others with Midwifery skills</td>
</tr>
<tr>
<td>MOMS</td>
<td>Ministry of Medical Services</td>
</tr>
<tr>
<td>MOPS</td>
<td>Ministry of Public Health and Sanitation</td>
</tr>
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<td>MPS</td>
<td>Making Pregnancy Safer</td>
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<td>NHSSP</td>
<td>National Health Sector Strategic Plan</td>
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<td>NMR</td>
<td>Neonatal Mortality Rate</td>
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<td>OR</td>
<td>Odds Ratio</td>
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<tr>
<td>OBA</td>
<td>Output Based Aid</td>
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<td>PMTCT</td>
<td>Prevention of Mother To Child Transmission</td>
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<td>RH</td>
<td>Reproductive Health</td>
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<tr>
<td>SBAs</td>
<td>Skilled Birth Attendants</td>
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<tr>
<td>SMI</td>
<td>Safe Motherhood Initiative</td>
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<tr>
<td>SMIAG</td>
<td>Safe Motherhood Inter-Agency Group</td>
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<tr>
<td>TBAs</td>
<td>Traditional Birth Attendants</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNFPA</td>
<td>United Nations Fund for Population Activities</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Education Fund</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WFP</td>
<td>World Food Program</td>
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<td>WRA</td>
<td>Women of Reproductive Age</td>
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OPERATIONAL DEFINITIONS

Maternal Death/Mortality

A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of the pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

Maternal Mortality Ratio

The maternal mortality ratio is the number of maternal deaths per 100,000 live births.

Maternal Morbidity

Maternal morbidity is any symptom or condition resulting from or made worse by pregnancy. In developing and developed countries alike, there are 12 to 16 serious maternal complications to each maternal death.

A Skilled Attendant

It refers to “an accredited health professional – such as midwife, doctor or nurse – who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management or referral of complications in women and newborns”. Traditional birth attendants (TBAs) either trained or not, are excluded from this category of skilled health workers (WHO, 2004).
Skilled Attendance

World Health Organization (2004) defines skilled attendance as the process by which a pregnant woman and her infant are provided with adequate care during labour, birth, and the postnatal period, whether the place of delivery is the home, health centre, or hospital. In order for this process to take place, the attendant must have the necessary skills and must be supported by an enabling environment at various levels of the health care system, including a supportive policy and regulatory framework; adequate supplies, equipment, and infrastructure; and an efficient system of communication and referral/transport.

The cumulative lifetime risk of maternal death

The probability that a 15 year old will die eventually from a maternal cause.

Traditional birth attendant (TBA)

TBA is a community-based provider of care during pregnancy and childbirth. TBAs are not trained to proficiency in the skills necessary to manage or refer obstetric complications. TBAs are not usually salaried, accredited members of the health system. Although they are usually highly esteemed community members and are often the sole providers of delivery care for many women, they are not included in the definition of a skilled attendant.
Skilled Birth Attendance is one of the most important interventions in reducing maternal mortality. With only 44% of deliveries assisted by skilled birth attendants in Kenya, the number of maternal deaths is significantly higher. The aim of this study was to identify factors determining utilization of skilled birth attendants in Central Division of Kitui North District. The specific objectives were to determine the proportion of Women of Reproductive Age (WRA) utilizing Skilled Birth Attendants (SBAs), to assess the socio-cultural factors influencing utilization of skilled birth attendants and to establish the barriers to utilization of skilled birth attendants by women of reproductive age in Central Division. This was a descriptive cross-sectional study utilizing quantitative and qualitative approaches targeting women of reproductive age group 15-49 years. Data was collected using interviewer administered questionnaire and focused group discussions for the child bearing age respondents who had delivered within the last one year preceding the study and interview guide for key informants. Chi-square was used to test the association between the research variables and odds ratio for the relationship between the dependent and independent variables under study. Data was analyzed using STATA 10.0 and presented in figures, tables, frequencies and numerations. The results showed antenatal attendance rate of 90.9% while proportion of deliveries attended by skilled attendant was at 41.4%. The following factors were found to influence utilization of SBAs in the study area: age ($\chi^2=8.65$ (df=2), p=0.013), religion (OR 3.22, p=0.004), level of education (OR 2.43, p=0.05), partner’s occupation (OR 0.533, p=0.029), parity (OR 0.26, p=0.002), residence (OR 4.07, p<0.0001), type of housing (OR 0.502, p=0.010), house ownership (OR 0.39, p=0.001), number of house occupants ($\chi^2=10.9$ (df=2), p=0.004), household monthly income (OR 1.73, p=0.018), ANC attendance (OR 5.6, p=0.025), facility for ANC attendance (OR 0.388, p=0.001), birth preparedness (OR 0.8, p=0.015), Decision to attend ANC ($\chi^2=7.59$ (df=2), p=0.022), Decision on delivery place ($\chi^2=10.424$ (df=2), p=0.005) and health facility staff’s attitude during childbirth (OR 5.18, p=0.014). Barriers to utilization of SBAs included; massive training of TBAs who provided free or cheap services at the comfort of their own homes, emergency nature of labour, lack of coordinated referral systems, poor and unreliable means of transport incase labour starts at night, limited infrastructure, and limited number of SBAs due to high turn over. This study recommends that there is need to equip women with knowledge, higher socio-economic status and streamlining the transport and referral systems between the community and the health facility through community involvement and ownership. Birth preparedness should be advocated for every pregnant woman and the health facilities and address the discrepancy between antenatal attendance and deliveries by SBAs. Finally there is need to deploy SBAs (nurses) in rural areas and motivate them to avoid high turn over. The interventions will help scale up utilization of SBAs in the study area hence improved pregnancy outcomes if the recommendations are addressed to make achievement of MDGs four and five a reality.
CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Millennium Development Goal (MDG) five focuses on improving maternal health, with target 5a aiming to reduce the maternal mortality ratio by three quarters by 2015, while MDG four aims at reducing child mortality by two thirds by the year 2015. Ensuring Skilled Birth Attendance (SBA) is one of the most important interventions to reduce maternal mortality (WHO, 2004). However, this is one MDG where the progress of many countries in the region has been slow and variable (WHO, 2004). Worldwide, half a million women die every year as a result of complications arising from pregnancy and childbirth. For every woman who dies from obstetric complications, approximately 20 survive but become impaired with some form of injury or disability (WHO, 2004, Ashford L., 2004).

Various international initiatives like the Safe Motherhood Initiative (SMI) in Nairobi (1987), UN International Conference on Population and Development (ICPD) in Cairo (1994) have been launched to try and improve outcomes of pregnancy (WHO, 2004). However, there has been little progress in reducing maternal mortality, particularly in sub-Saharan Africa. The UN Millennium Development Goal five thus remains elusive. More recently, the attention of funding partners has been focused on the HIV and AIDS epidemic, which has undoubtedly been at the cost of maternal health programs. One key strategy adopted by the international community and itself a target of MDG five, is to
increase the proportion of births assisted by skilled birth attendants. The evidence of SBAs in reducing maternal mortality is overwhelming (WHO, 2004). It is obvious to many practitioners that professionalization of delivery care is a key to reducing maternal mortality (Graham et al., 2001).

Recent estimates for MMR in Kenya are 1,000 per 100,000 live births (WHO, 2004) while the KDHS reported MMR to be 590 in 1998, 414 in 2003 and 488 in 2008/2009 (KNBS ICF Macro, 2010). Kitui District statistics (2009) reports MMR to be at 468 per 100,000 live births (KMOH, 2009). The KDHS shows the maternal mortality to be increasing from 2003 to 2008/2009 despite several initiatives being adopted. With only 44% of deliveries assisted by a skilled attendant, the true number of maternal deaths is significantly higher (KNBS ICF Macro, 2010). However, there was an obvious difference between the provinces. The highest levels of SBAs were in Nairobi (89%) and Central Provinces (74%) with high levels of development, while the lowest were in Eastern (43%) and North Eastern Provinces (32%) with low levels of development. According to KDHS 2008/2009, only 43 % of all deliveries occur in health facilities (KNBS ICF Macro, 2010).

The new Reproductive Health Policy (2007) outlines priority actions for maternal and neonatal health, which includes increasing access to SBA for poor and ‘hard to reach’ women. Although many facilities have improved the quality of care available, many women are still not using the facilities for childbirth and prefer to deliver in their own homes (MOH, 2007). This calls for an approach that can address the issue of skilled birth attendance.
1.2 Statement of the Problem

Data from Kenya Demographic Health Survey has indicated that in the five year period (2003 – 2008), proportions of births attended by skilled birth attendants have slightly increased. Maternal Mortality Ratio (MMR) has also slightly increased, while Infant Mortality Rate (IMR) and Neonatal Mortality Rate (NMR) have decreased (KNBS ICF Macro, 2010). Skilled birth attendance has increased from 42% to 44%. Maternal mortality ratio has increased from 414 to 488 per 100,000 live births over the five year period. Similarly, Infant Mortality Rate has decreased sharply from 77 to 52 per 1,000 births and Neonatal Mortality Rate from 33 to 31 per 1,000 births in the same period (KNBS ICF Macro, 2010).

Many of the maternal deaths, neonatal deaths and infant deaths are related to the poor health of the woman and inadequate care during pregnancy, at childbirth and the postpartum period (Warren and Lambila, 2004). Furthermore, a mother’s death can seriously compromise the survival of her children. It has been observed that the utilization of SBAs may contribute to reducing MMR and NMR. The utilization of SBAs may be determined by various socio-economic and cultural factors, which need to be studied in depth to find out the real scenario in Central District of Kitui County. As per the Kitui District statistics (2009), utilization of SBAs is at 22% (KMOH, 2009). The German Government through the Output Based Aid Project (OBA) has been funding reproductive health services in poor resource settings of the country at a fee of Kshs. 200 and Kitui is one of the beneficiaries (Muga, 2005). Despite this support, utilization of skilled birth attendants is quite low compared to the national level (44%).
1.3 Justification of the Study

The worsening of key demographic and health indicators (MMR and skilled birth attendance) calls for immediate action to provision of reproductive health information, services and uptake of these services. There is therefore a need to enhance utilization of skilled birth attendants especially in rural and urban slum areas where socio-cultural and economic factors hinder utilization of services. It is also necessary to improve the capacity of the facilities to provide quality services to mothers. Thus national safe motherhood programs in Kenya are now focusing on increasing the number of skilled birth attendants.

With so little change in the proportion of women choosing to deliver in health facilities even when these facilities are accessible, the health system needs to improve its responsiveness to client needs (MOH, 2007). An important question for research remains as to why the majority of women continue delivering at home without the assistance of skilled birth attendants. The study area was purposively selected since it is one of the beneficiaries of the OBA project funding reproductive health services in poor resource setting. Despite this support, utilization of SBAs is quite low (22%). This study will help address possible barriers to SBAs in the study area hence improve pregnancy outcomes and satisfaction with the birthing experience among WRA who will utilize the SBAs. It will also assist in national planning and setting policies which can be generalized to the whole country. This will strengthen utilization of SBAs to achieve MDGs four and five.
1.4 Research Questions

1. What is the proportion of women of reproductive age utilizing skilled birth attendants in Central District of Kitui County?

2. What socio-cultural factors determine utilization of skilled birth attendants by women of reproductive age in Central District of Kitui County?

3. What are the barriers to utilization of skilled birth attendants by women of reproductive age in Central District of Kitui County?

1.5 Objectives

1.5.1 General Objective

To determine factors influencing utilization of skilled birth attendants among women of child bearing age.

1.5.2 Specific Objectives

1. To determine the proportion of WRA utilizing SBAs in Central District of Kitui County.

2. To identify the socio-cultural factors determining utilization of skilled birth attendants by women of reproductive age in Central District of Kitui County.

3. To determine the barriers to utilization of skilled birth attendants by women of reproductive age in Central District of Kitui County.
1.6 Null Hypothesis

(i) Socio-cultural factors do not influence utilization of skilled birth attendants among women of reproductive age.

(ii) The level of knowledge on outcomes of pregnancy does not determine utilization of skilled birth attendants among women of reproductive age.

1.7 Significance and Anticipated Output

The primary beneficiaries of the study will be the women of child bearing age and their newborns not utilizing skilled birth attendants in Kitui County. This will lead to improved pregnancy, delivery and postpartum outcomes, hence healthy baby, healthy mother and satisfaction with the child bearing process. Secondary beneficiaries will include immediate relatives and community members who often bear both direct and indirect cost associated with maternal and perinatal morbidity and mortality. Skilled birth attendants and their managers will also be secondary beneficiaries because improved pregnancy, delivery and postpartum outcomes lead to job satisfaction. Efficiency and productivity among staff will lead to greater motivation and skills retention.

The Ministry of Health will benefit from the research as it can replicate the study to similar regions which will help increase utilization of SBAs hence reduce maternal and perinatal morbidity and mortality and reduce expenditures.
1.8 Delimitations and Limitations

Limitations: This study was carried out in Kitui County which is a rural setting and hence it lacked comparison with an urban setting. This limits the generalization of the study to both urban and rural populations. The study required first hand information from the respondents yet most of them did not keep records. The accuracy of the information therefore depended on the respondents’ ability to recall services offered in their most recent pregnancy.

Delimitations: The study results give a real picture on the utilization of SBAs. The study findings can be replicated to other rural settings in the country. The interventions addressed can lead to reduced maternal and perinatal morbidity and mortality.

1.9 Assumptions

1. All the answers given by the respondents were correct, precise and accurate.

2. The data from the health facilities and government institutions/officials was up to date and accurate.

1.10 Conceptual Framework

The conceptual framework can be viewed as a constellation of factors as shown below. Skilled attendance has been defined explicitly as “the process by which a woman is provided with adequate care during labour, delivery and the early postpartum period” (SMIAG, 2000). This definition goes on to emphasize that the process requires a SBA and an enabling environment which includes
adequate supplies, equipment and infrastructure as well as efficient and effective systems of communication and referral.

This conceptual framework follows the causal pathway with structure, inputs, outputs (process) and outcome. Other factors like provider/client interaction greatly determine the outcome of pregnancy which can be maternal or neonatal morbidity, mortality or good health.

*Figure 1: Conceptual framework for skilled attendance at delivery*

*SOURCE: Graham and Bell 2000*
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Skilled attendance at all births is considered to be the single most critical intervention for ensuring safe motherhood, because it hastens the timely delivery of emergency obstetric and newborn care when life-threatening complications arise. Skilled attendance denotes not only the presence of Midwives and Others with Midwifery skills (MOMs) but also the enabling environment they need in order to be able to perform capably (WHO, 2004). It also implies access to a more comprehensive level of obstetric care in case of complications requiring surgery or blood transfusions. Historical as well as contemporary evidence from many countries, most notably China, Egypt and Tunisia, indicate that skilled midwives have a drastic impact on reduction of maternal and neonatal mortality. This is why the proportion of births attended by a skilled health provider is one of the two indicators for measuring progress toward the fifth MDG (WHO, 2004).

According to WHO (2004), up to 15% of all births are complicated by a potentially fatal condition. Although many of these complications are unpredictable, almost all are treatable. Skilled attendants are trained to recognize problems early, when the situation can still be controlled, to intervene and manage the complication, or to stabilize the condition and refer the patient to a higher level of care, if needed. Skilled attendance is also vital to protecting the health of newborns, yet in the developing world, only about 58% of all deliveries are reported as attended by SBAs. Every minute, 110 women in the world
experience a complication in their pregnancy, and one of them will die (WHO, 2004).

2.2 Global Situation of Maternal Morbidity and Mortality

Each year about 529,000 women worldwide die as a result of complications arising from pregnancy and childbirth. Most of these maternal deaths are caused by haemorrhage, obstructed labour, sepsis, unsafe abortion and eclampsia (pregnancy-induced hypertension). Indirect causes like malaria and HIV also contribute to maternal deaths (UNFPA, 2004).

For every woman who dies, an estimated 15 to 30 women suffer from chronic illnesses or injuries as a result of their pregnancies (Graham and Ronsmans, 2006). The maternal mortality ratio (MMR) was estimated to be 400 per 100,000 live births globally in 2005 (WHO/UNICEF/UNFPA/World Bank, 2007). Of the 536,000 maternal deaths worldwide, developing countries accounted for 99% (533,000) of the deaths. Slightly more than half of the maternal deaths (270,000) occurred in the sub-Saharan Africa region alone, followed by South Asia (188,000). Thus sub-Saharan Africa and South Asia accounted for 86% of global maternal deaths. The MMR in 2005 was highest in developing regions (MMR=450/100,000), in stark contrast to developed regions (MMR=9/100,000) and countries of commonwealth of independent states (MMR=51/100,000). In sub-Saharan Africa, the cumulative lifetime risk of maternal death may be as high as 1 in 26, compared to 1 in 7,300 in developed regions (WHO/UNICEF/UNFPA/World Bank, 2007).
Various international initiatives like the Safe Motherhood Initiative in Nairobi (1987), UN International Conference on Population and Development (ICPD) in Cairo (1994) and Millennium Declaration (MDGs) 2000 have been launched to mitigate this situation (WHO, 2004). However, there has been little progress in reducing maternal mortality, particularly in sub-Saharan Africa. One key strategy adopted by the international community, and itself a target of MDG five, is to increase the proportion of births assisted by health professionals (doctors, nurse-midwives and nurses with midwifery skills). The evidence of skilled attendance reducing maternal mortality is overwhelming (WHO/UNICEF/UNFPA/World Bank, 2007).

Poor maternal health has serious implications for survival of the newborn as well (Lawn et al., 2005). Skilled care at birth also reduces infant mortality (UNFPA, 2004). In one study that reported on child outcomes for mothers who died in labour, all the newborn babies died within one year of birth (Greenwood et al., 1987; cited in Lawn et al., 2005). The risk of death for children below 5 years is doubled if their mothers die in childbirth, and at least 20% of the burden of disease among children under the age of five is attributable to conditions associated with poor maternal and reproductive health, nutrition, and the quality of obstetric and newborn care (WHO/UNFPA/UNICEF/World Bank, 1999).

The Convention on the Elimination of all forms of Discrimination against Women (CEDAW) and the international policy agenda that emerged from the Cairo ICPD recognized that the persistently high maternal mortality ratios in the region were as a result of lack of financial support, weak health systems, with
weak referral systems and unavailability of quality skilled care; weak national human resource development; inadequate community involvement and harmful socio-cultural beliefs and practices (United Nations, 2005). The presence of a skilled attendant at every birth was agreed to be the single most effective intervention for maternal mortality reduction but all interventions needed to focus at all levels of the health care delivery system: community, primary health care and referral levels. In this context, the WHO adopted the Making Pregnancy Safer (MPS) initiative to support countries in strengthening their health systems to improve their response to emergency obstetric care (United Nations, 2005).

In 2000, lack of progress in a range of health areas brought United Nations (UN) member states to adopt among other MDGs agreeing to increase efforts to improve maternal health and reduce child mortality. To support countries in Africa attain this regard, the Regional Reproductive Health Task Force, during its second meeting, held in Dakar, 20-24 October 2003, called on all partners to develop and implement a Road Map for accelerated maternal and newborn mortality reduction (WHO, 2008). In February 2004, the Road Map in Africa was developed by partners to provide skilled attendance during pregnancy, childbirth, and the postnatal period. The strategies were defined to address the three delays, delay in making the decision to seek for care, delay in accessing the health services and the delay in getting the appropriate care by: improving the provision of and quality Maternal and Neonatal Health (MNH) care and strengthening the referral system. The next step was for national governments to develop and adopt country-specific Road Maps (WHO, 2008).
Various models have been developed to address the different levels of healthcare necessary for the reproductive cycles of a woman’s life including the ante and post partum stages. One of the most widely applied models used in maternal health programming today is The Three Delays model which promotes the presence of a skilled birth attendant who is linked to a functioning health system (WHO/UNFPA/UNICEF/World Bank, 1999). The three delays model developed in the 1990s and was adapted in various country contexts through a series of operational research studies led by Columbia University, to strengthen the coverage and quality of maternal health services at community and health facility levels. Based on the three-delay framework, as developed and implemented by the Prevention of Maternal Mortality network, states three major factors that contribute to maternal death including:

1) Delay in recognizing complications and deciding to seek care
2) Delay in reaching a treatment facility, and
3) Delay in receiving adequate care and treatment at the facility.

This model can be further elaborated to explore the factors that contribute to the delays at each of the three stages (WHO/UNFPA/UNICEF/World Bank, 1999). Examples of major gaps and systemic weaknesses that exacerbate already high rates of maternal morbidity and mortality include:

a) Shortage of and thus inadequate access to skilled care

b) Poor health infrastructure at all levels (including supplies, equipment)

c) Lack of transportation for emergency referral

d) Low quality of Obstetric care
The three delays model has subsequently been used to inform a comprehensive approach to birth preparedness with prevention and management as integral components of the plan. The elements of Birth preparedness have been promoted by WHO, UNFPA and other international agencies as part of maternal health strategies. With the shift from TBA training and risk screening towards access to skilled attendance, including emergency obstetric care as a means of decreasing maternal mortality this approach has been adopted widely by NGOs and government services (WHO/UNFPA/UNICEF/World Bank, 1999).

Each year in Africa, 30 million women become pregnant, and 18 million give birth without SBAs. Each day in Africa, 700 women die of pregnancy related causes while 3,100 newborn die, and another 2,400 are still births. In Africa, we are successfully reaching women with at least one ANC though care falls at the time of birth, just as the risk of death for mother and babies peak (Lawn et al., 2006).

2.3 Sub-Saharan Africa

In sub-Saharan Africa, where nearly half of the world's maternal deaths occur, only 46% of deliveries are assisted by SBAs. In Southern Asia, the proportion is even lower (WHO, 2004). Enormous disparities remain within and between countries: impoverished and rural women are far less likely than their urban or wealthier counterparts to utilize SBAs. In rural areas, health clinics and hospitals are often spread out over vast distances with rudimentary transportation systems. In 2008, UNFPA partnered with the International Confederation of
Midwives to address the pressing need for SBAs in developing countries (WHO, 2008).

2.4 Kenyan Situation

Recent estimates for MMR in Kenya are 1,000 per 100,000 live births (WHO, 2004), while the KDHS reported MMR to be 590 in 1998, 414 in 2003 and 488 in 2008/2009 (KNBS ICF Macro, 2010). Caution in interpretation of the 2003 results is suggested by the Central Bureau of Statistics, since it was based on only 115 deaths (CBS et al., 2004). With only 44% of deliveries assisted by a health professional, and poor reporting on maternal deaths, the true number of maternal deaths is significantly higher. Progress towards achievement of MDG five has stagnated and it is now a priority of the Ministry of Health (MOH, 2007).

2.5 Policy Context

The Global agenda for maternal health (ICPD, Road Map and SMI) provide important evidence-based frameworks for improving policy and strategy at the national level. Hence, the revised Reproductive Health (RH) Policy (2007) and the second National Health Sector Strategic Plan (NHSSP II) 2005-2010, reflect global priorities for improving maternal health. Further, with so little change in the proportion of women delivering in health facilities even when accessible, the health system needs to improve on its responsiveness to client needs (MOH, 2007). Key challenges to maternal and neonatal health include inadequate access
by women to RH information and to SBAs especially the rural poor, demand for
and utilization of reproductive health services (MOH, 2007).

2.6 Need for Skilled Birth Attendants

The regions with the lowest proportions of SBAs at birth are Southern Asia and
sub-Saharan Africa, which also have the highest numbers of maternal deaths
(WHO, 2004). Disparities in the support available to women during pregnancy
and childbirth are evident both among and within countries. According to
surveys conducted 1996-2005 in 57 developing countries, 81% of urban women
deliver with the help of SBAs, versus only 49% of their rural counterparts.
Similarly, 84% of women who have completed secondary or higher education are
more likely to be attended by SBAs. As per health sector performance report
(July 2005-June 2006), Annual Operation Plan (AOP) 1, there are low
percentages of deliveries conducted by SBAs with Eastern Province at 17%,
while National level is at 18%. These disparities raise a lot of concern in
achieving MDGs four and five by the year 2015 which is less than four years
away. This might remain an impossible dream in the current situation
(Rosenfield et al., 2006).
CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter highlights the methodology used in the study. It identifies the study design, the study area, the study variables, the study population, the sampling technique including sample size determination. It also includes the construction of the research instruments, data collection techniques, pilot study and ethical considerations in the study.

3.2 Study Design

This was a descriptive cross-sectional study. The study design employed both quantitative approaches through the use of an interviewer – administered questionnaire and qualitative approaches through the use of key informant interview guides and Focused Group Discussions (FGDs).

3.3 Study Variables

The independent variables were socio-cultural factors, knowledge and economic factors of the respondents. The dependent variable was utilization of skilled birth attendants.

3.4 Study Area

The study area was Central District of Kitui County in Eastern region. The greater Kitui North District borders Machakos and Makueni to the west, Mwingi to the north, Tana River to the east and Mutomo to the south. It is located between latitudes 37 degrees and 45 minutes, and 39 degrees and 0 minute east.
It covers an area of approximately 7437.22 square kilometers and a population of 506,961 (KMOH, 2009). The district so far has 7 administrative divisions. The district has one constituency namely Kitui Central. Majority of the population reside in rural areas in their own homes. Others reside in the estates surrounding the town in rental houses or self constructed houses. These are immigrants who are involved in businesses or employed in the town from other counties. These are the ones referred to as peri-urban population in this study.

The study County was purposively selected since it was one of the beneficiaries of the OBA project and still had the lowest utilization of SBAs. The district was purposively selected because it had the highest population and number of health facilities (42 GOK, 5 private, 8 FBOs) in relation to the other districts in the larger Kitui North District. The referral hospital in the County was also situated in the district. The district is approximately 808.06 area square kilometers with a total population of approximately 143,806 people as per district population projections of 2009 (KMOH, 2009).

3.5 Target Population

The target population comprised of women of reproductive age group 15–49 years. Total population in the Central District was approximately 143,806 people as per district population projections of 2009. Women of reproductive age comprised 21.53% of the total population hence the target population (21.53% of 143,806) was 30,960.
3.6 Study Population

The study population comprised women of reproductive age 15 - 49 years group in Central District (study area). They had to have delivered within one year preceding the study and residing in the study area. It was a representative sample of the target population.

3.7 Construction of Research Instruments

Interviewer - administered questionnaires were formulated to collect demographic data, socio-economic factors, cultural factors and decision making abilities of the respondents regarding utilization of SBAs. This was guided by the conceptual framework and the study objectives. Interview guide was used to collect information depending on each key informant. The research instruments were prepared in English.

3.8 Sampling Technique and Sample Size Determination

3.8.1 Sampling Techniques

Multi-stage cluster sampling was used in this study (Mugenda and Mugenda, 1999). Three locations from the seven in the division were selected through random sampling, then random sampling for sub-location in each selected location, followed by random sampling of villages in each selected sub-location. A list of all households in the village was made with assistance of village elder and community health volunteers. At household level, respondents meeting the inclusion criteria were selected but only one per household was interviewed till
the desired sample size was achieved. The proportion of respondents in each location depended on the population in the location. Purposive sampling was used to select key informants since they were informative and possessed the required information.

3.8.2 Sample Size Determination

The total population size was greater than 10,000 thus the formula below was used to determine the sample size (Fisher et al., 1991; cited in Kothari, 2004).

\[
n = \frac{z^2pq}{d^2}
\]

Where:

- \( n \) = the desired sample size
- \( z \) = the standard normal deviate, which corresponds to 95% confidence level (1.96).
- \( p \) = the proportion in the target population estimated to have the particular characteristic being studied. In this study, \( p \) was proportion of women who utilized skilled birth attendants which was estimated to be at 22%. Hence \( P \) was 0.22.
- \( q = 1.0 - p \)
- \( d \) = degree of accuracy desired, usually set at 0.05

\[
1.96^2 x 0.22 x 0.78 = 264. \text{ Hence the sample size was 264.}
\]

\[
0.05^2
\]
Three focused group discussions for the WRA respondents who had delivered in the last one year were conducted in the study area. Ten key informants were interviewed comprising the DDPHN, the area chief, three CHVs, one SBA in the main hospital, one SBA in the private hospital and three TBAs.

3.9 Inclusion/Exclusion Criteria

**Inclusion Criteria:** Women of reproductive age group 15 – 49 years residing in the district within the last six months, delivered in the last one year preceding the study and willing to participate in the study formed the study respondents.

**Exclusion Criteria:** It included all women not of reproductive age group below 15 and above 49 years, not delivered or delivered more than one year preceding the study, men and children in the district. Women who were terminally ill were also excluded from the study. Non residents, all women of reproductive age who had resided less than six months in the district preceding the study and WRA who had not consented to the study were also excluded.

3.10 Pre-testing of Study Tools

Pre-testing of the research tools was conducted in Chuluni District, which was an equivalent of Central District. It had similar population and number of health facilities.

3.10.1 Validity

Validity of the research instruments was ensured through the use of a well designed and pre-tested questionnaire together with the research assistants. The
questionnaires were designed in relation to the conceptual framework and the research objectives. Data was checked for completeness and accuracy every day they were submitted, any blanks, misplacement of information and number of questionnaires per day. Questionnaires were numbered in a sequential order before field and confirmed from the field.

3.10.2 Reliability

Various data quality measures were adopted in this study. First and foremost research questions were designed to ensure that consistent results were achieved. The fieldwork manual for the research team was prepared to ensure no stressful moments in terms of number of interviewers per day and payment mode. Guidelines were also prepared on how to ask certain questions and how to record answers provided.

Secondly reliability was ensured through thorough selection of research assistants who were knowledgeable about the topic, the study area, form four level of education, understood the local language and topography. They were explained on the purpose and procedures of the study as well as guidelines on sampling procedures. They were trained on interview techniques and on how to record answers as precisely as they were provided. They were engaged in the pre-testing of research tools and supervised during data collection.

3.11 Data Collection Techniques

Data collection was carried out by research assistants using the structured interviewer-administered questionnaires. The data was expressed numerically,
counted and also in narrative form. The researcher employed the interview guide to collect information from the key informants pertaining uptake of services, human resource, home and hospital deliveries. FGDs were used to get the overall picture of SBAs utilization. Group interview had 8-10 participants each led by a moderator with a FGD interview guide. Qualitative data was recorded in narrative form.

3.12 Data Analysis and Presentation

Raw data was captured in the interviewer administered questionnaires. Data was sorted as per the objectives of the study. The data was coded after the field. It was entered into access data base and cleaned. Data analysis was performed using intercool STATA 10.0, a statistical computer package.

The Chi square ($\chi^2$) test was used to assess differentials existing between various characteristics of women in utilization of skilled birth attendants. Cross tabulation was used to display the nature of association between the study variables. Odds ratios and their 95 % confidence intervals (C.I) were calculated to assess the relationship between the independent and dependent variables under study. P –values of less than 0.05 were considered statistically significant.

Data was summarized using descriptive statistics such as frequencies and presented by use of frequency tables, bar charts and pie charts, tables, figures and narration.

The qualitative data was described, summarized and interpreted for each key informant and FGD. It was edited for grammar and in line with the interview
guide. Similar responses were coded. Data with similar information was summarized together under the same theme, cleaned and interpreted. It was then reported descriptively paying attention to the issues and matters mentioned by the majority of the informants and capturing any unique experiences reported.

3.13 Ethical Considerations

Permission was sought from KU graduate school and from the Ministry of Higher education, Science and Technology. Written permission was obtained from the Provincial administration and internal security, Ministry of the education, Ministry of Health through the Central District representatives. All community entry protocols were observed from the District Commissioner to the respondents at the household level. The participants were explained about the study purpose, objectives, benefits and risks for informed consent. Confidentiality was ensured by avoiding writing names on the research tools, instead they were coded. Informed consent was sought verbally and by signing the consent form. For those respondents aged below 18 years, written consent was sought from the parent or the guardian. All data collected was analyzed and reported in formats that did not allow participant identification.
CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results and discussion of the data collected from the respondents in the study area. The results include the demographic characteristics of respondents, factors influencing utilization of skilled birth attendants and barriers to utilization of skilled birth attendants.

To examine individual effects of various explanatory variables on utilization of skilled birth attendants, logistic regression analysis was performed separately for each explanatory variable (Bivariate model). Odds ratios were reported on a number of significant variables.

4.2: Results

4.2.1: Socio-Demographic Characteristics of the Study Population

The total number of mothers interviewed was 263. They were interviewed on their age, marital status, education level, religion, occupation, partners/husbands occupation, residence, type of housing, ownership of the house, number of house occupants, parity, age at first birth and their monthly income. The mean age of the respondents was 25.3±4.1 years ranging from 15 to 49 years age group. In the range of 15-49 years age group, majority of the women were aged 20-24 years (30%) followed closely by 28% in the 25-29 age group. Figure 4.1 below shows the age group distribution of the study population.
Majority of the women (81.3%) had acquired primary level of education with reduced numbers with tertiary level of education (4.6%). The respondents who had acquired secondary level of education were 11.4%. Majority of the respondents were married (78.2%) while 13.8% were single. Those who were separated with their husbands were 5.3% while 2.7% of the respondents were widowed. Respondents practising the Protestant faith were 48.3% while 43.7% belong to the Catholic faith. Muslims were 8.0% of the total respondents. Majority of the respondents were unemployed (76.8%). These demographic characteristics of the respondents are as shown in table 4.1 below.
Table 4.1: Distribution of Study Population According to Socio-Demographic Characteristics

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Frequency n=263 No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of Education</strong></td>
<td></td>
<td>Mean age = 25.3±4.1</td>
</tr>
<tr>
<td>• Primary</td>
<td>214</td>
<td>81.3</td>
</tr>
<tr>
<td>• Secondary</td>
<td>30</td>
<td>11.4</td>
</tr>
<tr>
<td>• Tertiary</td>
<td>12</td>
<td>4.6</td>
</tr>
<tr>
<td>• None</td>
<td>7</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Married</td>
<td>206</td>
<td>78.2</td>
</tr>
<tr>
<td>• Single</td>
<td>36</td>
<td>13.8</td>
</tr>
<tr>
<td>• Separated</td>
<td>14</td>
<td>5.3</td>
</tr>
<tr>
<td>• Widowed</td>
<td>7</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Age at 1st birth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &lt;20 years</td>
<td>131</td>
<td>49.8</td>
</tr>
<tr>
<td>• 20-24 years</td>
<td>121</td>
<td>46.0</td>
</tr>
<tr>
<td>• &gt;25 years</td>
<td>11</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Protestant</td>
<td>127</td>
<td>48.3</td>
</tr>
<tr>
<td>• Catholic</td>
<td>115</td>
<td>43.7</td>
</tr>
<tr>
<td>• Muslim</td>
<td>21</td>
<td>8.0</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Unemployed</td>
<td>202</td>
<td>76.8</td>
</tr>
<tr>
<td>• Employed</td>
<td>61</td>
<td>23.2</td>
</tr>
<tr>
<td><strong>Occupation of partner/husband</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Unemployed</td>
<td>55</td>
<td>20.9</td>
</tr>
<tr>
<td>• Employed</td>
<td>167</td>
<td>63.5</td>
</tr>
<tr>
<td>• N/A</td>
<td>41</td>
<td>15.6</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rural</td>
<td>181</td>
<td>68.8</td>
</tr>
<tr>
<td>• Rural-Urban</td>
<td>82</td>
<td>31.2</td>
</tr>
<tr>
<td><strong>Type of Housing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Temporary</td>
<td>99</td>
<td>37.6</td>
</tr>
<tr>
<td>• Permanent</td>
<td>164</td>
<td>62.4</td>
</tr>
<tr>
<td><strong>House ownership</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Own home</td>
<td>145</td>
<td>55.1</td>
</tr>
<tr>
<td>• Rental</td>
<td>77</td>
<td>29.3</td>
</tr>
<tr>
<td>• Parents</td>
<td>41</td>
<td>15.6</td>
</tr>
<tr>
<td><strong>Number of Occupants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 2</td>
<td>12</td>
<td>4.6</td>
</tr>
<tr>
<td>• 3-5</td>
<td>148</td>
<td>56.3</td>
</tr>
<tr>
<td>• &gt;5</td>
<td>103</td>
<td>39.1</td>
</tr>
<tr>
<td><strong>Monthly Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &lt;1000</td>
<td>64</td>
<td>24.3</td>
</tr>
<tr>
<td>• 1000-5,000</td>
<td>143</td>
<td>54.4</td>
</tr>
<tr>
<td>• &gt;5,000</td>
<td>56</td>
<td>21.3</td>
</tr>
</tbody>
</table>
Majority of respondents’ partners/husbands (63.5%) were employed. The respondents mainly resided in rural areas (68.8%) while 31.2% of the respondents reside in peri-urban areas. Respondents residing in permanent houses build of bricks and iron sheets were 62.4% while 37.6% were living in temporary houses build of mud and thatched with grass.

Respondents residing in their own homes were 55.1 % while 29.3% resided in rental houses and 15.6 % resided in their parents’ houses. The majority of the house occupants ranged 3- 5 (56.3%) comprising mainly of the nuclear family while 39.1 % were 5-10 comprised of the extended family with a mean of four occupants per household. The majority of the respondents’ earnings ranged 1,000-5,000 (54.4%) with only 21.3 % of the respondents earning above Kshs. 5,000 and 24.3 % earning less than Kshs. 1,000 per month as they had no one in gainful employment.

Majority of the women had their first child before the age of 20 years (50 %) followed by 20-24 age group (46%). Only 4% of the respondents had their first child after the age of 25 years. The median age at first birth was 18±2.3 years. 73.8% of the women had given birth 2-4 times while 13.3% had given birth once and others (12.9%) more than 4 times. The mean number of children by the respondents was 3. Figure 4.2 below shows the distribution of parity among the study respondents.
Figure 4.2: Distribution of the Respondents According to Parity

<table>
<thead>
<tr>
<th>Parity</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2</td>
<td>73.8</td>
</tr>
<tr>
<td>2-4</td>
<td>13.3</td>
</tr>
<tr>
<td>&gt;4</td>
<td>12.9</td>
</tr>
</tbody>
</table>

4.2.2: Antenatal Care Services Offered to the Respondents

The respondents were interviewed on various aspects of antenatal care, these included whether they attended ANC in their most recent pregnancy, the facility where they sought ANC services, decision maker on when to start ANC, number of ANC visits and the trimester at which they started ANC. Also interviewed was the knowledge on danger signs in pregnancy, labour and delivery including after delivery. The study respondents were also interviewed on the Individual Birth Plan (IBP), services counseled on and offered during ANC and any complications developed in pregnancy.

Antenatal care attendance was high in the study respondents with 90.9% of the respondents interviewed reporting to have attended at least one ANC clinic during their most recent pregnancy. Only 9.1% of the study respondents reported not to have attended ANC clinic. The WHO recommends that a pregnant woman
should make a minimum of four antenatal care visits and each visit should be treated as the only visit that the pregnant woman will ever make (MOH-DRH/DOMC/DLTLD/JHPIEGO, 2007). In this study, 66.9% of the respondents reported having made at least four antenatal care visits during their most recent pregnancy. The decision to seek ANC was mainly self (86.7%) with both partner/husband and the woman making the decision in 7.2% of the times. These findings are presented in table 4.2 below.

Table 4.2: ANC Characteristics of the Respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency n=263)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antenatal Attendance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Attended ANC</td>
<td>239</td>
<td>90.9</td>
</tr>
<tr>
<td>▪ Not attended ANC</td>
<td>24</td>
<td>9.1</td>
</tr>
<tr>
<td><strong>No. of ANC visits in pregnancy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &lt; 4</td>
<td>87</td>
<td>33.1</td>
</tr>
<tr>
<td>• &gt;4</td>
<td>176</td>
<td>66.9</td>
</tr>
<tr>
<td><strong>Decision on ANC attendance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>228</td>
<td>86.7</td>
</tr>
<tr>
<td>Partner/Husband</td>
<td>19</td>
<td>7.2</td>
</tr>
<tr>
<td>Relatives</td>
<td>16</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Of those who attended ANC, 68.8 % did so in a public facility while 30.8 % sought the ANC services from a private health facility. Figure 4.3 below shows the facilities where the respondents sought ANC services.
Figure 4.3: Facility for ANC Services by the Respondents

Figure 4.4 below shows the gestation when the women started ANC clinic. Respondents who started ANC at first trimester were 9.5% while 55.7% started in the second trimester and 34.8% started in the third trimester.

Figure 4.4: Trimester for Start of ANC Clinic by Respondents
4.2.3: Knowledge on Danger Signs in Pregnancy, Labour and after Delivery

Many women who die in pregnancy, delivery or during post partum period often do not recognize that a serious problem is occurring (MOH-DRH/DOMC/DLTLD/JHPIEGO, 2007). Higher number of the respondents (58.2%) reported having discussed none of the danger signs with the service provider during ANC clinic. Only 41.8% of the respondents reported to have discussed at least one danger sign with the service provider in ANC clinic during their most recent pregnancy. Danger signs in pregnancy discussed included: vaginal bleeding (29.7%), severe headache (10.3%), swelling of hands and face (12.9%), high fever (9.4%), premature labour pains (16%) and reduced or no fetal movements at all (16.7%)

Respondents who reported having discussed severe abdominal pains as a danger sign in labour and delivery with the service provider were 21.3%. Excessive bleeding (27.8%) and placenta not delivered within 30 minutes (14.4%) were the only danger signs discussed as likely to occur after delivery. Acting quickly is important because a woman could die within a short period of time. Incase a danger sign occurred, 91.2% of the respondents said that they would return to the hospital.

Respondents who reported to have been informed of their Expected Date of Delivery (EDD) were 84.7%. The danger signs discussed are as shown in table 4.3 below.
4.2.4: Information on Individual Birth Plan (IBP)

Birth preparedness ensures that a woman knows when her baby is due, identifies a skilled birth attendant, a health facility for delivery/emergency, can list danger signs in pregnancy and delivery and knows what to do if they occur. It also identifies a decision-maker, how to get money in case of emergency, a transport plan, a birth partner/companion for the birth and has collected the basic supplies for the birth (MOH-DRH/DOMC/DLTLD/JHPIEGO, 2007). Individual birth plan during ANC was discussed with 65.0% of the respondents.

The most discussed aspect of individual birth plan in birth preparedness during ANC included; identified place of delivery (49.0%), how to get money in case of an emergency (49.0%), transport plan incase of an emergency (43.7%) and

<table>
<thead>
<tr>
<th>Danger sign discussed</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal bleeding in ANC</td>
<td>78</td>
<td>29.7</td>
</tr>
<tr>
<td>Severe headache in ANC</td>
<td>27</td>
<td>10.3</td>
</tr>
<tr>
<td>Swelling in ANC</td>
<td>34</td>
<td>12.9</td>
</tr>
<tr>
<td>Fever in ANC</td>
<td>25</td>
<td>9.5</td>
</tr>
<tr>
<td>Premature labour pains in ANC</td>
<td>42</td>
<td>16</td>
</tr>
<tr>
<td>Reduce foetal movements in ANC</td>
<td>44</td>
<td>16.7</td>
</tr>
<tr>
<td>Lower abdominal pains in labour and delivery</td>
<td>56</td>
<td>21.3</td>
</tr>
<tr>
<td>Excessive bleeding after delivery</td>
<td>73</td>
<td>27.8</td>
</tr>
<tr>
<td>Placenta not delivered within 30 minutes after delivery</td>
<td>38</td>
<td>14.4</td>
</tr>
</tbody>
</table>
collection of mother to baby package (51.0%). Table 4.4 below shows the various aspects of the individual birth plan discussed during ANC.

**Table 4.4: Information on Individual Birth Plan (IBP) Discussed in ANC**

<table>
<thead>
<tr>
<th>Individual birth plan (263)</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision maker in case of an Emergency</td>
<td>30</td>
<td>11.4</td>
</tr>
<tr>
<td>Identified a place of delivery</td>
<td>129</td>
<td>49.0</td>
</tr>
<tr>
<td>How to get money incase of an Emergency</td>
<td>129</td>
<td>49.0</td>
</tr>
<tr>
<td>Transport plan</td>
<td>115</td>
<td>43.7</td>
</tr>
<tr>
<td>Birth partner</td>
<td>17</td>
<td>6.5</td>
</tr>
<tr>
<td>Collection of mother to baby package</td>
<td>152</td>
<td>57.8</td>
</tr>
</tbody>
</table>

**4.2.5: Health Promotion in ANC**

Health promotion using health messages and counseling maintains the woman’s health and survival by ensuring prevention/protection of complications (MOH-DRH/DOMC/DLTLD/JHPIEGO, 2007). Majority of the respondents were counseled and offered PMTCT services for HIV/AIDS (93.5%), Tetanus Toxoid to prevent maternal and neonatal tetanus (92.4%), LLITN to prevent malaria/anaemia (82.9%), iron and folate supplementation to prevent anaemia (76.8%), ANC profile (76.4%) and presumptive treatment of hookworm infection (65.8%). Table 4.5 below shows counseling of clients in ANC.
Table 4.5: Health Promotion in ANC Clinic

<table>
<thead>
<tr>
<th>Counseling and health messages</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Nutrition</td>
<td>140</td>
<td>53.2</td>
</tr>
<tr>
<td>PMTCT of HIV/AIDS</td>
<td>246</td>
<td>93.5</td>
</tr>
<tr>
<td>Tetanus Toxoid</td>
<td>243</td>
<td>92.4</td>
</tr>
<tr>
<td>Iron and Folate supplementation</td>
<td>202</td>
<td>76.8</td>
</tr>
<tr>
<td>LLITN</td>
<td>218</td>
<td>82.9</td>
</tr>
<tr>
<td>Treatment of hookworm infection</td>
<td>173</td>
<td>65.8</td>
</tr>
<tr>
<td>Family Planning</td>
<td>133</td>
<td>50.6</td>
</tr>
<tr>
<td>Newborn Care</td>
<td>133</td>
<td>50.6</td>
</tr>
<tr>
<td>Rest and Hygiene</td>
<td>129</td>
<td>49.0</td>
</tr>
<tr>
<td>ANC profile</td>
<td>201</td>
<td>76.4</td>
</tr>
</tbody>
</table>

4.2.6: Complications Developed During ANC

Every pregnancy is at risk of serious life threatening complications hence every pregnant woman should be prepared for the possibility of complications (MOH-DRH/DOMC/DLTLD/JHPIEGO, 2007). These were malaria and anaemia. Table 4.6 below shows the complications developed by the respondents during their most recent pregnancy.

Table 4.6: Complications Developed during Pregnancy by the Respondents

<table>
<thead>
<tr>
<th>Type of Complications</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaria</td>
<td>11</td>
<td>4.2</td>
</tr>
<tr>
<td>Anaemia</td>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>UTI</td>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>PET, Vaginal candidiasis and APH</td>
<td>35</td>
<td>13.3</td>
</tr>
</tbody>
</table>
4.2.7: Information on the Last Delivery of the Respondents

The respondents were interviewed on where their last delivery was, mode of delivery and assistance during delivery. They were also interviewed on their decision on place of delivery including the option on where they would deliver in future and the reasons for opting so. The cost of delivery was also addressed including who catered for the delivery fee and whether they were able to do so. Partner/husband accompaniment was also sought. Systems in place within the community to assist pregnant women in case of an emergency and the participants’ understanding of obstetric emergencies including whether they developed any were also part of the information gathered.

Figure 4.5: Place of Last Delivery by the Respondents
Figure 4.5 above shows the place of delivery by the respondents. Deliveries conducted at home were 51.8% while 42.8% were reported to have been conducted in the hospitals with 5.4% of the study respondents delivering on the way to the health facility. This was either by the road, in the vehicle, along the river or at the bus stop. Majority of the respondents had a vaginal delivery (95.1%) while the rest delivered via c/s. Figure 4.6 below shows distribution of delivery assistance for the respondents during their most recent deliveries.

**Figure 4.6: Assistance during Delivery for the Respondents**

Skilled birth attendants (doctors, nurses and midwives) attended 41.4% of these deliveries while the rest were attended by unskilled birth attendants (58.6%). 28.1% were attended by traditional birth attendants and 17.3% were conducted by neighbours, relatives and friends.
4.2.8: Delivery Services for the Respondents

Majority of the respondents (80.6%) made the decision by themselves on place of delivery. In-laws (mother in-law, grandmother and aunties) decided on place of delivery for 9.5% of the respondents while husband/partners decided for 9.9% of the respondents. From their last delivery experience, 85.2% of the respondents said they would opt to deliver in a hospital setting in future. Table 4.7 below shows the delivery services for the respondents.

Table 4.7: Delivery Services for the Respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Distribution of study group n=263</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mode of delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Vaginal delivery</td>
<td>250</td>
<td>95.1</td>
</tr>
<tr>
<td>• Caesarean section</td>
<td>13</td>
<td>4.9</td>
</tr>
<tr>
<td><strong>Decision on delivery place for the most recent delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Self</td>
<td>212</td>
<td>80.6</td>
</tr>
<tr>
<td>• Husband/Partner</td>
<td>26</td>
<td>9.9</td>
</tr>
<tr>
<td>• In laws</td>
<td>25</td>
<td>9.5</td>
</tr>
<tr>
<td><strong>Preferred delivery place in future</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Hospital</td>
<td>224</td>
<td>85.2</td>
</tr>
<tr>
<td>• Home</td>
<td>39</td>
<td>14.8</td>
</tr>
<tr>
<td><strong>Cost of delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &gt;5000</td>
<td>94</td>
<td>35.7</td>
</tr>
<tr>
<td>• 2000-5000</td>
<td>38</td>
<td>14.5</td>
</tr>
<tr>
<td>• &lt;2000</td>
<td>131</td>
<td>49.8</td>
</tr>
<tr>
<td><strong>Accompanied by husband during last delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Yes</td>
<td>28</td>
<td>10.6</td>
</tr>
<tr>
<td>• No</td>
<td>235</td>
<td>89.4</td>
</tr>
<tr>
<td><strong>Catering for payments</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Self</td>
<td>127</td>
<td>48.3</td>
</tr>
<tr>
<td>• Husband</td>
<td>30</td>
<td>11.4</td>
</tr>
<tr>
<td>• OBA voucher</td>
<td>106</td>
<td>40.3</td>
</tr>
</tbody>
</table>
4.2.9: Awareness of Obstetric Emergencies

Majority of the respondents (65.2%) had knowledge of obstetric emergencies. Obstetric emergencies known by the respondents included: post partum haemorrhage (39.5%), retained placenta (15.2%), abnormal lie (9.9%) and big baby (9.5%).

4.2.10: Health Facility Factors

Participants were interviewed on the distance to the nearest health facility, their rating of health facility staff in terms of service delivery, perception of health care behaviour during pregnancy, role of the OBA program in promoting utilization of SBAs and whether there were any cultural factors influencing utilization of SBAs in their community.

Table 4.8: Information on Health Related Facility Factors by the Respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Distribution of study group n=263</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distance to health facility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &lt;1km</td>
<td>30</td>
<td>11.4</td>
</tr>
<tr>
<td>• 1-5km</td>
<td>206</td>
<td>78.3</td>
</tr>
<tr>
<td>• &gt;5km</td>
<td>27</td>
<td>10.3</td>
</tr>
<tr>
<td><strong>Perception of health facility staff by the respondents</strong></td>
<td>77</td>
<td>29.3</td>
</tr>
<tr>
<td>• Bad</td>
<td>186</td>
<td>70.7</td>
</tr>
<tr>
<td>• Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OBA voucher useful</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>205</td>
<td>77.9</td>
</tr>
<tr>
<td>Uninformed</td>
<td>58</td>
<td>22.1</td>
</tr>
<tr>
<td><strong>Cultural obstacles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
<td>2.3</td>
</tr>
<tr>
<td>None</td>
<td>257</td>
<td>97.7</td>
</tr>
</tbody>
</table>
Table 4.8 above shows distribution of facility related factors among the respondents. Majority of the clients resided within 1-5 km radius (78.3%) to the health facility while 11.4% resided more than 5 km away and 10.3 % resided within 1 km radius. Majority of the respondents rated the health facility staff as being good in service delivery (70.7%). Majority of the respondents (77.9%) reported OBA voucher to have been successful in enhancing utilization of SBAs as t catered for their hospital bill. Cultural factors determining utilization of SBAs were almost none existence (97.7%).

4.2.11 Qualitative Data from Key Informants and Focused Group Discussions

Three focused group discussions for the women of reproductive age who had delivered in the last one year preceding the study were conducted in the study area. Ten key informants were interviewed comprising the DDPHN, the area chief, three community health volunteers, one SBA from the County referral hospital, one SBA from the private hospital and three TBAs. They reported various barriers that influence utilization of SBAs in the study area.

The DDPHN reported shortage of SBAs in the health facilities. The county is a hardship area hence fewer SBAs prefer working in the region. The high turn over of SBAs had compromised availability of SBAs in various parts of the County. Most of the SBAs were retreating to their counties for fear of been retained in counties far way from home. The area chief reported minimal involvement of the community in ensuring utilization of SBAs. The public
health facilities reported to receive the equipments and supplies from KEMSA after every three months, though it was not adequate and most of the times did not meet their needs. The DDPHN reported to have had only one functional ambulance for the larger Kitui North District which could not coordinate and refer women in labour to the hospital from their own homes. The funding of maternal health programs in the district was by two out of the eight partners (APHIA PLUS KAMILI and The OBA Project). Most of the partners supported HIV/AIDS related programs.

The community health volunteers reported to have had cold reception from the community when advocating for skilled delivery. This was attributed to the fact that they were perceived as being paid to bother the community.

“They would tell us that we have now come again to bother them. Instead we should share with them the money we have been given” Mrs. Mutua a community health volunteer.

The key informants (both SBAs from private facility and public facility) reported that women sought care in labour when already too late for prompt intervention. This was common to women para two and above.

“They labour at home for even two days and come when already in second stage of labour when I can do nothing to save the baby” Mrs. Mulinge a nurse at the private hospital.

Shortage of SBAs was cited by the key informants as hindering delivery by skilled attendants. SBAs were leaving the district without replacements.
“My staff are afraid of the county government, they want to go back home before it comes into force next year” Mr. Muinde the DDPHN.

The means of transport were reported to be unreliable during the night in most parts of the district with motorcycles being the most available. Women in labour had to ‘trek’ all the way to the hospital if they can not afford a taxi. This was further coupled by the poor terrain in the region (valleys and ridges). The poverty level in the district was reported to be quite high (64%) by the DDPHN thus hindering affordability of transport to the health facility. Women utilized the little resources they could get on food and hence transport to the health facility when they could deliver at home was not cited as a priority by the respondents.

The perception of healthy caring behaviour determined utilization of services. This was reported by most of the focused group participants. They reported being neglected and left to labour alone.

“In those hospitals, who holds you as you deliver? You are left alone” Ms. Muteti a FGD participant.

Others commented being isolated from their family members and told to wait outside. Majority cited situations where the SBAs were uncooperative in second stage of labour,

“Send for you husband to receive the baby for you” Ms. Mueni a FGD participant.
The women respondents reported been handled with care, massaged with oil and never been left alone by the TBAs compared to delivering in the hospitals. The TBAs remained available to offer psychological and emotional support.

“In the hospital you are placed in a very hard bed and no body to monitor how you are doing” Ms. Kalondu a FGD participant.

A key informant from a private facility reported that clients came in second stage after labouring at home for a whole day. Most of their clients were picked from home and refund sought from the OBA program unlike in public hospital where transport was not guaranteed even after requesting via phone.

“Clients with OBA card are picked from home, they do not plan for transport, they expect to be served fully, if there is no transport, they deliver at home” Mrs. Mulinge a nurse from a Private hospital.

The TBAs reported to have been trained by AMREF while others learnt through apprenticeship how to offer the services. Some reported to keep their own supplies while for others the clients came with their own gloves and lesso. Women who did not know their HIV status were turned away and ended up delivering alone without assistance.

“I always tell them to produce proof of having been tested for HIV and gloves. If they do not have, I refuse or tell them to go to hospital.” Mrs. Kakula a TBA.
The TBAs reported referring the women who laboured the whole day to the hospital. Lack of progress in labour was treated as a warning for potential complication.

“But incase one complicates or labours for more than a day, I tell them to go to hospital or accompany them provided they are willing to pay for the services”. Mrs. Mutheu TBA.

The women in the FGDs reported to labour at home in the hope that all would be well. Going to the hospital early was seen as a sign of cowardice. It was associated with high chances of undergoing c/s.

“I have delivered many children at home, even with that reduced breathing they still survive and even buttocks are delivered.” Mrs. Wambua a FGD participant.

“You know with c/s you will not be able to take care of your children.” Mrs. Luka a FGD participant.

They reported repair of episiotomy as one of the reasons for delivering in the hospital since it healed faster. Most of the clients delivered in the hospital because of the benefits involved; unga, maize, beans, ndengu, cooking oil and baby napkins. Some said labour was accelerated with a drip. 95% of the clients who delivered in the private facility reported to have the OBA voucher compared to the public facility where OBA voucher clients were only 60%.

“The private facility is now within our reach, unlike before.” Ms. Mutethya a FGD participant.
4.2.12: Distribution of Dependent Variables against Delivery by SBAs

Table 4.9: Distribution of Dependent Variables against Delivery by SBAs

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Delivery by SBAs n(%)</th>
<th>Delivery by unskilled birth attendants n(%)</th>
<th>X² (df) P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age category</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &lt; 20</td>
<td>9 (31.0)</td>
<td>20 (69.0)</td>
<td>χ²=8.65 (2) P=0.013</td>
</tr>
<tr>
<td>• 20-29</td>
<td>75 (49.0)</td>
<td>78 (51.0)</td>
<td></td>
</tr>
<tr>
<td>• &gt;30</td>
<td>25 (30.9)</td>
<td>56 (69.1)</td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Protestant</td>
<td>44 (34.6)</td>
<td>83 (65.4)</td>
<td>χ²=10.4 (2) p=0.006</td>
</tr>
<tr>
<td>• catholic</td>
<td>50 (43.5)</td>
<td>65 (56.5)</td>
<td></td>
</tr>
<tr>
<td>• Muslim</td>
<td>15 (71.4)</td>
<td>6 (28.6)</td>
<td></td>
</tr>
<tr>
<td>Parity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &lt;2</td>
<td>7 (20.0)</td>
<td>28(80.0)</td>
<td>χ²=19.73 (2) P&lt;0.0001</td>
</tr>
<tr>
<td>• 2-4</td>
<td>96 (49.5)</td>
<td>98(50.5)</td>
<td></td>
</tr>
<tr>
<td>• &gt;4</td>
<td>6 (17.7)</td>
<td>28(82.4)</td>
<td></td>
</tr>
<tr>
<td>Partners Occupation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Un-employed</td>
<td>21(38.2)</td>
<td>34(61.8)</td>
<td>χ²=3.02 (2) P=0.029</td>
</tr>
<tr>
<td>• Employed</td>
<td>66(39.5)</td>
<td>101(60.5)</td>
<td></td>
</tr>
<tr>
<td>• No partner/husband</td>
<td>22(53.7)</td>
<td>19(46.3)</td>
<td></td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rural</td>
<td>56(30.9)</td>
<td>125(69.1)</td>
<td>X²=26.4(1) P&lt;0.0001</td>
</tr>
<tr>
<td>• Urban-Rural</td>
<td>53(64.6)</td>
<td>29(35.4)</td>
<td></td>
</tr>
<tr>
<td>Housing type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Temporary</td>
<td>31 (31.3)</td>
<td>68 (69.7)</td>
<td>χ²=6.72 (1) P=0.010</td>
</tr>
<tr>
<td>• Permanent</td>
<td>78 (47.6)</td>
<td>86 (52.4)</td>
<td></td>
</tr>
<tr>
<td>House ownership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Own home</td>
<td>83 (40.3)</td>
<td>123 (59.7)</td>
<td>χ²=10.84 (2) P=0.004</td>
</tr>
<tr>
<td>• Rental house</td>
<td>19 (52.8)</td>
<td>17 (47.2)</td>
<td></td>
</tr>
<tr>
<td>• Parents</td>
<td>7 (33.3)</td>
<td>14 (66.7)</td>
<td></td>
</tr>
<tr>
<td>Number of Occupants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 3-5</td>
<td>5 (41.7)</td>
<td>7 (58.3)</td>
<td>χ²=10.9 (2) P=0.004</td>
</tr>
<tr>
<td>• 5-10</td>
<td>74 (50.0)</td>
<td>74 (50.0)</td>
<td></td>
</tr>
<tr>
<td>• &gt;10</td>
<td>30 (29.1)</td>
<td>73 (70.9)</td>
<td></td>
</tr>
<tr>
<td>Attended ANC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Yes</td>
<td>104 (43.5)</td>
<td>135 (56.5)</td>
<td>χ²=4.62 (1) P=0.032</td>
</tr>
<tr>
<td>• No</td>
<td>5 (20.8)</td>
<td>19 (79.2)</td>
<td></td>
</tr>
<tr>
<td>Decision to attend ANC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Self</td>
<td>92 (40.4)</td>
<td>136 (59.7)</td>
<td>χ²=7.59 (2) P=0.022</td>
</tr>
<tr>
<td>• Husband</td>
<td>13 (68.4)</td>
<td>6 (31.6)</td>
<td></td>
</tr>
<tr>
<td>• Relatives</td>
<td>4 (25.0)</td>
<td>12 (75.0)</td>
<td></td>
</tr>
<tr>
<td>Discussed place of delivery in IBP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No</td>
<td>5(23.9)</td>
<td>16 (76.2)</td>
<td>χ²=9.472 (1) P = 0.002</td>
</tr>
<tr>
<td>• Yes</td>
<td>104(42.2)</td>
<td>138 (57.8)</td>
<td></td>
</tr>
<tr>
<td>Decision on delivery place</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Self</td>
<td>84 (39.6)</td>
<td>128 (60.4)</td>
<td>χ²=10.424 (2) P = 0.005</td>
</tr>
<tr>
<td>• Husband/partner</td>
<td>18 (69.2)</td>
<td>8 (30.8)</td>
<td></td>
</tr>
<tr>
<td>• In-laws</td>
<td>7 (28.0)</td>
<td>18 (72.0)</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.9 above shows the distribution of independent variables against delivery by skilled attendants. The distribution of age groups on delivery by skilled attendant was significantly different \( (\chi^2 = 8.65, \text{df}=2, \ p=0.013) \). Utilization of skilled care at birth was significantly different depending on the religion adopted by the respondents \( (\chi^2=10.395, \text{df}=2, \ p=0.006) \). There was significant difference between distribution of parity and utilization of skilled birth attendants \( (\chi^2=19.73, \text{df}=2, \ p<0.001) \).

Distribution of residence on utilization of SBAs was significantly different \( (\chi^2 =26.4, \text{df}=1, \ p \text{ value}<0.000) \). The type of housing showed significant association with utilization of skilled birth attendants \( (\chi^2=6.72 \text{ df}=1, \ p =0.010) \). There was significant association between house ownership and utilization of skilled birth attendants. Number of occupants per household denoting dependency ratio was significantly associated with the outcome \( (\chi^2=10.9, \text{df}=2, \ p \text{ value}=0.004) \).

Attendance of ANC was significantly distributed against the outcome \( (\chi^2=4.62 \text{ df}=1, \ p=0.032) \). The distribution of the decision to attend ANC against the utilization of skilled birth attendants was significantly different \( (\chi^2=7.59, \text{df}=2, \ p=0.022) \). The decision on place of delivery was from varied sources which was significantly distributed against the outcome \( (\chi^2=10.424, \text{df}=1, \ p=0.005) \).

4.2.13 Factors Determining Utilization of Skilled Birth Attendants

Various factors were found to determine utilization of skilled birth attendants in Central District, Kitui County. These factors are as shown in table 4.10 below.
Table 4.10: Socioeconomic Factors Determining Utilization of SBAs

Bivariate Analysis

<table>
<thead>
<tr>
<th>Independent Variable (n=263)</th>
<th>Deliveries by SBAs n (%)</th>
<th>Deliveries by unskilled birth attendants n (%)</th>
<th>OR</th>
<th>P value</th>
<th>95% C.I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age category</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &lt;20</td>
<td>9 (31.0)</td>
<td>20 (69.0)</td>
<td>ref</td>
<td>0.08</td>
<td>0.200-1.093</td>
</tr>
<tr>
<td>• 20-29</td>
<td>75 (49.0)</td>
<td>78 (51.0)</td>
<td>0.468</td>
<td>0.99</td>
<td>0.403-2.522</td>
</tr>
<tr>
<td>• 30</td>
<td>25 (30.9)</td>
<td>56 (69.1)</td>
<td>1.008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Primary and below</td>
<td>94 (42.3)</td>
<td>127 (56.7)</td>
<td>ref</td>
<td>0.05*</td>
<td>1.002-5.905</td>
</tr>
<tr>
<td>• Secondary</td>
<td>7 (35.0)</td>
<td>23 (65.0)</td>
<td>2.432</td>
<td>0.11</td>
<td>0.108-1.265</td>
</tr>
<tr>
<td>• Tertiary</td>
<td>8 (66.7)</td>
<td>4 (33.3)</td>
<td>0.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Muslim</td>
<td>15 (71.4)</td>
<td>6 (28.6)</td>
<td>ref</td>
<td>0.02*</td>
<td>1.1-3.477</td>
</tr>
<tr>
<td>• Catholic</td>
<td>50 (43.5)</td>
<td>65 (56.5)</td>
<td>1.96</td>
<td>0.009*</td>
<td>1.438-12.59</td>
</tr>
<tr>
<td>• Protestant</td>
<td>44 (34.7)</td>
<td>83 (65.3)</td>
<td>4.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &lt;2</td>
<td>7 (20.0)</td>
<td>28 (80.0)</td>
<td>ref</td>
<td>0.002*</td>
<td>0.106-0.612</td>
</tr>
<tr>
<td>• 2-4</td>
<td>96 (49.5)</td>
<td>98 (50.5)</td>
<td>0.255</td>
<td>0.803</td>
<td>0.348-3.911</td>
</tr>
<tr>
<td>• &gt;4</td>
<td>6 (17.7)</td>
<td>28 (82.4)</td>
<td>1.167</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partners Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No partner/husband</td>
<td>22 (53.7)</td>
<td>19 (46.3)</td>
<td>ref</td>
<td>0.029*</td>
<td>0.505-1.768</td>
</tr>
<tr>
<td>• Employed</td>
<td>66 (39.5)</td>
<td>101 (60.5)</td>
<td>2.79</td>
<td>0.133</td>
<td>0.235-1.211</td>
</tr>
<tr>
<td>• Un-employed</td>
<td>21 (38.2)</td>
<td>34 (61.8)</td>
<td>1.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Peri-urban</td>
<td>53 (64.6)</td>
<td>29 (35.4)</td>
<td>ref</td>
<td>&lt;0.0001*</td>
<td>2.35-7.08</td>
</tr>
<tr>
<td>• Rural</td>
<td>56 (30.9)</td>
<td>125 (69.1)</td>
<td>4.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of Housing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Permanent</td>
<td>78 (47.6)</td>
<td>86 (52.4)</td>
<td>ref</td>
<td>0.010*</td>
<td>0.298-0.849</td>
</tr>
<tr>
<td>• Temporary</td>
<td>31 (31.6)</td>
<td>68 (69.7)</td>
<td>2.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>House ownership</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rental</td>
<td>43(55.8%)</td>
<td>34 (44.2%)</td>
<td>ref</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Parents</td>
<td>18 (43.9)</td>
<td>23 (56.1)</td>
<td>2.89</td>
<td>0.001*</td>
<td>0.222-0.690</td>
</tr>
<tr>
<td>• Own home</td>
<td>48 (33.1%)</td>
<td>97 (66.9%)</td>
<td>5.3</td>
<td>0.204</td>
<td>0.312-1.282</td>
</tr>
<tr>
<td>Monthly income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &lt; 1,000</td>
<td>32 (50)</td>
<td>32 (50)</td>
<td>ref</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &gt;1,000-5,000</td>
<td>61 (42.7)</td>
<td>82 (57.3)</td>
<td>1.34</td>
<td>0.327</td>
<td>0.744-2.429</td>
</tr>
<tr>
<td>• &gt;5,000</td>
<td>16 (28.6)</td>
<td>40 (71.4)</td>
<td>2.5</td>
<td>0.018*</td>
<td>1.170-5.34</td>
</tr>
</tbody>
</table>

*p values are statistically significant (P<0.05)

There was a significant relationship between mothers’ level of education and utilization of skilled birth attendants (OR=0.37, 95%CI: 1.002-5.905, P=0.05).
Mothers who had acquired tertiary level of education were 0.37 times less likely to utilize unskilled birth attendant compared to those who had attended primary level of education. Religion significantly determined who would assist a woman during delivery. Women of Protestant faith were 4.26 times more likely to be delivered by unskilled attendant compared to women of Muslim faith (OR=4.26, p=0.009). Though the Catholics were 1.95 times more likely to be delivered by unskilled birth attendant compared to Muslims, it was not statistically significant (p=0.02).

There was a significant relationship between parity and delivery by skilled birth attendants (OR=0.255, 95% CI: 0.106-0.612, p=0.002). Women who had 2-4 children were 0.255 times less likely to be delivered by unskilled attendant compared to those who had given birth only once. Respondents who reported having given birth at the age of 20-24 were 0.65 times less likely to utilize the services of a unskilled birth attendants compared to those who delivered before the age of 20 years though it was not statistically significant (OR=0.65, 95%CI: 0.391-1.076, p=0.094). Respondents whose partners were employed were 2.79 times more likely to be delivered by unskilled attendants compared to single, widowed and separated respondents (OR=2.79, 95%CI: 0.505-1.768, p=0.029).

The area of residence was significant in utilization of skilled care at birth. Women living in rural areas were 4.08 times more likely to utilize unskilled care at birth compared to women living in peri-urban areas (OR= 4.08, 95% CI: 2.35-7.08, P<0.0001). Similarly the type of housing was crucial in determining utilization of SBAs. Women living in temporary houses were 2.37 times more
likely to be delivered by unskilled attendants compared to those living in permanent houses (OR=2.37, 95%CI: 0.298-0.849, P=0.010). Ownership of the house was significantly related to delivery by skilled attendants. Those women living in their own homes were 5.3 times more likely to utilize unskilled care at birth compared to those living in rental houses (OR=5.3, 95%CI: 0.222-0.690, P=0.001). The monthly household income for respondents was significantly associated with delivery by skilled attendants. Respondents who reported earning more than Kshs. 5,000 a month were 2.5 times more likely to be delivered by unskilled attendants compared to respondents earning less than Kshs. 1,000 a month (OR=2.5, p=0.018).

ANC clinic attendance during the most recent pregnancy was a factor prompting utilization of SBAs. Women who did not attend ANC clinic in their most recent pregnancy were 2.9 times more likely to be delivered by unskilled attendant compared to those who attended ANC clinic (OR= 2.9, 95% CI: 1.058-8.100, p=0.039). Women who sought ANC services in the public health facility were 2.7 times more likely to be delivered by unskilled attendant compared to those who attended private facilities (OR =2.7, 95% CI: 1.434-4.908, P=0.002). Utilization of SBA was also determined by the information offered on individual birth plan during ANC clinic. Respondents who did not discuss the importance of hospital delivery and identified the hospital for birth of their unborn babies in ANC were 3.8 times more likely to be delivered by unskilled attendant compared to those who discussed with the service provider (OR=3.8, 95 % CI: 1.245-25.195, p=0.015).
The perception of the women on the health facility staff was a determinant in utilization of SBAs (OR 5.18, 95%CI 1.4-19.2, p=0.014). Respondents who perceived the health facility staffs as bad were 5.18 times more likely to seek the services of unskilled health personnel at birth compared to those who perceived them as good in service delivery. These findings are as shown in table 4.11 below.

**Table 4.11 Health Facility Factors Determining Utilization of SBAs**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Deliveries by SBAs n (%)</th>
<th>Deliveries by Unskilled birth attendants n (%)</th>
<th>OR</th>
<th>P value</th>
<th>95% C.I</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANC Attended</td>
<td></td>
<td></td>
<td>ref</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Yes</td>
<td>5 (17.2%)</td>
<td>24 (82.8%)</td>
<td>2.9</td>
<td>0.039*</td>
<td>1.058-8.100</td>
</tr>
<tr>
<td>- No</td>
<td>104 (44.4%)</td>
<td>130 (55.6%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place of ANC</td>
<td></td>
<td></td>
<td>ref</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- private</td>
<td>45 (57.7%)</td>
<td>33 (42.31%)</td>
<td>2.7</td>
<td>0.002*</td>
<td>1.434-4.908</td>
</tr>
<tr>
<td>- Public</td>
<td>64 (34.6%)</td>
<td>121 (65.4%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANC started –</td>
<td></td>
<td></td>
<td>ref</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 1st trimester</td>
<td>10 (40.0%)</td>
<td>14 (60.0%)</td>
<td>0.59</td>
<td>0.194</td>
<td>0.268-1.301</td>
</tr>
<tr>
<td>- 2nd trimester</td>
<td>69 (43.7%)</td>
<td>77 (52.7%)</td>
<td>0.72</td>
<td>0.449</td>
<td>0.314-1.670</td>
</tr>
<tr>
<td>- 3rd trimester</td>
<td>30 (32.6%)</td>
<td>62 (67.40)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision to start ANC</td>
<td></td>
<td></td>
<td>ref</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Self</td>
<td>92 (40.4%)</td>
<td>136 (59.7%)</td>
<td>0.71</td>
<td>0.027*</td>
<td>0.351-1.462</td>
</tr>
<tr>
<td>- Husband and self</td>
<td>17 (49.1%)</td>
<td>18 (50.9%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff Attitude</td>
<td></td>
<td></td>
<td>ref</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Bad</td>
<td>23 (29.9%)</td>
<td>54 (70.1%)</td>
<td>5.18</td>
<td>0.014*</td>
<td>1.4-19.2</td>
</tr>
<tr>
<td>- Good</td>
<td>86 (46.3%)</td>
<td>100 (53.7%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p values are statistically significant (P ≤ 0.05)*

In regard to perception of health caring behaviour in pregnancy, respondents reported to value a service provider who stayed with them through out in labour, not being abused/beaten and communication in a friendly and respectful manner. Women cited incidences where they were left to labour alone and reported not to return to such a facility.
4.3 Discussion of Findings

Skilled attendant at birth is one of the actions that improve women’s and newborn’s chances of survival during pregnancy and childbirth in low-income countries. Yet in many regions the proportion of women who do so is low as they face a number of obstacles to seeking professional medical help in childbirth. A major reason that skilled birth attendance is encouraged is that it can lead to women being referred for professional medical help if they are experiencing difficulties during birth or pregnancy. This chapter deals with the discussion of findings from the study.

4.3.1 Antenatal Care Services

Focused antenatal care is personalized care provided to a pregnant woman that emphasizes on the woman’s overall health, her preparation for childbirth and readiness for complications. It is a timely, friendly, simple and safe service to a pregnant woman. The aim is to achieve a good outcome for the mother and baby and prevent any complications that may occur in pregnancy, labour, delivery and post partum. The objectives of focused antenatal care are five. These include early detection and treatment of problems, prevention of complications using safe, simple and cost effective interventions, birth preparedness and complication readiness, health promotion using health messages and counseling and provision of care by a skilled attendant (MOH-DRH/DOMC/DLTLD/JHPIEGO, 2007).

In this study antenatal attendance was high at 90.9 %. This compares well with the results of the KDHS 2008/2009 where antenatal attendance was a high of
92% (KNBS ICF Macro, 2010) but quite low in the larger Kitui which was at 52% (KMOH, 2009). The county has diverse terrain which hinders movement in some areas. World Health Organization recommends that women should attend four comprehensive personalized visits one of which should be in the first trimester before 16 weeks gestation (MOH-DRH/DOMC/DLTLD/JHPIEGO, 2007). Those who attended ANC in the first trimester were 9% compared to KDHS 2008/2009 where 15% had attended ANC in the first trimester. Majority of the respondents (67%) had made more than four antenatal visits in their most recent pregnancy compared to KDHS 2008/2009 where only 44% of the rural women reported to have attended more than four antenatal visits. The high antenatal attendance in the study district is attributed to the fact that food rations are offered monthly in the antenatal clinic and also the poverty level in the district was quite high at 64% as per the Kitui District statistics of 2009. This serves as a means of getting food for the family.

4.3.2 Delivery Services

The findings of this study showed that proportion of women who delivered in the health facility was only 42.8% where as the proportion who had skilled birth assistance was 41.4%. This means that not all deliveries in the hospital were attended by SBAs. These estimates compares well with the national rates (44% versus 43%) observed in the KDHS 2008-2009 but higher than the national coverage for rural areas (37%). The higher rate of utilization in the study area compared to the region may be attributed to the fact that the study area was accessible to the hospitals and had the highest number of health facilities
equipped to conduct deliveries. The County referral hospital was situated in the study district.

Almost all skilled deliveries in the study area occurred in a health facility setting. This was similar to findings in the KDHS 2008/2009 where almost all skilled care at delivery was offered in a health facility apart from North Eastern province. There were few retired midwives and even where there were, women preferred to ‘trek’ (walk) all the way to the hospital since they would get some incentives in terms of food and baby clothing’s which was made possible through acquisition of the OBA voucher. Different findings were reported by Mpembeni and colleagues in a Tanzania study where 35% of those who delivered in a health facility, were delivered in the hospital while 65% delivered in dispensaries or in health centers (Mpembeni et al., 2007).

### 4.3.3 Factors Determining Utilization of Skilled Birth Attendants

A number of socio-demographic and economic factors were found significantly influence the use of skilled birth attendants. They included level of education, religion, partner’s/husband’s occupation, parity, area of residence, type of housing and ownership of the house.

Women with formal education have their own different perspectives on skilled care at birth and have the knowledge to make informed decisions. Women’s education or literacy levels are strongly associated with use of reproductive health and maternal health services (Lawn et. al, 2005, Agarwal et al., 2007). In Kitui, levels of education are increasing as a primary education is compulsory by
the Government. Poor, rural women are more likely to have lower education and are less likely to make use of available services. Poor women with low socio status in the family tend to delay decision making when complications arise (WHO/ UNICEF/UNFPA/World Bank, 2007).

The highest MMR was among illiterate women and MMR fell as education level rose (WHO, 2005). Illiterate women face a relative risk of maternal death 3.25 times higher than literate women. In the study area, women of secondary level of education were 2.7 times more likely to deliver with unskilled attendant compared to those who had acquired primary level of education. This could be attributed to the fact that having primary level of education enabled one to purchase the OBA voucher unlike those with secondary education. Thus they could afford to cater for the cost. Clients with OBA vouchers rarely used them. These cards are kept incase a complication occurred requiring hospitalization hence the card would cater for the cost.

Muslims were more likely to utilize skilled care at birth compared to the Catholics and Protestants. This could also be due to the fact that majority of them were immigrants and were more enlightened and informed and stayed in town. They were economically empowered compared to the locals.

Women who were single, widowed or separated were more likely to be delivered by skilled personnel compared to those with husbands in various forms of occupation. This could be attributed to the assumptions that they were more eligible for the OBA voucher compared to those with husbands.
Women with 2-4 children were more likely to utilize skilled care at birth compared to women who had only one child. This is in contrast to findings in a study done in Ethiopia where women with higher parity were more likely to utilize unskilled care at birth (Mekonnen et al., 2003). Studies in Tanzania showed women with only one child and single to be more likely to utilize skilled birth care (Mpembeni et al., 2007). The findings in the study area could be attributed to the fact that women with more than one child are familiar with the OBA voucher and had purchased it. The food portions offered with such a family size would boost their families. Young and upcoming mothers were perceived not to take birth seriously until they had experienced complications (reported in the FGD).

Women living in rural areas were 4.07 times more likely to utilize the unskilled birth attendants compared to those residing in peri-urban areas. That was similar to the findings in the 2008-2009 KDHS where women in urban areas were more likely to utilize SBAs compared to their rural counterparts (KNBS ICF Macro, 2010). The rural residents were indigenous hence high poverty level and low access to information contributed to the low utilization of SBAs. Low rates of deliveries by skilled attendants in rural and remote areas have been reported by previous researchers (Wachira et al., 2011, Mesfin et al., 2004, Filippi et al., 2006).

The type of housing was statistically significant in this study. Women living in permanent houses build of bricks and iron sheets were more likely to utilize skilled birth attendants compared to those living in temporary houses. Similar
findings were reported in the KDHS 2008/2009 where women living in permanent houses belonged to the higher social status and associated with wealth and better living standards (KNBS ICF Macro, 2010, Karki, 2009). These could be attributed to the fact that they are more economically stable since they live in a descent housing hence could afford the services and are more enlightened on health matters.

Focused antenatal care when thought of early allows for regular, individualized visits which encourage birth preparedness, early detection and management of complications as well as ensuring good pregnancy outcomes for both mother and the baby (MOH-DRH/DOMC/DLTLD/JHPIEGO, 2007, Van et al., 2006). Findings from this study show that majority of the women (90.9%) sought antenatal care at least once during their most recent pregnancy. These findings compare well with those of the Kenya demographic and Health survey 2008-2009 where 92% of the women sought ANC from a skilled service provider. Most women started ANC clinic quite early and the main reasons given for these early attendance were: not being sure of the pregnancy hence came to confirm, minor disorders of pregnancy, sickness, assurance that the baby was well, fear of c/s and most importantly for the respondents was the benefits involved (FGD). Pregnant women were given food and supplements by World Food Program (WFP) in conjunction with the OBA program and ministry of medical services. The food ration was provided monthly during pregnancy till the client delivered. Hence for the clients it was a better opportunity to getting a meal. The recommended number is four comprehensive visits which are spread through out the pregnancy
period. In this study, 67% of the respondents had attended more than four visits compared to only 44% in KDHS, 2008/2009. These results also agree with a study conducted in South Nyandarua district, where the median time for attending ANC was found to be 23.7 weeks (Wachira et al., 2011).

Women who attended public facilities for antenatal care were times more likely to be delivered by unskilled personnel compared to those who attended private facilities. Similar findings were reported in Kenya National and Demographic Health Survey 2008/2009 (KNBS ICF Macro, 2010). The women appreciated the assistance offered by the voucher since they were able to choose on whether not only to deliver in a hospital setting but also to attend a private facility which they considered to be out of their reach. Mrs. Syombua a FGD participant in the FGD commented,

“The private hospitals are now within our reach, I thought they are only for the rich and well off.”

With the OBA voucher, clients were able to make a choice between the Government and the private facilities. The private hospital offered incentives to mothers upon delivering in their premises (basin, umbrella, soap, napkins and baby bag). This has led to the private hospital reporting more deliveries compared to the district hospital (DDPHN). In the month of June 2011, Kitui District Hospital which is the County referral hospital reported 120 normal deliveries, 49 c/s cases and two breech deliveries while The Neema Hospital (a private hospital) reported 129 normal deliveries and 24 c/s cases. Clients who
attended private facilities during ANC were made aware of the incentives. The private hospital had organized a referral system where clients could be picked from their homes when in labour and refund claimed from the OBA program. Clients attending private facilities were thought to be enlightened and literate hence able to seek skilled care at birth.

Women who made the decision with their husbands to attend ANC were more likely to be delivered by skilled attendant. This was attributed to the fact that they got support from their husbands during delivery in terms of organizing early for means of transport to the skilled birth attendant. The role of husbands was to support and encourage women throughout pregnancy, encourage mothers to attended ANC, accompany their wives/partners to the health facility and during childbirth (MOH-DRH/DOMC/DLTLD/JHPIEGO, 2007).

Similar findings were reported in Change Project study in Homa Bay District where women who involved their loved ones were more likely to plan early for delivery hence utilize SBAs (Moore et al, 2002). Male involvement is currently a priority of ministry of medical services and public health and sanitation especially the Division of Reproductive Health (MOH, 2007). A similar study in Tanzania found that women who discussed with their husbands or partners while pregnant on where to deliver had a higher proportion of women delivering with SBAs compared to those who did not (Mpembeni et al., 2007)

Service providers should discuss components of individual birth plan with pregnant women. These components were poorly covered in this study especially
decision maker incase of an emergency and emergency transport. Lack of birth preparedness and the view that health facilities are for the complications added yet another barrier to the uptake of skilled care at birth. This is evidenced by the fact that 90% of the women had purchased the OBA voucher yet only 41.4 % were delivered by skilled birth attendants. Despite birth preparedness being advocated, most clients saving for a transport during delivery was not routinely done for several reasons. First, when a pregnancy is normal, complications are not anticipated and therefore not planned for. Clients ended up been delivered by unskilled attendant especially when labour started at night due to lack of transport despite having purchased the OBA voucher. Secondly the low level of income did not allow for any amount of money to be kept aside. Thirdly most clients thought with the OBA voucher all services are catered for.

Birth preparedness is not only a strategy just for the community but also for the care provider at the facility level. The SBAs interviewed noted that majority of the still births in the hospital occurred as the clients came when already in second stage of labour (Appendix 11).

“I experienced labour pains in the morning, but now I can’t feel the baby playing. “ Ms. Kyenze a nurse at the District hospital.

Most of the clients did not understand that pregnancy outcome depended on them: cooperation, seeking care early and promptly. Similar findings were reported in a study done in Tanzania (Mpembeni et al., 2007). Danger signs which are part of complication readiness which influenced utilization of SBAs
were poorly discussed during ANC clinic. This led clients to report sudden onset of labour to be the cause of unskilled care at birth as they never understood when to seek help. They ended up delivering on the way to hospital or when consulting a TBA.

In certain instances, a caesarean section may be needed to save the mother and/or her baby. Many women however may not believe a caesarean procedure to be useful. 4.9% of the women respondents delivered via c/s their most recent delivery. This compares well with the KDHS 2008/2009 findings where 6% women were delivered via c/s (KNBS ICF Macro, 2010). WHO recommends that caesarean section rates should be in the range of 5 to 15% of all deliveries to minimize maternal and neonatal mortality and morbidity (AMDD working group on indicators, 2004). A study by the London School of Hygiene and Tropical Medicine (UK) in collaboration with the Bangladesh Ministry of Health and Family Welfare, explored the experiences and views on caesarean sections of 30 women who recently gave birth in a health facility in a rural district of Bangladesh. Women’s distrust of doctors’ recommendations for caesarean sections was due to a belief that it was not always medically necessary (Buekens, 2001, Filippi et al., 2001). Kitui women appear to have good reason not to trust doctors’ advice to have a caesarean delivery. Their fear of caesarean delivery is not simply based on ignorance but may reflect real concerns about medical practice. There is a social stigma attached to caesarean deliveries.
4.3.4 Barriers towards Utilization of SBAs

Availability of TBAs, emergency nature of labour, poor and unreliable means of transport incase labour starts at night, staff attitude and the understanding that hospitals are for complications were among the reasons mentioned for deliveries with unskilled personnel. This was also reported in the FGDs and with key informants. There was massive training of TBAs by the AMREF in conjunction with then Ministry of Health hence typically every extended family had a TBA. TBAs are supposed to act as a link to the hospital but since their services are either cheap or free, women ended up utilizing them during delivery. From the findings of this study a high proportion of the mothers (11.2%) delivered unassisted. This estimate was lower than the 18% observed in a study in western province (Moore et al., 2002) but almost twice the national coverage which is at 7% (KNBS ICF Macro, 2010). TBAs in the study region reported to have been trained on importance of PMTCT and infection prevention, hence clients who did not know their HIV status or did not have basic supplies for birth like clean gloves and lesso were turned away (Mrs. Muteki a TBA). They ended up delivering alone, without assistance in their own houses.

As much as access to health facilities was insignificant, transport and referral mechanisms at night were reported by clients as the reasons for opting for unskilled birth attendants. The referral mechanisms in the district were poor. There was only one functional ambulance that served the larger Kitui North District. This made it impossible to coordinate more than two referrals during the night. Security had been of concern limiting access to 24 hour referral
mechanisms. Majority of women reported to walk to the health facility in labour since the only affordable and available means of transport was motor cycle which was not safe in labour. On average the dispensaries referred 10-15 cases to the main hospital in a week.

“Only 1/3 of the referral cases come in the hospital due to the challenge of transport.” Mr. Muinde the DDPHN.

Poor transportation led to the fact that pregnant women were more likely to give birth at home or at a traditional birth attendant’s home. As much as the OBA program refunded transport expenses to the hospitals, the limited number of functional ambulances made it impossible to serve all eligible pregnant women in need. Lack of trust in health workers and health professionals led women to delay medical care. Communities commonly consider childbirth a normal process that does not require medical professionals (Koblinsky et al., 2006). Ms. Mulaia FGD participant commended,

“There (hospital) where there is a doctor who operates on clients and the client never wakes up!”

This portrayed the fear/distrust the community had on the health facility. Respondents reported to have been left alone during labour and delivery hence preferred to deliver at home alone. Similar findings were reported in the Change Project in Homa Bay district (Moore et al., 2002). Staff shortage was a challenge towards ensuring availability of skilled birth attendants as most of the health facilities operated below the required health provider client ratio (United
Nations, 2007). The district hospital reported to have 87 nurses with required capacity of 138 nurses (Mrs. Mulinge a nurse at the district hospital). The district hospital reported high staff turnover due to various social problems hence nurses would seek transfer to other health facilities with no replacement (Mr. Muinde the DDPHN). The OBA program catered for cost of delivery and transport refund if provided. The increase in women delivering in the hospital was not reciprocated by increase in number of skilled birth attendants hence clients reported to deliver without assistance even in the hospital.

The infrastructure had not been upgraded to meet the requirements. As much as utilization of SBAs was key to reducing maternal mortality, more than half of the health facilities in the district were not fully equipped to ensure clean and safe deliveries. Provision of supplies and equipment from the government was quite erratic. Items like sterile gloves would be out of stock even for a month. With delivery charges in the dispensary been Kshs.10 and in the health centre kshs.20, the facilities were not able to sustain themselves. This had led to inconsistency in service provision and unreliable health facilities (Mr. Muinde the DDPHN). Similar findings were reported in a Nepal based study (Baral et al., 2010).
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter covers the summary of the entire study, implications of the study findings, conclusions made, recommendations made from the study and gaps requiring further research which were not addressed in this study.

5.2 Summary

The overall mean age of the respondents was 25.3±4.1 years ranging from 15 to 49 years age group. Majority of the women were married, with mean number of three children. Majority of the respondents (81.3%) had only acquired primary level of education. The median age at first birth was 18±2.3 years. 76.8% of the respondents were unemployed.

The findings of this study showed that the proportion of women who delivered in the health facility was 42.8% where as the proportion who had skilled assistance was 41.4%. In this study antenatal attendance was high at 90.9%.

Various social factors were found to influence utilization of SBAs. Women who had acquired tertiary level of education were more likely to utilize SBAs compared to those with primary level of education. Women who were single or widowed too were more likely to utilize skilled care at birth compared to the married women since they were more eligible for the OBA voucher system as they were considered to be poor. Women who had more than one delivery were
more likely to be delivered by a SBA compared to those who were delivering for the first time since they were aware of the OBA voucher and its benefits. Peri-urban residents and those women living in their own permanent houses delivered preferably under skilled attendant. Women who attended ANC and those who did so in a private facility in the second trimester of pregnancy were more likely to deliver under skilled care. Lack of birth preparedness and complication readiness including knowledge on danger signs in pregnancy, labour and delivery led to delivery by unskilled attendant.

Various barriers were associated with non utilization of SBAs n this study. Lack of coordinated transport and referrals, limited number of SBAs, infrastructure as well as the women rating towards health facility staff led women of reproductive age not to seek the services of skilled personnel at birth in the study area.

5.3 Implications of the Findings

Findings from this study provide important data on trends of utilization of skilled birth attendants among women of reproductive age which gives a picture of the scenario in a rural setting in the country. Given the interventions by the OBA program in the study area, this presents a window of opportunity for accelerating the utilization of skilled birth attendants together with the supporting partners. The program catered for the cost of most deliveries by skilled birth attendants in the study area. Though this is a five year project on its second year in the second phase there is need for more sustainable measures for ensuring delivery by skilled attendants.
In Kitui County and the entire country, ensuring SBAs for deliveries is currently only a possibility at the facility level. At the same time, planning to have all or most of the deliveries at the facility level, in the present situation is not practical, as there are no adequate numbers of health care providers with necessary equipments and supplies to deal with such a contingency. Hence for the study interventions to make impact there is need to address these barriers within the community and women in need.

5.4 Conclusion

1. Among the mothers interviewed, utilization of SBAs was still low with a high number of deliveries being conducted by unqualified persons despite the high ANC attendance.

2. Level of education, partners’ occupation, parity, residence, ANC attendance, facility of ANC attendance, gestation of first ANC visit, lack of birth preparedness and complication readiness and health facility staffs’ attitude were significantly associated with utilization of skilled birth attendants.

3. Barriers related to delivery by unskilled attendants included; Massive training of TBAs, Poor and unreliable transport especially at night, limited number of SBAs, Poor referral systems, limited infrastructure. These interventions can reduce maternal mortality and child mortality and morbidity to make achievement of the MDGs a reality.

5. This study had two hypotheses. The first one was that socio-cultural factors do not influence utilization of skilled birth attendants among women of
reproductive age. The findings of this study were that some social factors: level of education, parity, residence, type of housing and house ownership do influence utilization of skilled birth attendants among women of reproductive age while no cultural factors: birth eye and child reborn should not be seen first by an outsider influenced utilization. This led to rejection of the null hypothesis and adoption of the alternative hypothesis which states ‘Social cultural factors influence utilization of SBAs among women of reproductive age.

6. The second hypothesis was that the level of knowledge on pregnancy outcomes does not determine utilization of skilled birth attendants among women of reproductive age. The findings of this study were that level of knowledge on pregnancy outcomes (level of education, including knowledge of danger signs in pregnancy, labour and delivery including after delivery) were associated with utilization of SBAs. This leads to rejection of the null hypothesis and adoption of the alternative hypothesis thus it states ‘the level of knowledge on pregnancy outcomes determines utilization of SBAs among women of reproductive age.

5.5 Recommendations

1. To The Ministry of Health, Ministry of Education, Ministry of Culture, Gender and Social services, equip women with knowledge, higher social and economic status to be able to make informed decision concerning their own health and pregnancy outcomes in order for them to access timely skilled care at delivery with adequate preparation.
2. To the women of reproductive age, have a birth preparedness and complication readiness plan for each and every birth. The SBAs too should have an IBP which is clearly written and reviewed during each ANC visit with the clients.

3. To the Ministry of Health, Ensure SBAs (nurses) are available in rural areas and mechanisms to retain them be put in place to avoid the high turn over.

**5.6 Further Research**

1. This study did not involve male participants as husbands and partners. There is need for research involving the male counterpart.

2. There is need for a longitudinal study to study the changes and the interventions over the five year period of the OBA program.

3. There a big discrepancy between the ANC attendance and deliveries by skilled attendants (90.9% versus 41.4%). There is need to address this grey area and to research the possible causes of the difference as well as how the gap can be addressed.
REFERENCES


APPENDICES

Appendix 1: Consent Form

My name is Caroline Mumbe Kanini and I am a master’s of public reproductive health student in Kenyatta University. I am carrying out a study to find out the factors determining utilization of skilled birth attendants in Central district of Kitui County. I would like to inform you about this study.

**Purpose of the Study:** This study aims at understanding the factors that determine utilization of skilled birth attendants in this community. The researcher wishes to learn how those factors influence the pregnancy outcome and satisfaction with the birthing process.

**Benefits:** This study is purely for academics. It has no direct benefit to you as a participant.

**Confidentiality:** The answers to the questions in this study will be kept confidential. No names will be used in the final write up. The questionnaires will be coded and original destroyed after one year. Neighbours may know that you have participated in the study but they will not know the answers that you gave to our questions

Are you willing to participate? 1. Yes……….. 2. No …………..

Signature of the participant /guardian/ husband (if 15 to 18 years) -------------------

Witness …………….. Signature…………….. Date ………………..
Appendix 2: Questionnaire for Women of Reproductive Age Respondents

Socio - Demographic Data

1. How old are you? ..................when were you born? ............

2. What is your highest level of education? ..................

3. What is your marital status? ......................

4. Which religion do you belong to? ..................

5. What is your occupation? ......................

6. What is your husband/partner’s occupation? ..................

7. Where do you reside? ......................

8. What type of house do you reside in? ..................

9. Who owns the house? .................................

10. The house has how many occupants? ..................

11. How many deliveries do you have? ..................

12. At what age did you have your first born? ........... which year did you have your first born? ........

13. What is your total monthly income? ..........................
Antenatal Care

14. Did you attend ANC during your last pregnancy?  

If yes, where did you go? 

15. Who decided on where you will attend ANC?  

16. At what gestation did you start attending ANC? 

Knowledge on Pregnancy and its Outcome

17. Did you discuss danger signs during pregnancy, labour and delivery with the service provider during ANC? 

Which ones? (Tick as appropriate)

Danger Signs in Pregnancy

a) Vaginal bleeding 

b) Severe headache 

c) Swelling of face and hands 

d) Convulsions or fits 

e) High fever 

f) Labored breathing 

g) Premature labour pains 

h) Reduced or no foetal movements at all
**Danger Signs in Labour and Delivery**

i) Severe headache  (  )

j) Severe abdominal pain  (  )

k) Convulsions or fits  (  )

l) High fever  (  )

m) Foul vaginal discharge  (  )

n) Labour pains > 12 hours  (  )

o) Ruptured membranes > 12 hours  (  )

p) Excessive bleeding during delivery  (  )

q) Cord, arm or leg prolapsed  (  )

**Danger signs after delivery**

r) Placenta not delivered within 30 minutes  (  )

s) Excessive bleeding after delivery  (  )

t) Severe abdominal pains  (  )

u) Convulsions or fits  (  )

v) High fever  (  )

w) Foul vaginal discharge  (  )
x) Mood swings  

Did you know what to do if they occurred? ...........

Explain........................................................................................................................................
..........................................................................................................................................................

18. Were you informed of your EDD during ANC? ...........................

19. Did you discuss IBP with your service provider during ANC? ...........

What did you discuss?  (Tick as appropriate)

   a) Identified a decision maker in case of an emergency  (  )

   b) Identified place of delivery  (  )

   c) How to get money in case of emergency  (  )

   d) A transport plan in case of emergency  (  )

   e) A birth partner/companion for the birth  (  )

   f) Collection of the basic supplies for the birth(mother-baby package for newborn and clean delivery)  (  )

20. Were you counseled and offered the following services during ANC?

   a) Healthy nutrition  (  )

   b) PMTCT  (  )

   c) TT  (  )
d) Iron/folate supplementation to prevent anaemia ( )

e) IPT and LLITN to prevent malaria/anaemia ( )

f) Deworming ( )

g) Family planning ( )

h) Newborn care ( )

i) Rest and hygiene ( )

j) ANC profile ( )

21. Did you develop any complications during ANC? ……

Which ones? (Mention them) …………………………………………………………………………

22. In your community, are there systems put in place to assist a pregnant woman incase of an emergency? ……

Mention them…… …………………………………………………………………………………

23. In your opinion, is there any importance in hospital delivery? ……………

Name them ………………………………………………………………………………………

…………………………………………………………………………………………

Delivery

24. Where did you deliver your baby? …………………………………………

Why? ………………………………………………………………………………………
25. What was the mode of delivery? .................................................................

26. Who assisted you during delivery? .........................................................

27. Who decided where to deliver your baby? ..............................................

28. How much did you pay for delivery? ......................................................

Were you able to pay? ..............

29. Who catered for your delivery expenses? ..............................................

30. Did your husband accompany you during delivery? .........................

31. In your future deliveries, where would you deliver? ...........................

Why? ...........................................................................................................

Obstetric Emergencies

32. Which obstetric emergencies do you know? ........................................

33. Did you experience any obstetric emergencies? .................................

If yes, which ones? .....................................................................................

Health Facility Factors

34. What is the distance from your home to the health facility in kms?

 ...............  

35. How would you rate the health facility staff? .................................
36. What is your perception of health caring behaviour during delivery?
...........................................................................................................................
...........................................................................................................................

37. How would you describe your birthing experience with health facility staff?
...........................................................................................................................
...........................................................................................................................

38. Has the OBA project been of any help/assistance in ensuring utilization of SBAs? .......
Explain......................................................................................................................
...........................................................................................................................

39. Are there any cultural factors that determine your utilization of SBAs?
Explain......................................................................................................................
...........................................................................................................................
Appendix 3: Interview Guide for the Key Informants

DDPHN

1. What is your antenatal care coverage?

2. What is the total number of deliveries for the last one year in your catchment population?

3. How many have been delivered in the health facility?

4. What is the level of utilization of SBAs in your catchment area?

5. Has the OBA project been of importance in enhancing utilization of SBAs? Explain

6. Are there any other interventions in your catchment area aimed at increasing utilization of SBAs?

7. How do the health facilities get their equipments and supplies (from where and how often)?

8. Have they been successful? Explain

9. What challenges do you face in enhancing utilization of skilled birth attendants in your catchment population?

10. Are there any cultural barriers related to SBA utilization?
The Area Chief

1. How many home deliveries have been reported in your office in the last one year?

2. Are you conversant with the government policy concerning SBAs?

3. In your catchment area, are there systems you have put in place to assist a pregnant woman in case of an emergency?

4. What is your role in ensuring utilization of SBAs in your catchment area?

5. In your opinion, has the OBA project been of any assistance in enhancing utilization of SBAs? Explain

6. Are there any other interventions in your catchment area aimed at increasing utilization of SBAs?

7. What challenges do you face in enhancing utilization of skilled birth attendants in your catchment population?

8. Are there any cultural barriers related to SBA utilization?

Skilled Birth Attendants

1. What is your antenatal care coverage?

2. What is the total number of deliveries for the last one year in your catchment population?

3. How many have been delivered in the health facility?
4. What is the level of utilization of SBAs in your catchment area?

5. Has the OBA project been successful in enhancing utilization of SBAs? Explain

6. Are there any other interventions in your catchment area aimed at increasing utilization of SBAs?

7. Have they been successful? Explain

8. What challenges do you face in enhancing utilization of skilled birth attendants in your catchment population?

9. Are there any cultural barriers related to SBA utilization?

**Community Health Workers (CHWs)**

1. What is your role in promoting utilization of SBAs?

2. In your opinion, what is the level of utilization of SBAs in your catchment area?

3. In your opinion, has the OBA project been of any assistance in enhancing utilization of SBAs? Explain

4. What challenges do you face in promoting utilization of SBAs in your catchment area?

5. Are there any cultural barriers related to SBA utilization?
Traditional Birth Attendants (TBAs)

1. On average, how many deliveries have you conducted in the last one year?

2. Are you conversant with the government policy concerning SBAs?

3. What role do you play towards utilization of SBAs?

4. Do you receive any training/support in offering your services?

5. Do your clients attend ANC?

6. What kind of services do you offer to your clients during pregnancy, delivery and after delivery?

7. Are there any cultural factors that influence place of delivery?

8. How do your clients pay for the services?

9. What is your view towards utilization of SBAs?

10. How is your partnership with the nearest health facility?

Focused Group Discussion (FGD) Guide

1. What is your perception of health caring behaviour during delivery?

2. What systems are in place to assist pregnant woman incase of an emergency in your community?

3. What is your view on delivery by skilled birth attendants?

4. What determines where you will deliver your baby?
Appendix 4: Permission from Kenyatta University Graduate School

KENYATTA UNIVERSITY
OFFICE OF THE DEAN, GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Our Ref: P57/12359/09
Date: 1st August, 2011

The Permanent Secretary,
Ministry of Higher Education,
Science & Technology
P.O. Box 30040,
NAIROBI.

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION

I write to introduce Ms. Caroline Mumbe Kanini who is a Postgraduate Student of this University. She is registered for a M.P.H. degree programme in the Department of Public Health.

Ms. Kanini intends to conduct research for a thesis project entitled, "Factors Determining Utilization of Skilled Birth Attendants in Central Division, Kitui North district."

Any assistance given to her will be highly appreciated.

Yours faithfully,

JOHN M. ODONGI
FOR: DEAN, GRADUATE SCHOOL

JMO/Mk

Committed to Creativity, Excellence & Self-Reliance
Appendix 5: Permit from Ministry of Higher Education, Science and Technology

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telegram: "SCIENCECH", Nairobi
Telephone: 254-020-261784, 2213102
254-020-30537, 2213123
Fax: 254-020-30536, 318244, 318249
When replying quote: "SCIENCECH"

Our Ref: SC/MED/111/123

Caroline Mumbi Kanini
Kenyatta University
P.O BOX 43844
Nairobi

Dear Madam,

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on;
"Factors determining utilization of skilled birth attendants in Central Division, Kitui North District," I am pleased to inform you that you have been authorized to undertake research in Kitui North District Kenya for a period ending 30th December 2011. You are advised to report to the District Commissioner, The District Director Education Officer and The District Medical Officers Of Health, Kitui North District before embarking on the research project.

On completion of your research project you are advised to submit one hard copy and one soft copy of your thesis/project to this office.

P.N NYAKUNDI
FOR: SECRETARY/CEO

Copy to:
The District Commissioners
Kitui North District

The District Education Officers
Kitui North District

The district officers of health
Kitui North district
Appendix 6: Permit from the Provincial Administration and Internal Security

OFFICE OF THE PRESIDENT
PROVINCIAL ADMINISTRATION & INTERNAL SECURITY

Telegrams “DC” Kitui
Telephone 22004/22010
Fax 04444 23260
Email dckitui@yahoo.com

Ref No: K.1526/IV/264

TO WHOM IT MAY CONCERN

RESEARCH AUTHORIZATION

CAROLINE MUMBE KANINI has been granted permission to undertake research on: “Factors determining utilization of skilled birth attendants in Central Division, Kitui Central District.”

Kindly accord her the necessary support.

DISTRICT COMMISSIONER
KITUI CENTRAL

NGALAMIBACHIRE
For DISTRICT COMMISSIONER,
KITUI CENTRAL

16th September 2011
Appendix 7: Permit from Ministry of Education

MINISTRY OF EDUCATION

Telephone: Kitui (044) 22759
Fax: 044-22103
Telegrams"EDUCATION", Kitui
When replying please quote

REF: KTI/G/192/VOL1/140

DISTRICT EDUCATION OFFICE
P.O BOX 35
KITUI

REPUBLIC OF KENYA

Date: 16/9/2011

TO WHOM IT MAY CONCERN,

RE: RESEARCH AUTHORIZATION,
CAROLINE MUMBE KANINI OF KENYATTA UNIVERSITY,
BOX 4344, NAIROBI.

I wish to acknowledge receipt of your letter Ref:NCT/RRI/12/1/MEDOII/123 dated 30th August 2011 on the above cited topic with thanks.

This office authorizes you to undertake/carry out research in all the Institutions within Kitui Central District. All the Heads of Institutions have been asked to accord you the necessary assistance you require.

I take this early opportunity to wish you well in your research.

Thank you.

[Signature]

PETER V. MAUNDU
FOR: DISTRICT EDUCATION OFFICER
KITUI CENTRAL DISTRICT.
Appendix 8: Permit from Ministry of Health

REPUBLIC OF KENYA

OFFICE OF THE
DISTRICT DIRECTOR OF PUBLIC
HEALTH AND SANITATION
KITUI NORTH DISTRICT,
P.O. BOX 22,
KITUI.

MINISTRY OF PUBLIC HEALTH & SANITATION

Ref: KTI/DMOH.62/32 Date: 15/09/2011

TO WHOM IT MAY CONCERN

CAROLINE MUMBE KANINI

The above named who is a student at Kenyatta University is hereby authorized to carry out a research in our district on "Factors determining utilization of skilled birth attendants" in Central Division – Kitui district.

Please accord her the necessary assistance.

Johnson N. Muinde
For: District Director of Public Health & Sanitation
Kitui Central
### Appendix 9: Kitui District Health Indicators 2010

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant mortality rate</td>
<td>68.6 / 1,000</td>
</tr>
<tr>
<td>Under five mortality rate</td>
<td>84 / 1,000</td>
</tr>
<tr>
<td>Child Mortality rate</td>
<td>29 / 1,000</td>
</tr>
<tr>
<td>Maternal mortality rate</td>
<td>468 / 100,000</td>
</tr>
<tr>
<td>Total fertility rate</td>
<td>6.2</td>
</tr>
<tr>
<td>Antenatal care coverage</td>
<td>52%</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>Males: 53.0 Females: 61.1</td>
</tr>
<tr>
<td>Proportion of deliveries conducted by SBAs</td>
<td>22%</td>
</tr>
<tr>
<td>HIV prevalence Rate</td>
<td>5.2</td>
</tr>
</tbody>
</table>

*Source: Kitui District Health Records*
Appendix 10: Kitui District Hospital Statistics 2010

*Source: Kitui District Hospital Health Records*
Appendix 11: Kitui North District Map in Kitui County

Source: Kitui District Hospital Health Records