FACTORS INFLUENCING UPTAKE OF ANTENATAL CARE IN TAITA TAVETA COUNTY, KENYA

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DECLARATION

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This research thesis is my original work and has not been presented for a degree in any university or any other award.

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DEDICATION

This thesis is dedicated to my family members for their continued support and encouragement during the entire period.

God Bless them all.

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ABBREVIATIONS

ANC	Antenatal Care
CGTT	County Government of Taita Taveta
CHVs	Community Health Volunteers
COBERS	Community Based Education Research and Service
GoK	Government of Kenya
HIV & AIDS	Human Immunodeficiency Virus & Acquired Immunodeficiency Syndrome
KNBS	Kenya National Bureau of Standards
LLITNs	Long Lasting Insecticide Treated Nets
MHCPs	Maternal Health Care Providers
MCH	Maternal Child Health
MOH	Ministry of Health
SDGs	Sustainable Development Goals
SHP	Skilled Health Provider
SPSS	Statistical Program for the Social Sciences
TT	Tetanus Toxoid
UN	United Nations
UNICEF	United Nations Children's Fund (Originally known as United Nations International Children's Emergency Fund
UNFPA	United Nations Population Fund (Originally known as United Nations Fund for Population Activities
WHO	World Health Organization

ABSTRACT

49% of pregnant women are able to make four or more ANC visits in Sub Saharan part of Africa. General objective of the study was to find out factors influencing uptake of ANC in public health facilities in Taita Taveta County. The specific objectives were; to assess influence of early initiation of ANC on uptake of ANC in, determine influence of skilled health providers' attitude on uptake of ANC, establish influence of availability of community health volunteers on uptake of ANC and determine effects of skilled health providers' availability on uptake of ANC. A total of three hundred and eighty four mothers and eighteen health facility in-charges participated in the study. The study adopted survey research design and data collected using structured questionnaires for the sampled mothers and key informant interview for the in-charges. The researcher analysed data using Statistical Package for the Social Sciences (SPSS) version 23. Descriptive analysis (percentages and frequencies) and inferential analysis (Chi-square and Spearman's correlation tests, and regression analysis at significance level of alpha=0.05) were performed. Results indicated 43.6% of the mothers managed 2 ANC visits, 41.7% 3 visits and14.7% just 1 ANC visit. The findings also indicated that timing of ANC initiation had significant association (X^2 (6) = 102.854, $p < 0.001$) and weak negative relationship (Spearman's R = -0.201, $p < 0.001$) with uptake of ANC. An R^2 of 0.071 (7%) showed early ANC initiation had low degree of influence on ANC uptake. Reception during ANC visits had significant association (X^2 (8) = 564.235, $p < 0.001$) and strong positive relationship (Spearman's R = 0.905, $p < 0.001$) with ANC uptake; and adequacy of privacy had significant association (X^2 (8) = 459.447, $p < 0.001$) and moderate positive relationship (Spearman's R = 0.763, $p < 0.001$) with ANC uptake. An R^2 of 0.819 (81.9%) showed skilled health providers' attitude had high degree of influence on ANC uptake. Moreover, number of CHVs visits had significant association (X^2 (8) = 317.099, $p < 0.001$) and high positive relationship (Spearman's R = 0.870, $p < 0.001$) with ANC uptake; and CHVs perceived importance had significant association (X^2 (8) = 321.872, $p < 0.001$) and strong positive relationship (Spearman's R = 0.863, $p < 0.001$) with ANC uptake. An R^2 of 0.784 (78.4%) showed that availability of CHVs had high degree of influence on ANC uptake. Lastly, the results indicated that waiting time had significant association (X^2 (6) = 354.829, $p < 0.001$) and moderate negative relationship (Spearman's R = -0.745, $p < 0.001$) with ANC uptake; presence of skilled health providers had significant association (X^2 (4) = 668.9, $p < 0.001$) and strong positive relationship (Spearman's R = 0.947, $p < 0.001$) with ANC uptake; and adequacy of sessions had significant association (X^2 (8) = 321.872, $p < 0.001$) and strong positive relationship (Spearman's R = 0.899, $p < 0.001$) with ANC uptake. An R^2 of 0.920 (92%) showed that availability of skilled health providers had high degree of influence on ANC uptake. The researcher concludes that; pregnant women in the county are knowledgeable about ANC, however initiation is poor; Staff attitude contributes significantly towards improved ANC uptake; Pregnant mothers who have been visited by CHVs initiate ANC in time; Availability of healthcare providers in the right number and mix contribute to improved ANC uptake. The researcher, therefore recommends that County should recruit additional healthcare providers to render better quality ANC services.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Service delivery is the immediate output after resources are put into the health system, that include human resource for health, procurement systems and medical commodities, and financing. More resources pumped into the health system are expected to improve the healthcare service delivery, subsequently enhanced uptake of the healthcare services. Healthcare services that meet the minimum quality and secured uptake to the population is what describes a well functional health system. To realise the Sustainable Development Goal #3 that include interventions to reduce the maternal child mortality, strengthening healthcare service delivery is important (Stenberg et al., 2017).

Antenatal care essentially, is a health service focussing on prevention, and whose aim is to provide targeted routine tests and gives an opportunity for the skilled health provider to render preventive as well as treatment to the pregnant mother for any pregnancy related complications (Makii, 2015). It is a key avenue for the health workers to render health care, mental support and key health information to pregnant women. It focuses on healthy promotion on proper living styles, proper nutrition, identification and avoidance of diseases, rendering of family planning services and mental care to the pregnant women who experience forms of gender based violence (World Health Organization [WHO], 2014).

It is advisable that pregnant woman should receive antenatal care services from a skilled health provider four or more times during her pregnancy in order to benefit personally and her unborn-baby the health benefits of antenatal care (WHO, 2014).

It is estimated that over 300,000 women of child bearing age die every year globally as a result of pregnancy related complications, and over 2 million babies dying within 28 days following delivery, 2.6 million babies being still births. Provision of quality healthcare is considered one of the high impact intervention to address this burden. This notwithstanding, globally 64% of the pregnant women receive antenatal care 4 or more times throughout their pregnancy (Save the Children, 2017).

In South Asia and Sub-Saharan Africa , even fewer pregnant women are able to make antenatal visit to skilled health provider for at least four times, 42% and 49%, respectively (WHO, 2014).

Kenyans have the constitutional right to the best standard of health care services that include sexual reproductive health services (GoK, 2010), however the number of mothers dying due to complications of pregnancies is still unacceptably high at 488 in every 100,000 deliveries (WHO, UNICEF, UNFPA, World Bank & UN, 2014). This notwithstanding, only 57.6 % of pregnant women in the country manage to make antenatal care visits 4 times or more from a health worker (Ministry Of Health [MOH], 2013). More efforts therefore need to be put in place to understand the reasons as to why majority of women do not make adequate antenatal visits even though necessary strategies which include the implementation of the free maternity services policy towards scaling up these services are in place.

Taita Taveta County has been ranked amongst the top 10 counties in Kenya leading in poor maternal mortality ratio of 603 in every 100,000 deliveries (UNFP Kenya, 2014).

In regards to antenatal care uptake, only 58.9 % of the pregnant women managed to make antenatal care visits to a skilled health provider at least 4 times (Kenya National Bureau of Statistics [KNBS], 2015). In turn, pregnant mothers who managed to make 4 antenatal care visits from a skilled health provider in the county were 58.5% respectively (KNBS, 2015).

These low rates of uptake of antenatal care in the county was highly likely to put the mothers at risk of pregnancy related complications and possible maternal and child deaths.

1.2 Statement of the Problem

World Health Organisation advise pregnant women to make four or more antenatal care visits during the entire pregnancy starting within the first 4 months of the pregnancy (WHO, 2014). This gives an opportunity for detection of pregnancy complications in time for appropriate interventions. According to the Sustainable Development Goal number #3, countries should put efforts to lower maternal neonatal mortality ratio to as low as 70 in every 100,000, and 12 in every 1,000 deliveries respectively by 2030 (UN General Assembly, 2015).

In TaitaTaveta County, the uptake of antenatal care is low. It is only 58.9% of all the pregnant women manage to make the recommended minimum 4 visits to a skilled health provider. The county has also been rated among the top 10 counties in Kenya with the worst maternal deaths of 603 in every 100,000 deliveries (KNBS, 2015; UNFP Kenya, 2014). Maternal deaths of 300 in every 100,000 deliveries is considered high. These low rates of uptake of antenatal care in the county is highly likely to put the pregnant mothers at risk of pregnancy related complications and possible deaths

mothers and neonates (WHO, 2014). The study findings will therefore inform the stakeholders to initiate appropriate measures to improve ANC services in the county.

Most of the studies reviewed (Pell et al., 2013; Wakaba et al., 2013; Gupta et al., 2014; Roberts et al., 2015; Okuga, Kemigisa, Namutamba, Namazzi & Waiswa, 2015) have concentrated on geographic and socio-cultural factors as influencing factors to uptake of antenatal care. Other factors that could still influence uptake of ANC services were not well covered. This is why the researcher identified staff attitude, availability of CHVs and availability of skilled health providers as possible gaps in those studies which were worthy researching on.

1.3 Objectives of the Study

1.3.1 Broad Objective

The broad objective of this study was to establish factors that influence uptake of antenatal care in public health facilities in Taita Taveta County, Kenya.

1.3.2 Specific Objectives

I. To assess the influence of early initiation of ANC on uptake of antenatal care services in public health facilities in Taita Taveta County, Kenya.

II. To determine the influence of skilled health providers' attitude on uptake of antenatal care services in public health facilities in Taita Taveta County, Kenya.

III. To establish the influence of availability of community health volunteers on uptake of antenatal care services in public health facilities in Taita Taveta County, Kenya.

IV. To determine the effects of availability of skilled health providers on uptake of antenatal care services in public health facilities in Taita Taveta County, Kenya.

1.4 Research Questions

I. Does early initiation of ANC influence uptake of antenatal care services in public health facilities in Taita Taveta County, Kenya?

II. What is the influence of skilled health providers' attitude on uptake of antenatal care services in public health facilities in Taita Taveta County, Kenya?

III. What is the influence of availability of community health volunteers on uptake of antenatal care services in public health facilities in Taita Taveta County, Kenya?

IV. What are the effects of availability of skilled health providers on uptake of antenatal care services in public health facilities in Taita Taveta County, Kenya?

1.5 Research Hypotheses

I. **H_0:** Early initiation of antenatal care does not have significant influence on uptake of ANC services in public health facilities in Taita Taveta County, Kenya.

II. **H_0:** Staff attitude does not have significant influence on uptake of ANC services in public health facilities in Taita Taveta County, Kenya.

III. **H_0:** Availability of community health volunteers does not have significant influence on uptake of ANC services in public health facilities in Taita Taveta County, Kenya.

IV. **H_0:** Skilled health providers' availability does not have significant effects on uptake of ANC services in public health facilities in Taita Taveta County, Kenya.

1.6 Justification of the Study

Based on the low rates of antenatal care uptake in Taita Taveta County, the importance of understanding and addressing the reasons why pregnant women do not consume antenatal care adequately was necessary because it would have a big impact in consumption of antenatal care services and reduction of maternal neonatal mortalities.

1.7 Limitations and Delimitations

1.7.1 Limitations

Some community members were unwilling to share and disclose sensitive information regarding their reproductive health issues due to their socio-cultural beliefs. To address this limitation, the researcher reassured the respondents that information shared would be treated confidential and only be consumed solely for the purposes of the study, and their identity would not be disclosed to any third party.

1.7.2 Delimitations

The study was conducted between February and April 2018, and adopted a survey research design focusing at obtaining views from 384 mothers who had given birth coming for healthcare services. These mothers had gone through the antenatal care period and more likely to have received full range of antenatal care package. The study was conducted in Taita Taveta County and focused on public ANC facilities (appendix 10) since they offered a bigger percentage of these services, thus views of the non-public antenatal care users were not represented. It also focused only on four variables including early initiation of ANC, skilled health providers' attitude, availability of CHVs, and availability of skilled health workers, yet there are other variables that may influence uptake of ANC services, such as socio-cultural beliefs.

1.8 Significance of the Study

The study will contribute to the improvement of health status of the mothers and children in Taita Taveta County through demand creation for ANC services, and that the county management team in partnership with key stakeholders will use the findings to invest more resources on ANC services so as to realize the Sustainable Development Goal #3. The study findings will also inform the policy makers to review the current policies so as address the burden of high maternal and neonatal mortalities. The study will also serve as a body of knowledge in ANC service delivery and can be used for future researches.

1.9 Assumptions of the Study

The researcher assumed that the mothers would be honest while giving their responses, and the ANC services are being offered in all the public health facilities.

1.10 Operational Definition of Terms

Amenorrhea:	Absence or cessation of menstruation
Antenatal care:	Preventive healthcare aimed at providing regular check-ups and prevention of potential health problems during pregnancy
Community unit:	Set of 20 to 50 households under the care of a trained community health worker
Gestation:	Period of development inside the womb between conception and birth
Haematinics:	Medicine that increases the haemoglobin content of the blood; used to treat iron-deficiency anaemia
Maternal Mortality Ratio:	Maternal deaths due to pregnancy related complications
Neonatal Mortality Rate:	Total deaths of neonates occurring in every 1,000 live births.
Public Health Facility:	Health facility owned and managed by the government.
Skilled Health Provider:	Health care provider (nurse/doctor) trained on provision of antenatal care

Trimester:	Three months' time frame in the course of the pregnancy
Waiting Homes:	Also known as maternal shelters, are rooms within the health facility set aside for pregnant women from hard to reach villages to stay as they wait for delivery.
Uptake of ANC services:	Making at least 4 ANC visits to skilled health providers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter gives an in-depth review of theoretical and empirical literature related to factors that influence uptake of antenatal care services. The chapter reviews literature on early ANC initiation, health care providers' attitude, community health volunteers and availability of skilled health workers as influencing factors to consumption of ANC health services.

2.2 Overview of Antenatal Care

Focussed antenatal care essentially refers to preventive healthcare, whose aim is to provide routine medical check-ups, enabling a skilled health provider render both preventive and curative health services to the pregnant mother during the pregnancy and post-natally, at the same time supporting the mother have healthy behaviour change for her own benefits, her unborn child and the entire family (Makii, 2015). To improve the quality of maternal and child health and subsequent prevention of maternal deaths, quality and ANC consumption is critical.

The primary aim of the antenatal care is basically to prevent, identify and subsequently treat complications in pregnancy in time to avoid mortalities for the mother the unborn baby (WHO, 2014). In view of this, the WHO introduced focussed antenatal care that recommends a minimum number of four antenatal care visits, beginning within the first four months of the pregnancy as indicated below:

ANC 1st visit: Within 16 weeks of pregnancy

ANC 2nd visit: Between 16 to 28 weeks of pregnancy

ANC 3rd visit: Between 28 to 32 weeks of pregnancy

ANC 4th visit: Between 32 to 40 weeks of pregnancy

These are only WHO recommended bare minimum number of antenatal visits, however the skilled health provider may recommend for more visits based on the needs of the pregnant mother and the unborn baby

Focused antenatal care is an important forum that allows the health provider to render key health information, social support and counselling services to both the pregnant women and girls pertaining to life-style risks. It links them with the formal health systems, consequently to increased possibility of delivering under the care of a skilled birth attendant and follow-up care after the baby is born (Amnesty International, 2014).

2.3 Influence of Early Initiation of Antenatal Care on Uptake of ANC Services

Receiving care during pregnancy from a skilled healthcare worker is critical in tracking the progress of pregnancy as well as lowering pregnancy related risks for the mother and the child in the course of the pregnancy and delivery. This assists realise the Sustainable Development Goal #3 which involves delivery of strategies that reduce child and maternal mortality burden (Benova, 2018).

Early initiation and optimal ANC frequency is key to ensure safe motherhood and child survival, this is because early ANC initiation gives an opportunity for screening pregnancy associated complications for timely appropriate interventions such as referral and treatment. It also ensures that the health provider makes routine follow-ups of the developmental progress for the baby as well as the health of the mother. It also creates a good relationship between the mother and the health provider which is an important pre-condition component for safe delivery and child survival (Hajizadeh,

Ramezani, Simbar & Farzadfar, 2016).

Antenatal sessions also provides a forum for the mother and the family at large to receive health education in critical subjects such as danger signs in pregnancy, balanced diet, prevention and treatment of diseases, breastfeeding options and contraceptive methods available. To benefit from these, the pregnant mother has to initiate the antenatal care services early enough and make at least four ANC visits (WHO, 2014).

A study carried out by Turyasiima et al. (2014) in five sampled community based education research and service (COBERS) locations in northern part of Uganda to investigate factors that determine initiation of ANC and the month of pregnancy at which pregnant women (n=417) enrol for ANC showed that only 11.5% had their first ANC visit as per the recommendation of WHO period of within four months, 82% had their first ANC visit in the second trimester especially at 20 weeks of pregnancy, while 13.7% initiated their ANC visits after the seventh month of pregnancy.

Other findings from the study were that most mothers (75.8%) knew that the right time for starting ANC visits is within 3 months. Almost all mothers (94.5%) believed that starting ANC visits early in pregnancy benefits the pregnant mother and that starting ANC late can lead to problems to both the mother and her baby. It further showed that convenient opening hours of the health facility contributed to majority (79.9 %) of the mothers attend early ANC visits (Turyasiima et al., 2014)

A study carried out by Bbaale (2011) on factors that influence initiation and the frequency of ANC among pregnant women (n=8531) in Uganda, showed that on approximately 17 % and 47% initiate their ANC visit within 4 months and attain at

least four ANC visits respectively. It revealed that timing and frequency of ANC visits were significantly associated with education of the mother and her family, wealth status, disparities in terms of regions, spiritual beliefs differences, media access, autonomy of the mother while making health decisions, mother's occupation and that of her partner, planning of pregnancy, previous history of their births and order. The study suggested that there is need to put more efforts to enable girls have adequate education, provide out- reach health services with competent health workers so as to attract the hard-to-reach women, and ensure accessibility of ANC services disregarding financial ability to take care of the cost. It further suggested that media availability be improved amongst the community to disseminate relevant information that would benefit the pregnant women during the antenatal period.

In another study carried out by Katenga-Kaunda (2010) on consumption of ANC services and maternal child health services in northern region of Malawi showed that; all pregnant women (n=393) received at least one antenatal care services, however only 34% attended the four ANC visits. 14% started attendance within the first 4 months of pregnancy, while 70% started between fifth and eighth month of their pregnancy. All the respondents reported that they were aware of the national policies guiding the utilisation of skilled care for maternal child health services. They further indicated that ANC services are important for the pregnant women to know their health status as well as that of their babies. Some of them indicated that women have really improved in use of skilled attendance during ANC period and the ones who cover longer distance to the clinics used the waiting homes to ensure they access the skilled care during deliveries.

In another study carried out Pell et al. (2013) in three sites in Africa which included

western Kenya, southern Malawi and central Ghana to identify factors affecting antenatal care attendance established that; in all these sites, women attended for ANC services at least once. Women's ANC initiation was motivated by pregnancy- related complications especially during the first four months, health messages on initiation of ANC, and the cost involved, such as charges on some of the ANC procedures against the national policies of free ANC care services

The Kenyan pregnant women in that study reported incidences of verbal abuse and discrimination from the health providers if they had not planned their families well. Women who had young babies avoided these health facilities consequently delayed initiation of ANC services. The study suggested that healthcare providers' attitude have significant influence on uptake of ANC services; ANC design especially how the ANC deals with the ANC needs and concerns of the pregnant women during the first trimester has implications for timing of initiation (Pell et al., 2013).

A study carried out in Tanzania to find out the factors which are associated with ability of pregnant mothers to make four or more recommended ANC visits and its decline revealed that women living in the urban areas had higher chances of making 4 or more ANC visits, and better quality of ANC care was related to higher ANC visits. Women who had initiated ANC visit within 4 months of pregnancy had importantly higher number of ANC visits (Gupta et al., 2014).

In a descriptive study done by Gitonga (2017) to find out the factors that determine focused antenatal care uptake on pregnant women in Tharaka Nithi County in Kenya; indicated that adolescent women (n=4732) who were pregnant (below 20 years) were associated with the least uptake of ANC (31%) as opposed to women aged 30-34 years

(63%). There was also a significant relationship between uptake of antenatal care and educational level, where women with adequate education had a higher uptake (70%) than those with a lower educational level. Having a partner at the time of pregnancy was also associated with improved ANC uptake (56%) as opposed to women without partners during pregnancy. Employment and availability of other sources of income were also associated with a higher ANC uptake (90%) and (77%) respectively. The number of pregnancies a woman had had previously and her parity were also associated with ANC uptake, women who had five and more pregnancies had the least uptake (33% and 31%) respectively.

2.4 Influence of Skilled Health Care Providers' Attitude on Uptake of Antenatal Care

The high effects of maternal child deaths continue to be a serious issue within the health sector globally despite several initiatives to address it, in large part due to inadequate uptake of antenatal care. Attitude of healthcare providers influence health care seeking and standard of health care (Manava, Durrant, Fisher, Chersich & Lunchters, 2015).

The health care providers' attitude is a critical component of quality as it influences positively as well as negatively on how the pregnant women, their partners and families generally comprehend and experience antenatal care services. Poor respect during ANC care provision from the health providers, leads to dissatisfaction by the pregnant mothers with the health system, diminishing the possibility of pregnant women coming for the ANC services and the postnatal health services. In addition, the healthcare providers' attitude mighty affect directly the well-being of both the patients and clients, and their relationship between them and the healthcare providers (WHO,

2014). Further, negative attitude could likely affect the quality of the ANC care including the effectiveness of the mothers and infants health promotional efforts, in addition to compromising the women's constitutional right to humane and respectful maternal healthcare (WHO, 2014)**.** The attitude of the healthcare providers therefore significantly determines the maternal and infant health outcomes (Holmes & Goldstein, 2012).

In a study carried out by Pell et al. (2013) in three sites in Africa which included western Kenya, southern Malawi and central Ghana to determine the factors which affect attendance of antenatal care, revealed that interactions among the pregnant women and the healthcare providers during delivery of ANC services among other contributory factors were influenced by social-cultural factors. At the health facility, communication was more effective where the pregnant woman was rich or adequately learned or was familiar to the healthcare workers. Kenyan women reported cases of verbal abuse and discrimination at the health facility by the health providers especially when their birth planning was considered inadequate. Those women who had young children would avoid visiting the health facilities, leading to delay in ANC initiation

A study carried out by McMahon et al. (2014) in 4 districts of Mororgoro region in Tanzania, to assess the levels of disrespect during the ANC services maternity and abuse during childbirth, revealed that health care providers had no adequate valued qualities including acting humbly, soothing and hospitality for the pregnant women they serve. The commonest negative experience revealed across majority of the respondents included ignorance and negligence. Verbal abuse in the form of criticism against the pregnant women such as shouting or making harsh remarks to the pregnant women was also reported.

Another study carried out by Roberts et al. (2015) to find out the patient-provider relationship and the uptake of antenatal in Malawi that applied interviews with (n=20), the urban pregnant women and health (n=8) health workers from the two main hospitals in the central as well as southern regions of Malawi, revealed that apart from other factors, the providers' attitude influences antenatal care attendance. Improvement of the patient-provider relationship is likely going to improve antenatal care attendance, and subsequently minimise the complications during pregnancy. The patient-provider relation had a large impact on the antenatal care participation. Most of these pregnant mothers revealed that health workers often mistreated them during the ANC visits. Furthermore, the health workers indicated that as a result of inadequate human resource for health, clients sometimes do not receive the ANC care they deserved. The health workers further acknowledged that sometimes it was hard to sustain positive attitude all the time of ANC service delivery because of staff shortages and the big workloads. They also confirmed that ANC clients were mistreated when they presented themselves late for the ANC services.

Another descriptive study carried by Kumbani, Bjune, Chirwa, Malata and Odland (2013) to find out why some pregnant women do not give birth at the health facilities in rural southern Malawi, showed that the participants (n=853) perceived the poor ANC care as being shouted at by the health workers and delay in receiving the ANC services. They expected that health workers would be friendly when providing ANC services. It was further reported that when these pregnant women go to measure their vital signs such as weight and height, the health workers said this was a waste their limited time or that they were sitting improperly as guided as they wait for the ANC services. Another issue was the delay in the ANC services, participants disliked taking

too much of their time waiting at the clinic when it was supposed to be operational. They further disliked not being attended to when visiting these health facilities.

2.5 Influence of Community Health Volunteers on Uptake of Antenatal Care

The term community health volunteers (CHVs) is composed of a number of different community health aides who have been chosen and trained, and who are working in their respective communities where they were chosen from. A more acceptable definition globally for the community health volunteers, is that the community health volunteers are community members working for their own communities who selected them and work for them voluntarily and are directly answerable to them. They are supported by their formal health systems but not necessary part of any organization and have no formal education (Oliver, 2015). Globally, CHVs have been known by several titles as indicated in table 2.1.

Table 2.1: Alternative Titles for CHVs

Country	Title
Kenya	Community Health Volunteers
Zambia	Community Health Workers
Ethiopia	Community Health Agents
Uganda	Community Resource Persons
India	Community Nutrition Workers
Rwanda	Community Health Workers

(Source: Bhattacharyya et al., 2001)

The strategy of using these community members in the delivery of essential and basic healthcare services at the community level can be traced back to the year 1950, for example, China had a program known as China barefoot doctor program. Thailand also utilized the services of community health volunteers to offer certain basic and

essential health services to their communities from which they come from, (Ministry of Health [MOH] Uganda, 2015).

The responsibility of CHVs is to act as a bridge between communities and the formal health services from their communities in matters of health and development, they provide opportunities to enhance the quality of the healthcare services for the communities, and importantly to enhance community management and ownership of health-related services for sustainability. CHVs have been considered the most acceptable link between the formal health sector and the communities (Oliver, 2015).

Several countries appreciate the fact that realizing the health needs of their communities, particularly in the remote and under-privileged regions, cannot be achieved by the current existing formal healthcare services alone due to the fact that there is increased burden of infectious diseases such as HIV & AIDS, and the perennial staff shortage globally. This calls for the involvement of CHVs to compliment the formal existing health systems. Community health volunteers offer basic, but essential healthcare services such as curative health services within their communities and help the health professionals with their duties (WHO, 2014).

About 50% of the pregnant women in the developing countries are not able to attend ANC, 37% receive do not consume ANC care (Dahiru & Oche, 2015). CHVs play critical role by empowering pregnant women to consume ANC services from a skilled health worker. CHVs also assist the pregnant women to prepare for delivery by ensuring they know where to go and helping them overcome barriers concerning resources such as money, and other necessary logistics. A CHW trained appropriately according to the WHO/UNICEF package, is able to identify pregnant women in the

community and make home visits to each one (WHO, 2014).

In a study conducted by Medhanyie et al. (2012) to establish consumption of maternal health services (n=726) in rural villages in Ethiopia, generally revealed that CHVs have significant contribution in several aspects of maternal health services because they bring essential maternal health care services closer to the rural populations. It showed that ANC visit at the health facility was reported by 85% of the women. However only 48% of them had the WHO recommended 4 and more ANC visits. The study further established that since the introduction of CHVs in 2003, there has been an increase in the proportion of women who have utilised ANC services. Another qualitative study carried out by Okuga et al. (2015) to examine the perception of communities and their experiences of the CHVs in the promotion of maternal and new-born care practices in eastern Uganda, found out that CHVs were highly appreciated by their communities and are considered valuable contributors to ANC health services at the grassroots level. Some of the reasons that positively influenced CHVs is that the CHVs were selected by the government and subjected to a training within the community, being trained how to solving problems, and sent immediately after training to the communities with involvement of local leaders, frequent supervisions. They also had strengthened and responsive supply of services to which families could be referred. CHVs used social networks in identifying pregnant women, and also targeted men and the family as a whole during health education activities. Other intrinsic motivators included; community appreciation and the prestige of being called a doctor, monetary tokens, provision of transport allowance, and material incentives like bicycles by the government and other partners.

According to World Vision Zambia (2016), entitled Zambia's Community health

volunteers, it is believed so dangerous for pregnant mothers who leave the rural area of Zambia, especially the young children. Over half (64.1%) of the Zambians live in the areas considered remote, and is one of the countries with the worst health workforce crisis.0.5 doctors is for every 10,000 people, and 7.1 nurses for the same population. Pregnant women needing health services, such as during difficulty labour, there may not be able to get skilled health providers. 47% of the births in Zambia are attended to by skilled health workers, contributing to high maternal and neonatal mortality rates. CHVs are improving these trends progressively. They are trained by the government to render the most basic and essential life-saving interventions-such as emergency healthcare services, and save children lives from the major preventable child mortality causes like diarrhoea, pneumonia and malaria. CHVs also equip families with the knowledge and skills to prevent diseases. They promote good health, sanitation, and hygiene, and link families to essential health services.

A study conducted by Condo et al. (2014) to obtain information in regard to educational background of the pregnant mothers, knowledge, and their practices of CHVs (n=108), as well as the perception of CHVs from the beneficiaries (n=36) in 3 districts of Rwanda, revealed that majority of them made statements recognising the benefits of the CHW system and a positive attitude towards the CHVs. Multiple pregnant women acknowledged the role CHVs play to care for them and their families. They further acknowledged the fact that CHVs were their main source of educational messages about topics such as nutrition, malaria, kitchen garden and hygiene. They further appreciated that they received frequent visits from the CHVs for medical check-ups on the health of their children and to teach them about healthy meal preparation. Overall, the CHVs were perceived to be very influential healthcare

providers the lives of the women, with the beneficiaries only seeking out further care at the health centre for serious illnesses.

2.6 Influence of Availability of Skilled Health Providers on Uptake of Antenatal Care

Healthcare workers include all the health providers who offer healthcare services with an aim of protecting and improving the lives of the people. Healthcare workers are generally composed of the management, frontline healthcare providers and the support workers, all of whom contribute towards the improvement of the health of the people. They are composed of the unpaid health workers, lay and the professional health workers who could be either in the public or private health sector. In general, there is significant association between the human resource for health density, and the service coverage and the health outcome. It is mandatory that the human resource for health should be available in adequate number and mix, be responsive and competent for any health system to deliver quality healthcare services (Kirigia, 2013).

The WHO suggests 2.3 healthcare workers for every 1000 population, however there is an estimated shortage of more than 2.4 million health workers globally (Taylor, Griffiths & Lilford, 2017). According to a report by WHO, Kenya is rated among 57 countries with human resource for health critical shortages. Sub Saharan African being reported with the greatest shortfall among the various cadres of healthcare workers (Riley et al., 2012).

Table 2.2: Doctors in Selected Sub-Saharan Africa

Country	Total	Per 10,000
Kenya	4506	1
Congo	5827	1
Zambia	1264	1
Burundi	200	<1
Ethiopia	1936	<1
Uganda	2209	<1
Somalia	310	<1
Rwanda	432	<1
Zimbabwe	2086	2

(Source: Taylor et al., 2017).

In an effort to realise the vision 2030, Public Service Reforms and the Sustainable Development Goal #3, the Government of Kenya through the health sector has put appropriate interventions to enhance utilisation and equity to the essential health care services. This will only be realized when the quality of healthcare is enhanced. The inadequate number of human resource for health across the cadres has had a negative impact on the plans to improve the uptake and quality of health services. The continued burden of high HIV & AIDS, Tuberculosis and Malaria prevalence which remain the leading killer diseases in the country have further aggravated this situation further. Kenya's health sector planning, service delivery and ultimate national health outcomes can only be achieved if human resource for health challenges are adequately addressed (MOH, 2014).

A survey conducted by Gow, Gavin, Mutinta, Mwamba and Ingombe (2011) on shortage of human resource for health in Zambia, revealed that there are multiple causes for the critical shortages which are cross-cutting and interconnected, ranging

from monetary to non-monetary as elaborated below:

Inadequate remuneration; Zambian health workers (n=234) were getting low salaries, subsequently engaged in private practise to supplement their income (20%).

Some of the respondents did l not get professional advances to compensation; while 40% of them had not been promoted and given the corresponding remuneration after improving their skills they had acquired over the years. Many healthcare workers preferred working in the private sector as opposed to the public sector because of several reasons that included; poor governmental observation to regulatory frameworks for safer work- environment; job descriptions not changing despite changes in practices and technological advancement; programs lacking systems supporting fair and manageable workloads; high job demands and mental stress; and inflexible working arrangements within the public organisations (Gow et al., 2011).

Majority of health workers indicated that the public sector employment provided unattractive career plans for professional development, with 75% indicating that the better established professional paths and employment stability in the public jobs were basically considered incentives to remain despite inadequate opportunities to enhance skills, or add new work experiences, or to be recognised through promotion and improved remuneration. However, a good number of the healthcare workers remain in the public health sector because of the improved training opportunities which attract healthcare workers (Gow et al., 2011)

Zambian Ministry of Health aimed at improving productivity and performance of its health workforce by improving the quality of pre-service training, despite this, respondents still reported less in-service education opportunities, career development,

and professional advancement, especially the healthcare workers working in the rural set up (Gow et al., 2011).

Another survey carried out by Twining (2010) on policy analysis of shortage of nursing workforce in sampled Sub-Saharan African countries, and whose aim was to analyse the nursing workforce shortage in the sampled Sub-Saharan African countries at a policy point of view, and which used two frame-works, namely, Fawcett and Russell, indicated that the shortage of nursing workforce is mitigated by the health policies present in the respective countries. To enhance the nursing workforce capacity and realize positive desired health outcomes for the general population in the sub-Saharan African, policy analysis is important for the development of the health system which should be effective, efficient, equitable, and sustainable. Nurses need to take deliberate steps in the development and implementation of the relevant healthcare policies in their respective countries for them to improve their health systems, and possibly improve health outcomes of the people they serve.

A survey conducted by Wakaba et al. (2013) on Public Sector Nursing Workforce in Kenya (n=47), showed that shortage of nurses (range of 1.2 to 0.08 per 1000) in the public sector is made worse by the mal-distribution and varying workforce characteristics such as age profile among the 47 counties. The nurse to population density is 0.42 per 1000 nationally in the public health sector. It also showed that Taita Taveta County has a nurse to population density ranging from 0.61-0.80.

A survey conducted by Nkya (2012) in Tanzania so as to develop multi-sectoral criteria for defining the undeserved areas in the health sector and for developing an incentive package that can be used to attract health personnel to undeserved areas in

Tanzania, revealed that the districts councils had not been able to fill the vacancies because they are unavailable on the labor market despite the government's approval and budget line for employment of professional health workers. It further established that the supply constraint of professional health workers on the Tanzanian labor market stands at 29.4% of the approved posts unfilled in a period of five years. Other proposed innovate interventions to avail health staff in underserved areas included the use of compulsory service. This strategy requires recent graduates to be assigned conditionally to work in rural areas for one year. This can be taken as part of the training before they are licensed to practice as professionals, bonding this strategy can be used for health staff to work in hardship rural areas and use of retired health staff who have the advantage of not having young children requiring school in those remote and underserved areas.

2.7 Theoretical Framework

The study adopted two models namely; Health Belief Model and Theory of Reasoned Action.

Health Belief Model

It is a psychological health behavior change model, formulated to explain and anticipate behaviors which are health related especially to the uptake of the healthcare services (Janz & Becker, 1984). This model was first developed in the 1950s by a social psychologists in the United State of America Public Health Service, and has remained one of the most known and widely used theories in the health behavior research globally. It indicates that the beliefs of people about health problems, perceived benefits of action and the barriers to action and the self–efficacy, explain

engagement, or lack of it in health promoting behavior. A stimulus, or cue to action, must also be present in order to trigger the health-promoting behavior. This models also hypothesizes that health-related actions depend on the simultaneous occurrence of three classes of factors including; the availability of enough motivation (health concern) to make health issues relevant, the belief that one is susceptible to a serious health problem, illness or condition which is often referred to as threat, and the belief that following a particular health recommendation would be beneficial in reducing the perceived health threat, and at a subjectively- acceptable cost, which refer to the perceived barriers that must be overcome so as to follow the health recommendations (Janz & Becker, 1984).

This theory is relevant for this study because there is a direct relationship between uptake of antenatal care and behavior change of the pregnant mothers. Pregnant mothers need to develop a culture of timely uptake of antenatal care so that life threatening pregnancy- related complications can be detected early enough for appropriate interventions.

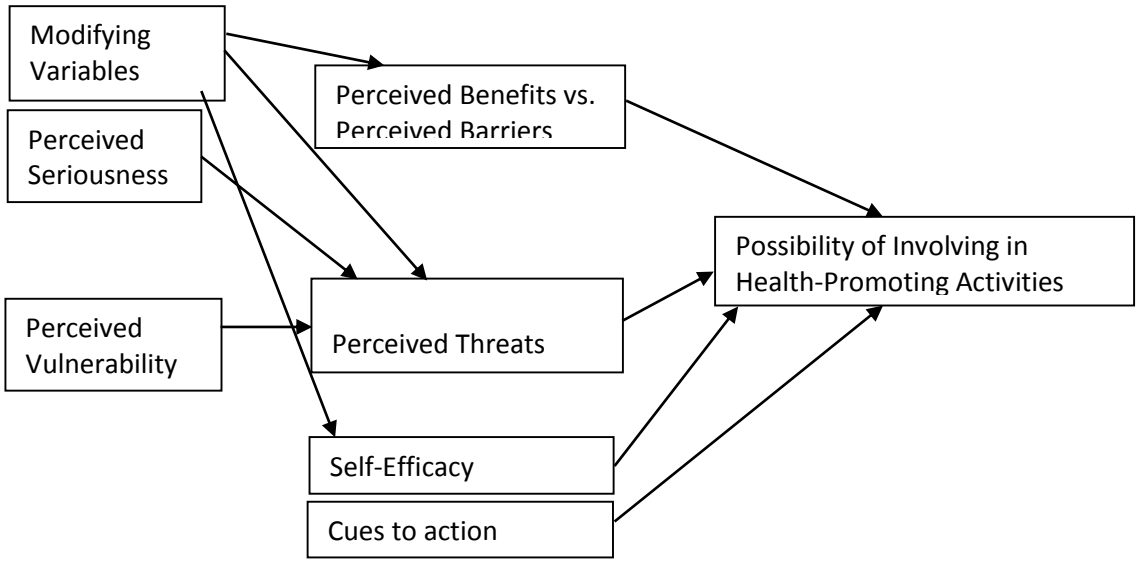

Figure 2.1: Health Belief Model

Theory of Reasoned Action

This theory was invented in late of 1960s, and is considered an improved version of the Health Belief Model (Taylor et al., 2006). It is made of two categorises of belief variables as described under the headings of 'behavioural attitudes" and "the subjective norm". The Theory was relevant for the study because for pregnant mothers to utilise antenatal care, they must know the benefits of the care, and the possible dangers in case they do not utilise the antenatal care services. They must take deliberate actions after changing their behaviour so that they utilise the antenatal care services.

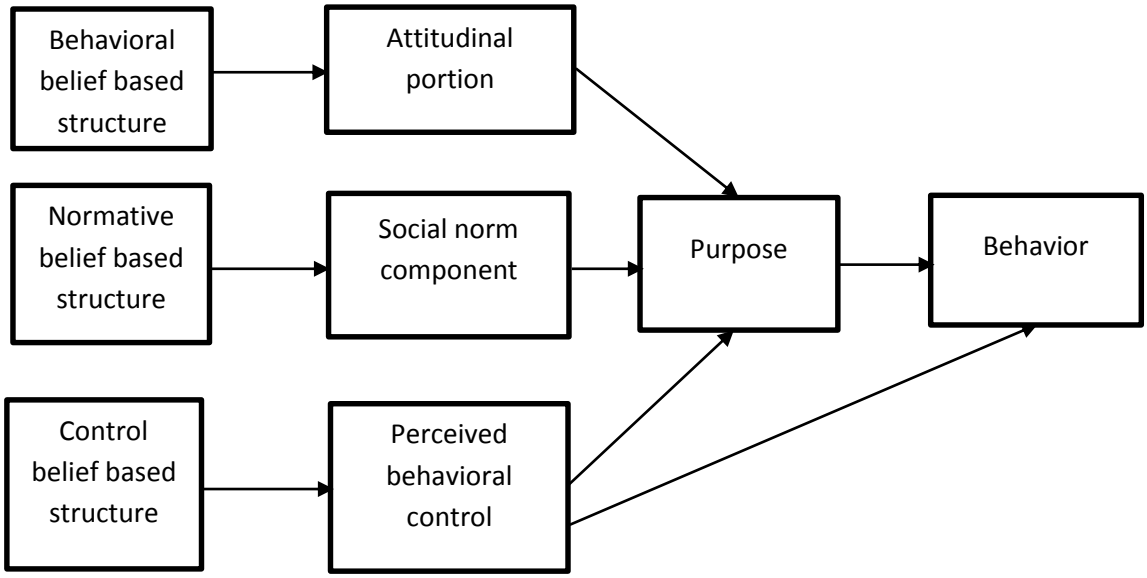

Figure 2.2: Theory of Reasoned Action

2.8 Conceptual Framework

This is tool used for analysis and which contains a number of several variations and contexts used in making conceptual eminence and organise some ideas. A good conceptual framework captures things which are real and in a manner easy to remember and apply (Dynes, Stephenson, Rubardt & Bartel, 2012).

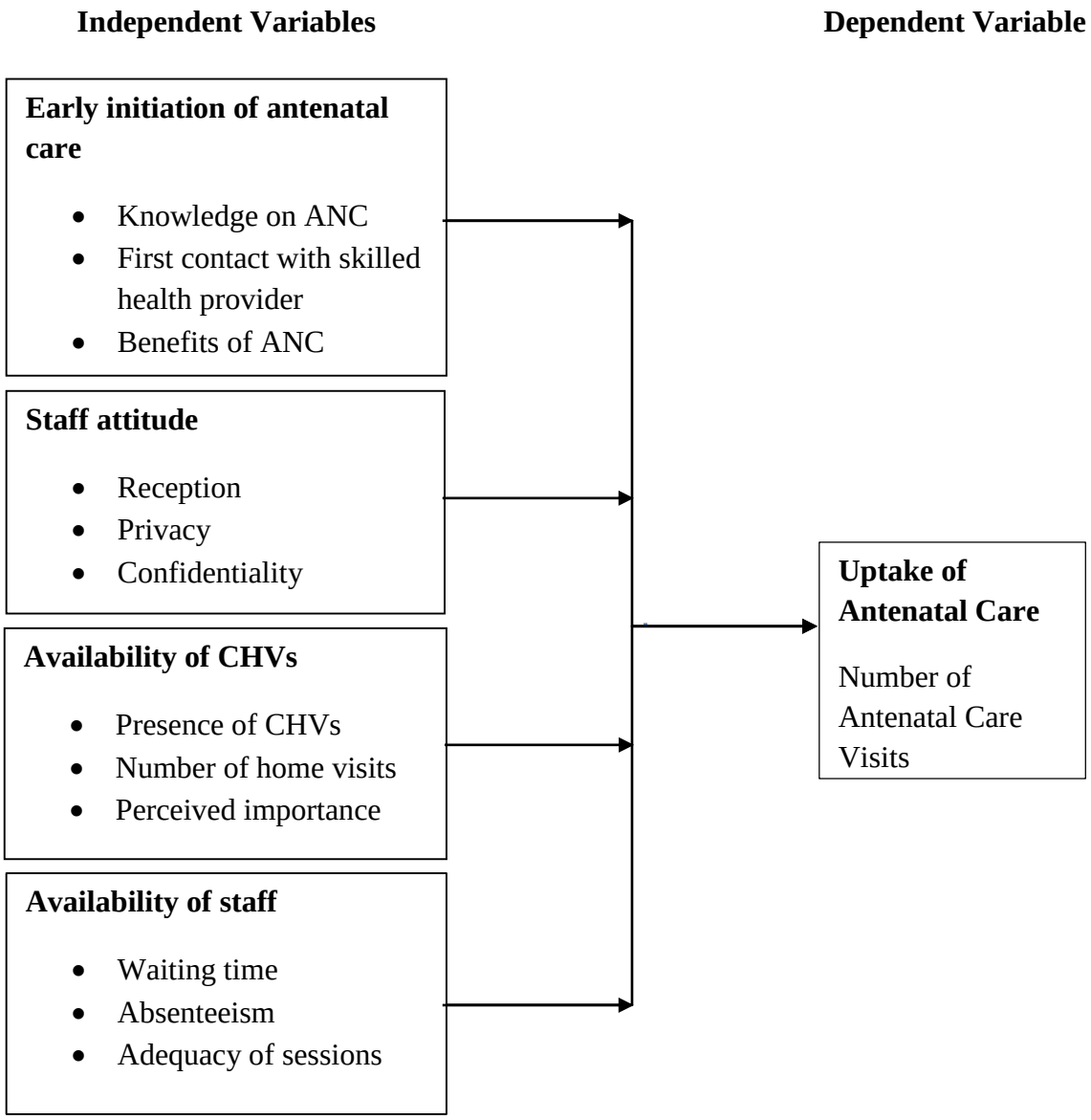

Figure 2.3: Conceptual Framework

Source: Researcher 2019

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter outlines the research design, target population, sampling procedure, data collection methods, validity of the tools used to collect data, reliability of the research findings and the data analysis technique applied in the study.

3.2 Research Design

The research design adopted was a cross sectional survey. According to Kothari and Gaurav (2014), the main objective of a cross sectional survey design is to explain the state of events at a particular point in time. A cross sectional survey was chosen because it attempted to collect data from a cohort of population within the various set ups of similar features in regard to their perception, attitudes and opinions in relation to factors that influence the uptake of antenatal care services in public health facilities within TaitaTaveta County, Kenya.

3.3 Variables

3.3.1 Independent Variables

Independent variables considered included; early initiation of antenatal care, staff attitudes, availability of community health volunteers, and availability of skilled health providers.

3.3.2 Dependent Variable

Dependent variable considered was uptake of antenatal care.

3.4 Location of the Study

This study was carried out in 18 health facilities (appendix 10) in TaitaTaveta County. The county is mostly rural and covers 14,227.6 km2, majority (60%) being covered by Tsavo National Park. On average, the nearest health facility is 5 km away, transport net-work generally being poor, characterised by hilly topography. It has a total population of 338,696 people. The total number of women of child-bearing age is 81,288, with 9,823 estimated pregnancies annually. Only 58.9 % of the pregnant women make at least 4 ANC visits, while 62 % of them receive skilled maternity services.

Taita Taveta County has got four sub-counties namely; Wundanyi (headquarters), Mwatate, Taveta, and Voi (appendix 5). It has 1 public referral hospital, 3 sub-county hospitals, 18 health centres, 38 dispensaries, making a total of 60 public health facilities. There are also private and faith-based health facilities, which include; 1 private hospital, 1 faith-based hospital, and 22 private clinics, making a total of 90 health facilities in the county. There are also 35 community health units spread all over the 4 sub-counties. The total workforce for the public health facilities is about 1000 health care providers, with nurse/midwives being 300 (30%) and doctors 25 (2.5%). There are 1750 community health volunteers serving at the community level (County Government of Taita Taveta [CGTT], 2018)

3.5 Target Population

The target population was mothers who had delivered within the last 5 years and did not make at least 4 ANC visits, visiting public health facilities for health care services. Also the Maternal Child Health (MCH) in-charges from the public health facilities were targeted for the study. These mothers were estimated to be 9,823, while the MCH

in-charges were 60 in number (MOH, 2018). A total of 384 mothers from 18 public health facilities and 18 MCH in charges participated in the study.

These mothers had gone through the antenatal period and were likely to have benefited from the antenatal package. The MCH in-charges were likely going to give useful information since they supervised the health workers as they gave the antenatal care services to the mothers. Public hospitals were chosen because they offered the antenatal care services free of charge in line with the government policy, and were the majority spread all over the county (MOH, 2018).

3.6 Sampling Techniques and Sample Size

3.6.1 Sampling Techniques

Sampling method used to determine the mothers to be interviewed as well as the public health facilities from which they sought the healthcare services was simple random sampling. The MCH in- charges were also sampled using simple random sampling method. This ensured that each mother in the targeted population had same opportunity of to be included in the study. However the county referral hospital (Moi Voi County Referral Hospital) was picked purposely since it was the largest public health facility offering antenatal care to majority of these pregnant women and had community health volunteers within its catchment area.

3.6.2 Sample Size

The total population was 9,823 mothers and 60 MCH in-charges. The probability sample was calculated at a 95% confidence level and +- 5% precision using a simplified universal formula as given by Yamane (1967) as shown below:

$n = \frac{N}{1+N(e)^2}$; **n** standing for sample size; **N** for target population; and **e** for level of precision.

Therefore the sample size for the mothers was:

$$n = \frac{9823}{1 + 9823(0.05)^2}$$

=384 mothers

For the MCH in-charges, the sample size was 30% of the total population of 60. According to Kothari and Gaurav (2014), a sample size of 10-30% is appropriate enough and which assist in generalisation of the research findings.

Therefore the sample size for the MCH in-charges was:

30% of 60

=18 MCH in-charges drawn from 18 health facilities (appendix 10).

3.7 Data Collection Instruments

The tools used to collect data were structured questionnaires (appendices 2 & 3) for the sampled mothers and key informant interview guide (appendix 4) for the health facilities in-charges.

3.7.1 Pre-testing of the Research Instruments

The researcher carried out pre-testing of the questionnaires at 5 selected health facilities on 30 respondents within a period of five days, one week before the actual data collection exercise. These facilities included; Wundanyi hospital, Dawnson Mwanyumba dispensary, Dembwa dispensary, Mwangea dispensary and Ndovu dispensary. These health facilities were selected purposely because they are composed

of level 2, 3 and 4 thus provided a good representation. The facilities were then not used the study to prevent bias. The results from the pre-test were used to establish the validity and reliability of the instruments used for data collection. Questions that were found unclear were modified so as to enhance the validity and reliability of the responses.

3.7.2 Validity of the Instruments

Content validity was used to measure the instrument validity because it measures the level to which the data collected using a certain instrument represent a specific field of indicators of specific concept (Kothari & Gaurav, 2014). The researcher presented the research questionnaire to the supervisor who provided expert judgement on the accuracy and completeness of the instrument.

3.7.3 Reliability of the Instruments

Reliability is the process of ascertaining that the consistency of study measurement or the level to which a questionnaire as a measure of an instrument, mensurate the same way every time it is applied under the same status with the same subjects (Kothari & Gaurav, 2014).

The researcher used Cronbach's alpha to measure the internal consistency of the study questionnaire items so as to establish the reliability of the questionnaire (Cronbach, 1951). Reliability index of 0.70 and above is regarded adequate level of reliability for study instruments (Williams et al., 2009). The reliability test which was done on the study instrument gave a reliability index of 0.770 as shown in table 3.1. This implied that the items of the questionnaire were consistent, and the instrument was therefore reliable.

3.7.4 Data Collection Techniques

The primary data collection tools used were structured questionnaires for the mothers and key informant interview for the health facility in-charges. The questionnaires were prepared in English (appendix 2) and Kiswahili (appendix 3) to accommodate all the mothers. The questionnaires and the key informant interview schedules were administered to the respondents by the researcher on daily basis throughout the planned period of 30 days. The researcher assured the respondents of confidentiality when collecting data from the respondents. For respondents who were between 15-17 years, consent was sought from their parents/guardians before administering the questionnaire. The researcher took an average of 20 to 30 minutes to administer the questions. All the filled data collecting instruments were immediately collected and filled for safe custody. Appointments were made with the MCH in-charges so that health service delivery to the clients was not interrupted so much.

3.8 Data Analysis Techniques

All the questionnaires and key informant schedules were edited for the purposes of ensuring that they are field completely and consistently by the respondents. Qualitative data was first analyzed using content analysis by categorizing it into various themes, and the responses coded and classified into the various categories. The quantitative and the coded qualitative data were analyzed by use of Statistical Package for the Social Sciences (SPSS) version 23. The descriptive statistics was then used for establishing the frequencies and percentages of the responses provided. The results were summarized, and then presented in frequency tables, figures and charts. Bivariate analysis was also performed using Chi-square and Spearman's R tests to establish the significance, strength and nature of the association between uptake of ANC services

and the independent sub-variables. Kruskal-Wallis Test and Mann-Whitney U Test were also used to determine whether uptake of ANC services and timing of ANC initiation were significantly different across the various categories of demographic characteristics. Multivariate analysis using categorical regression with optimal scaling was performed to find out the relationship between the variables. The R^2 was used to measure the magnitude of influence of ANC initiation time, health care providers' attitude, and availability of the CHVs as well as the health care workers on the uptake of ANC services. The research hypotheses were tested at 5% level of significance (alpha = 0.05). Null hypotheses were rejected when the p-value was less than 0.05.

3.9 Ethical Considerations

The researcher sought authorization letter from Kenya Methodist University and other relevant authorisation bodies as required so as to conduct the study. A covering letter was issued by the Kenya Methodist University, Scientific Ethical Review Committee (appendix 6) as well as an authority from National Commission for Science Technology & Innovation (appendix 7). After being granted the authority, the County Director of Health Services TaitaTaveta County issued the researcher with an authorisation letter (appendix 8) to allow him carry out the research in the county. During the data collection process, the respondents were assured that information being collected would be treated confidential and were therefore required to sign a consent form (appendix 1). For the respondents who were between 15-17 years, consent was sought from their parents/guardians before administering the questionnaire. To ensure confidentiality, all the participants had the right not to disclose their identities and contacts. They were also at liberty to avoid questions they were uncomfortable with, and could stop the interview at any one point if they wished.

Questions were framed in such a way that the confidence of the respondents was maintained. This was realized by ensuring that all the questions were non-judgmental and did not touch so much on personal life.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

In this chapter, the findings and discussions on factors influencing uptake of antenatal care in Taita Taveta County are presented. The study was successfully carried out and the findings presented in tables, charts and graphs, followed by interpretation of the same. Data was then analyzed using Statistical Package for Social Sciences (SPSS) version 23 for windows and Microsoft Excel 2013 software, and the findings put according to the objectives of the study and presented in various categories as follows

4.2 Response Rate

The researcher collected data using questionnaires on 381 (99.2%) mothers out of 384 (100%) systematically sampled mothers meeting the inclusion criteria in 18 sampled public health facilities within the county. Additional information was also obtained through interviews from 17 (94.4%) out of a sample of 18 (100%) health facility in-charges from the public health facilities. Response rate from both the mothers and the health facility in-charges was viewed adequate enough as Mugenda and Mugenda (2003) suggests that any response rate of 50% and above is sufficient for the representation of the views of the target population in a study.

4.3 Demographic Characteristics

4.3.1 Mothers Characteristics

Majority, 227 (59.6%) of the mothers, according to table 4.1, were between ages of 21-34 years, while 82 (21.5%) were between the ages of 35-40 years, and 66 (17.3%) between the ages of 15-20 years. The least, 6 (1.6%) were above 41-45 years. This

indicates the appropriateness of the sample for this study because majority, 227 (59.6%) of the mothers were 21-24 years old, corresponding to the average child-bearing age for Kenyan women which has its pick at 20-23 years (KNBS, 2015).

Table 4.1 further shows that a bigger proportion of the mothers had low academic qualification given that 207 (54.3%) had primary education while 14 (3.7%) had no formal education at all. In addition, 119 (31.2%) had secondary education, 34 (8.9%) had reached middle level colleges, and only 7 (1.8%) had university education. The educational level of the mothers is expected to have an effect on ANC uptake because previous studies have shown that some level of education improves early initiation of ANC (Bbaale, 2011), thus investing in women's education will contribute to improved uptake of ANC.

Majority of the mothers, 331 (81.6%) were Christians while the rest, 70 (18.4%) were Muslims as shown on the table 4.1below.

Table 4.1: Demographic Characteristics of Mothers

Demographic Characteristics		Frequency	%
Age Group (Years)	15-20	66	17.3
	21-34	227	59.6
	35-40	82	21.5
	41-45	6	1.6
Level of Education	None	14	3.7
	Primary	207	54.3
	Secondary	119	31.2
	Diploma	34	8.9
	Graduate	7	1.8
Religion	Christianity	311	81.6
	Islam	70	18.4

4.3.2 Health Facility In-charges Characteristics

All, 17 (100%) of the health facility in-charges included in the sample, according to table 4.2 were nurses/midwives with 6 (35.3%) of them being between ages of 31–45

years. Another 5 (29.4%) of them were between ages of 26–30 years, while another 5 (29.4%) being between the ages of 46–50 years with only 1 (5.9%) being above 50 years.

Table 4.2 also indicates that majority, 15 (88.2%) of the health facility in-charges, were diploma holders while 2 (11.8%) had certificate level of education. Majority, 15 (88.2%) of the health facility in-charges were Christians while those professing Islam and Judaism were of the same number at 1 (5.9%) each.

Table 4.2: Demographic Characteristics of the Health Facility In-charges

Demographic Characteristics		**Frequency**	**%**
Cadre	Nurse/Midwife	17	100.0
Age Group (Years)	26-30	5	29.4
	31-35	2	11.8
	36-40	3	17.6
	41-45	1	5.9
	46-50	5	29.4
	Above 50	1	5.9
Level of Education	Certificate	2	11.8
	Diploma	15	88.2
Religion	Christianity	15	88.2
	Islam	1	5.9
	Messianic Judaism	1	5.9

4.4 Uptake of Antenatal Care Services

A pregnant woman to benefit from the ANC services for herself and that of unborn baby, she is supposed to seek antenatal care services from a skilled health provider for at least four times during the entire period of pregnancy (WHO, 2014). This recommendation is upheld by the health facility in-charges, as majority, 16 (94.1%) said pregnant women should make at least 4 ANC visits. Only 1 (6%) said the visits should be between 1 and 3. In spite of this recommendation, and the knowledge on the benefits of seeking ANC services timely as indicated in table 4.11, 166 (43.6%) of

them managed 2 ANC visits, 159 (41.7%) made 3 visits and 56 (14.7%) made just 1 ANC visit as shown in figure 4.1

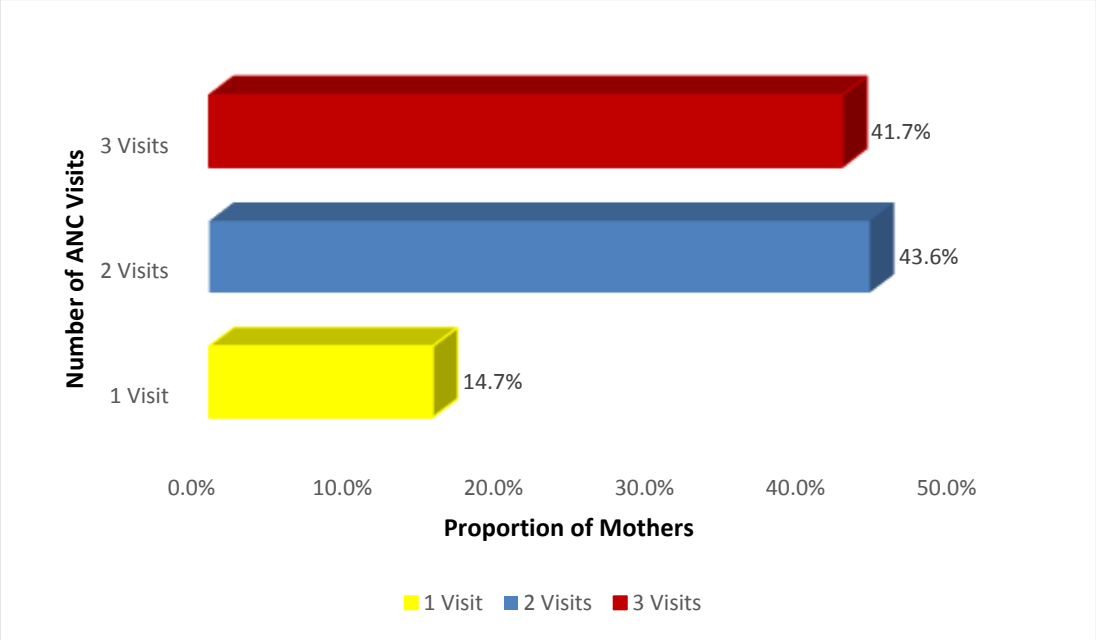

Figure 4.1: Number of ANC visits made by the mothers in their previous pregnancies

This study also sought to establish whether age, level of education and religion were associated with ANC uptake. Table 4.3 shows that 3 (50%) of mothers aged between 41-45 years made only 1 ANC visit while 5 (71.4%) of graduate mothers reported 3 ANC visits and 138 (44.4%) of Christian mothers made 3 visits compared to 21 (30%) of Muslim mothers who made 3 visits.

Table 4.3: Cross-Tabulation of Demographic Characteristics of Mothers and Uptake of ANC Services

Demographic Characteristics	Category	Number of ANC visits made					
		1 Visit		2 Visits		3 Visits	
		n = 56	%	n = 166	%	n = 159	%
Age (Years)	15-20	12	18.2	30	45.5	24	36.4
	21-34	30	13.2	94	41.4	103	45.4
	35-40	11	13.4	41	50.0	30	36.6
	41-45	3	50.0	1	16.7	2	33.3
Level of Education	None	6	42.9	4	28.6	4	28.6
	Primary	26	12.6	96	46.4	85	41.1
	Secondary	16	13.4	51	42.9	52	43.7
	Diploma	7	20.6	14	41.2	13	38.2
	Graduate	1	14.3	1	14.3	5	71.4
Religion	Christianity	47	15.1	126	40.5	138	44.4
	Islam	9	12.9	40	57.1	21	30.0

When subjected to Kruskal-Wallis Test (for variable with more than two categories of responses), at 0.05 significance level, the responses on the number of visits made across age and level of education yielded p- values of 0.269 and 0.189 respectively, as shown in table 4.4, indicating that the distributions were the same. On the other hand, Mann-Whitney U Test (for variables with only two categories of responses), at 0.05 significance level, on the distribution of the responses across categories of religion yielded a p-value of 0.137, indicating that the distribution was the same. This indicates that there is no association among age, educational level and religion, with the uptake of ANC services by the pregnant mothers.

Table 4.4: Association between Demographic Characteristics of Mothers and Uptake of ANC Services

Grouping Variables	Kruskal Wallis Test			Mann-Whitney U Test			
	Chi-square	df	Asymp Sig. (2-tailed)	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Age	6.146	4	.189	-	-	-	-
Education Level	3.928	3	.269	-	-	-	-
Religion	-	-	-	9748.500	12233.500	-1.487	.137

Test Variable: Uptake of ANC services

A study conducted by Katenga-Kaunda (2010) on utilization of antenatal health care services from skilled health providers in the northern region of Malawi, showed all the respondents reported that they were aware of the policy of utilization of skilled care for maternal health care services. They further indicated that ANC services are crucial to the pregnant mothers to know their general health status as well as that of their unborn children. However, only 34% attended the four ANC visits with 14% starting attendance within four months during pregnancy as advised by the World Health Organization and 70% during trimester two in pregnancy.

Another study conducted in Tanzania by Gupta et al. (2014) to establish the factors which are associated with 4 and more ANC visits, revealed that pregnant women who had initiated their first ANC visit within 4 months of their pregnancy, made higher number of ANC visits.

Another descriptive cross-sectional survey conducted by Gitonga (2017) to establish the determinants of focused ANC uptake among pregnant women in Tharaka Nithi County, Kenya; showed that women (n=4732) whose age was below 20 years, had the least ANC uptake (31%) as opposed to those women aged 30-34 years (63%). The association between ANC uptake and the educational level was significant, while

women with secondary education had a higher ANC uptake (70%) as compared to those having lower educational levels. Other factors which were associated with uptake of ANC was the number of pregnancies a woman had and her parity, where women with 5 and more pregnancies and births had the least ANC uptake (33% and 31%) respectively.

The mothers were further asked to explain why they did not make at least 4 ANC visits during their last pregnancies. 133 (34.9%) of them said they lacked information on the importance of making at least 4 ANC visits, 188 (23.1%) said health workers were on strike and they could not afford to visit private facilities for ANC, another 88 (23.1%) said it was a personal decision to minimize the ANC visits, 80 (21%) cited long distance as the reason why they could not make at least 4 ANC visits and 61 (16%) said they had no complications and thus thought not necessary to make the 4 ANC visits. This is shown in table 4.5 together with other reasons.

Table 4.5: Mothers Suggestions on Reasons why they could not make at least 4 ANC visits

Reasons	Frequency	%
Lack of adequate information or knowledge on the need for ANC visits	133	34.9
Distance to the health facilities was long and could not afford the transport charges	80	21.0
Health workers were on strike and could not afford to attend private clinics due to lack of finance	88	23.1
Inaccessibility of the health facility due to poor/lack of means of transport	8	2.1
Had no pregnancy complications	61	16.0
Personal decision to start late or end early in order to minimize the visits	88	23.1
Fear of stigma from the community and the health workers	8	2.1
Lack of time to make visits due to busy schedule at home, work or school	23	6.0
Health workers were rude	19	5.0
Not aware of the pregnancy at an early stage	23	6.0

4.5 Initiation of Antenatal Care Services

The first objective of the study was to assess the influence of early initiation of ANC on uptake of antenatal care in public health facilities within Taita Taveta County.

4.5.1 Initiation Time for Antenatal Care Services

The study sought to establish knowledge among the mothers and the health facility in-charges on the ideal time to initiate ANC services.166 (43.6%) of the mothers, as shown in table 4.6, said a pregnant woman should initiate ANC services when the pregnancy is between 1-4 months, 113 (29.7%) said it should be immediately she suspects she is pregnant within 1 month, while 77 (20.2%) said a pregnant woman should initiate ANC at 5-7 months, 16 (4.2%) said it should be at 8-9 months and 9 (2.3%) said they do not know. On the other hand, majority, 10 (58.8%) of the in-charges said that the ideal time for a pregnant woman to initiate ANC should be immediately she suspects she is pregnant with the rest, 7 (41.2%) saying it should be between 1-4 months.

Table 4.6: Knowledge on the Ideal Time for Initiation of ANC Services

Ideal time to initiate ANC	Mothers		In-charges	
	Frequency	%	Frequency	%
Immediately upon suspecting pregnancy.	113	29.7	10	58.8
1-4 Months	166	43.6	7	41.2
5-7 Months	77	20.2	0	0.0
8-9 Months	16	4.2	0	0.0
I do not know	9	2.3	0	0.0

Despite majority, 279 (73.3%) of the mothers having knowledge on the ideal time of initiating ANC as recommended by the WHO, within the first 16 weeks, only 137 (36%) of the mothers said they attended ANC within the first 4 months of their previous pregnancies as indicated in figure 4.2.187 (49.1%) of the mothers said they made their first ANC visit to a skilled health provider at between 5-7 months of

pregnancy while 56 (14.7%) visited health facilities for ANC at between 8-9 months. This situation is also depicted by the responses of the in-charges with majority, 11 (65%) reporting that pregnant women normally visit the health facilities for their first ANC at between 5-7 months of their pregnancy. Only 6 (35.3%) of the health facility in-charges indicated that pregnant women initiate ANC services within the first 16 weeks of pregnancy.

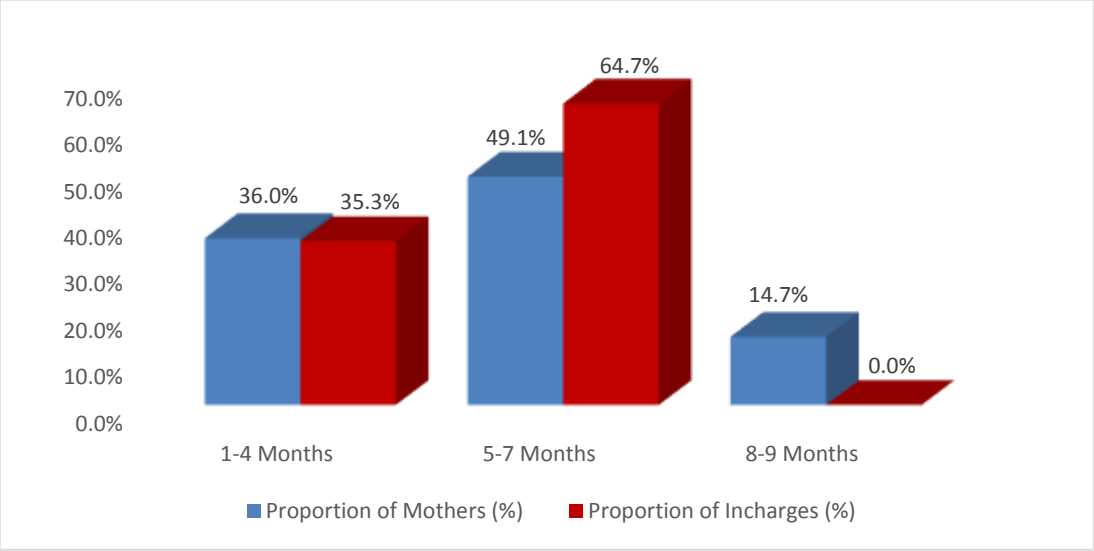

Figure 4.2: Actual time pregnant mothers initiated ANC Services

These findings are supported by a study conducted by Turyasiima et al. (2014) at five community based education research and service (COBERS) sampled sites in the northern part of Uganda to investigate the factors that determine initiation of ANC and the gestation pregnant women (n=417) seek for the ANC services. The researcher found that most mothers (75.8%) knew the right time for starting ANC visits is 1-3 months. Almost all (94.5%) mothers believed that starting ANC visits early in pregnancy benefits the pregnant mother and that starting late can bring pregnancy-related complications to herself and her unborn child, however few, 11.5% initiated

ANC as per the WHO recommended period of within 4 months, 82% initiated ANC at 20 weeks, while 13.7% initiated ANC in trimester three.

4.5.2 Demographic Factors Influencing Timing of ANC Services

This study sought to establish whether age, educational level and religion are associated with the ANC initiation. The results are presented in table 4.7.

Table 4.7: Cross-tabulation of Demographic Characteristics of Mothers and Timing of ANC Initiation

Characteristics	Category	Time for first ANC visit							
		1-4 Months		5-7 Months		8-9 Months		I do not know	
		n	%	n	%	n	%	n	%
Age (Years)	15-20	22	33.3	28	42.4	16	24.2	0	0.0
	21-34	83	36.6	116	51.1	27	11.9	1	0.4
	35-40	31	37.8	41	50.0	10	12.2	0	0.0
	41-45	1	16.7	2	33.3	3	50.0	0	0.0
Level of Education	None	4	28.6	4	28.6	6	42.9	0	0.0
	Primary	55	26.6	116	56.0	35	16.9	1	0.5
	Secondary	53	44.5	55	46.2	11	9.2	0	0.0
	Diploma	19	55.9	11	32.4	4	11.8	0	0.0
	Graduate	6	85.7	1	14.3	0	0.0	0	0.0
Religion	Christianity	105	33.8	155	49.8	50	16.1	1	0.3
	Islam	32	45.7	32	45.7	6	8.6	0	0.0

Table 4.7 shows that 3 (50%) of mothers aged between 41-45 years reported starting ANC visits between 8-9 months of the pregnancy. The researcher performed Kruskal-Wallis Test (for variables with more than two categories of responses), at 0.05 significance level, to ascertain whether the distribution of initiation of ANC was the same or significantly differed across the various age categories of the mothers. The test yielded a p-value of 0.138, as shown in table 4.8, indicating that the distribution of the responses on time of ANC initiation visit was the same across the age categories

of the mothers. This indicates that there is no association between age of the mothers and initiation of ANC services.

Table 4.7 also indicates that 6 (85.7%) of the mothers with university education started their ANC visit between 1-4 months while 6 (42.9%) of mothers with no education started their ANC visit between 8-9 months. This indicates that majority of the mothers with higher level of education started ANC early compared to those with lower level of education. Kruskal-Wallis Test (for variables with more than two categories of responses), at 0.05 significance level, yielded a p-value of 0.000, as shown in table 4.8, indicating that the distribution of the responses on time of first ANC visit differed significantly across the categories of level of education of the mothers. This implies that there is an association between educational level and the time a pregnant woman initiate ANC services.

Table 4.8: Association between Demographic Characteristics of Mothers and Timing of ANC Initiation

	Kruskal Wallis Test			Mann-Whitney U Test			
Grouping Variables	**Chi-square**	**df**	**Asymp Sig. (2-tailed)**	**Mann-Whitney U**	**Wilcoxon W**	**Z**	**Asymp. Sig. (2-tailed)**
Age	5.513	3	.138	-	-	-	-
Education Level	26.083	4	.000	-	-	-	-
Religion	-	-	-	9230.000	11715.000	-2.179	.029

Test Variable: Time of ANC initiation

In addition, the distribution of the mothers' time of visit, as shown in table 4.7, differs across the two religions, with 32 (45.7%) among the Muslim mothers attending ANC services within 1-4 months compared to 105 (33.8%) of Christian mothers who made their first visit within the same period. When the results were subjected to Mann-Whitney U Test (for variables with only two categories of responses), at 0.05 significance level, a p-value of 0.029 was obtained, as shown in table 4.8, indicating

that the distribution of the responses on time of first ANC visit differed significantly across the categories of level of education of the mothers. This indicates that there is an association between religious affiliation and the time a pregnant woman makes the first ANC visit.

A descriptive study carried out by Bbaale (2011) on the factors that influence initiation and frequency of ANC in Uganda, found that initiation and frequency of ANC visits were strongly associated with the mother's educational level, partner and her entire family. Other influencing factors included; mother's wealth status, disparities in terms of region, differences in spiritual beliefs, media access, and maternal autonomy in taking health decisions, as well as occupation of the mother and her partner.

The mothers were further asked to indicate the reasons that made them seek for ANC services rendered by skilled health providers. Majority, 217 (57%) of them sought for ANC services due to pregnancy complications they experienced, 99 (26%) attended ANC due to pressure from family members and friends, 95 (24.9%) were referred by CHVs, 72 (18.9%) sought for ANC because the health facilities were within easy reach and 65 (17%) visited the health facilities to get information on ANC. The other reasons are listed in table 4.9.

Table 4.9: Mothers Suggestions on factors that influences pregnant women to seek for ANC services

Reasons for seeking ANC from a skilled health provider	Frequency	%
Pregnancy complications	217	57.0
Pressure from family members and friends	99	26.0
Referred by CHVs	95	24.9
Health facility within easy reach	72	18.9
Provision of preventive services	4	1.0
Provision ANC card	4	1.0
Monitoring the fetus progress	4	1.0
Need for health education	4	1.0
Utilization of professional care	19	5.0
Need for ANC information	65	17.1
Availability of ANC at the health facilities	4	1.0
Media awareness	4	1.0
Need for counselling services	4	1.0
Provision of incentives e.g. free mosquito nets	8	2.1

On the other hand, the health facility in-charges were asked to highlight the reasons that made pregnant women not seek for early ANC from a skilled health provider. Majority, 10 (58.8%) of them cited inadequate information as contributory factor making pregnant women not seek ANC early, while 9 (52.9%) attributed the failure to seek for early ANC to long distance to the nearest health facility and inadequate money for transport. Another 8 (47.1%) said pregnant women do not seek early ANC to minimize the number of visits, while 3 (17.6%) said the failure was due to the busy schedule of the pregnant women and another 3 (17.6%) of the in-charges said the women feared stigmatization from the community and the health providers. The other reasons are listed in table 4.10.

Table 4.10: Health facility in-charges suggestions on reasons why pregnant women do not seek early ANC Services.

Reasons	Frequency	%
Long distance to nearest hospital and inadequate funds for transport	9	52.9
To minimize visits to the facilities due to financial constraints	8	47.1
Inadequate information/knowledge on ANC	10	58.8
Busy schedule at work or home	3	17.6
Fear of stigma from the community and health workers	3	17.6
Not able to tell whether pregnant during early gestation	1	5.9
Lack of privacy and confidentiality at the facilities	1	5.9
Negative attitudes of the health care providers	1	5.9
Delays in service provision	1	5.9
Inability to afford payments of the ANC services	2	11.8

The respondents were further asked to state the benefits of seeking early ANC from a skilled health provider. Majority, 267 (70.1%) said it gives an opportunity for timely detection of pregnancy complications for appropriate interventions, while 229 (60.1%) said they get hematinic drugs and 88 (23.1%) said they are provided with Long Lasting Insecticides Treated Nets (LLITNs). On the other hand, the responses from the in-charges were almost similar to that of the mothers with 12 (70.6%), 11 (64.7%) and 4 (23.5%) of them reporting that early ANC is beneficial because of timely detection of pregnancy complications, provision of hematinic drugs and TT and provision of LLITNs respectively. Other benefits are listed in table 4.11.

Table 4.11: Suggestions by all respondents on the benefits of seeking early ANC Services from a skilled health provider

Benefits	Mothers		In-charges	
	Frequency	%	Frequency	%
Timely detection of complications	267	70.1	12	70.6
Provision of LLITNs	88	23.1	4	23.5
Provision of hematinic drugs and TT	229	60.1	11	64.7
Screening for conditions and diseases	4	1.0	5	29.4
Provision of Health Education	8	2.1	-	-
Provision of counselling services	8	2.1	-	-
Provision of ANC card	4	1.0	-	-
Getting routine treatment	-	-	2	11.8
Preventive services e.g. immunization	-	-	3	17.6
Health talks	-	-	5	29.4

4.5.3 Relationship between Early Initiation of ANC and Uptake of ANC Services

Bivariate analysis was performed using Chi-square and Spearman's correlation tests at a significance level of *alpha=0.05* to establish the significance, strength and the nature of association between uptake of ANC services and knowledge of ANC and timing of ANC initiation. The results in table 4.12 indicated that timing of ANC initiation had significant association (χ^2 = 102.854, df = 6, p < 0.001) and weak negative relationship (Spearman's R = -0.201, p < 0.001) with uptake of ANC services.

Table 4.12: Bivariate Analysis between Sub-variables of Timing of ANC and Uptake of ANC Services

		Uptake of ANC services		
	Tests of Association	**Value**	**df**	**Sig.**
Knowledge of ANC	N	381		
	Chi-Square (χ^2)	36.622	8	.000
	Spearman's Correlation (*R*)	.021		.678
Time for first ANC visit	N	381		
	Chi-Square (χ^2)	102.854	6	.000
	Spearman's Correlation (*R*)	-.201		.000

The researcher performed regression analysis to determine how uptake of ANC services is influenced by early initiation of ANC. Table 4.13 indicates an R^2 of 0.071, suggesting that almost 7% of the variance in the uptake of ANC services was influenced by time of first ANC visit and knowledge on ANC. This shows that early initiation of ANC had low degree of influence on uptake of ANC services.

Table 4.13: Influence of Timing of ANC Initiation on Uptake of ANC Services (Model Summary)

	Multiple R	R Square	Adjusted R Square	Apparent Prediction Error
Standardized Data	.267	.071	.066	.929

Dependent Variable: Number of antenatal visits made
Predictors: knowledge of antenatal & ANC initiation

Table 4.14 shows that a single increment in gestation leads to 0.289 decrease in ANC uptake. This suggests that initiating ANC services late, reduces the number of times pregnant mothers make.

Table 4.14: Influence of Timing of ANC Initiation on Uptake of ANC Services (Regression Coefficients)

	Standardized Coefficients		Df	F	Sig.
	Beta	Bootstrap (1000) Estimate of Std. Error			
KNOWLEDGE OF ANC	.084	.060	1	1.973	.161
TIME FOR FIRST ANC VISIT	-.289	.059	1	24.142	.000

Dependent Variable: Number of ANC visits made

4.6 Influence of Health Care workers' Attitude on Uptake of ANC Services

The second objective of the study was to determine the influence of the skilled health providers' attitude on antenatal care uptake in public health facilities within Taita Taveta County. This was assessed by looking at how pregnant women were received during their ANC visits, privacy of the ANC sessions and confidentiality of the

information shared during ANC visits. In response to the manner of reception by skilled healthcare providers during ANC visits, table 4.15 shows that majority, 345 (90.6%) of the mothers said they were received well with only 36 (9.4%) reporting that they were not. In response to the issue of privacy during ANC service delivery, only 32 (8.4%) of the mothers said the sessions were not adequately private. On their part, majority, 16 (94.1%) of the in-charges said they attended well to pregnant women during ANC visits while 14 (82.4%) said that the sessions were private. Majority, 376 (98.7%) of the mothers confirmed that the health providers upheld confidentiality of the information they shared during the visits as shown in table 4.15.

Table 4.15: Mothers Opinion on the Attitude of Health Workers towards Pregnant Women during ANC Visits

Sub-variables	Category	Frequency	%
Reception during ANC visits	Not good	36	9.4
	Somewhat good	48	12.6
	Good	137	36.0
	Very good	128	33.6
	Extremely good	32	8.4
Adequacy of privacy during service provision	Not adequate	32	8.4
	Somewhat adequate	37	9.7
	Adequate	155	40.7
	Very adequate	71	18.6
	Extremely adequate	86	22.6
Upholding of confidentiality by health workers	Yes	376	98.7
	No	5	1.3

Out of the mothers and health facility in-charges who said pregnant women were well attended to during the ANC visits, 329 (95.4%) and 15 (93.8%) of the mothers and in-charges respectively said the women are attended to with courtesy, dignity and politeness.

On the other hand, out of the mothers who said pregnant women are not well attended to, 22 (61.1%) of them said the healthcare workers were rude while 13 (36.1%) said there was delay in service provision and 9 (25%) said procedures were not well explained. The in-charges who did not agree that health workers attended well to pregnant women, cited delay in service provision and procedures not being well explained as the main reasons.

Further, of the few, 5 (1.3%) mothers who reported that confidentiality of the information they shared was not upheld, 3 (60%) said they heard other health workers talking about their information, 1 (20%) heard other pregnant women talking about their information and 1 (20%) heard their information being talked about in the community.

The in-charges were further asked to explain ways through which they ensure that the information they receive from clients during ANC visits is kept confidential. Majority, 9 (52.9%) of them said the clients records are kept in secured cabinets while 8 (47.1%) said that information received from clients is not shared unless it will benefit the clients. The other ways of promoting confidentiality are listed in table 4.16 below.

Table 4.16: Ways of ensuring confidentiality of information shared during ANC visits

Ways of ensuring confidentiality among health workers	Frequency	%
No information from clients is shared unless it will benefit the client	8	47.1
Records kept in secure cabinets away from access to people	9	52.9
Only staff access clients' information	6	35.3
Staff do not discuss with other pregnant women	5	29.4
Pregnant women are served one at a time	3	17.6

The mothers were further asked to give ways of addressing the negative attitude of the health providers. Majority, 168 (44.1%) of them said that the capacity of the health

providers in terms of customer relations and time management should be enhanced, while 76 (20%) said the health workers with negative attitude should be punished. Other ways of dealing with the attitudes of the health providers were also given as listed in table 4.17 below.

Table 4.17: Mothers suggestions on ways of addressing negative attitude of health workers during ANC visits

Ways of addressing negative attitudes	Frequency	%
Capacity building on customer relations and time management	168	44.1
Provision of better and timely remuneration	15	3.9
Regular rotation to different sections or transfer to different facilities	23	6.0
Provision of regular counselling to health workers	11	2.9
Provision of client feedback mechanism e.g. suggestion box, customer care/complaints desk	30	7.9
Punishment e.g. suspension, sacking,	76	19.9
Exposing and shaming rude health workers	4	1.0
Employment of more health workers to address shortage	11	2.9
Reward those staff with good attitudes	4	1.0
Provision of conducive working environment	11	2.9
Provision of a mechanism to settle health workers grievances	4	1.0

4.6.1 Relationship between health care workers' attitude and uptake of ANC Services

The researcher performed bivariate analysis using Chi-square and Spearman's correlation tests at a significance level of *alpha=0.05* so as to establish the significance, strength and the nature of association between uptake of ANC services, reception during ANC visits, adequacy of privacy and upholding of confidentiality by health workers. The results in table 4.18 showed that reception during ANC visits had significant association ($\chi^2 = 564.235$, df = 8, $p < 0.001$) and strong positive relationship (Spearman's $R = 0.905$, $p < 0.001$) with uptake of ANC services. In addition, adequacy of privacy during service provision had significant association ($\chi^2 = 459.447$, df = 8,

$p < 0.001$) and moderate positive relationship (Spearman's $R = 0.763$, $p < 0.001$) with uptake of ANC services.

Table 4.18: Bivariate Analysis between sub-variables of Health Workers Attitude and Uptake of ANC Services

		Uptake of ANC services		
	Tests of Association	**Value**	**Df**	**Sig.**
Reception during ANC visits	N	381		
	Chi-Square (χ^2)	564.235	8	.000
	Spearman's Correlation (*R*)	.905		.000
Adequacy of privacy during service provision	N	381		
	Chi-Square (χ^2)	459.447	8	.000
	Spearman's Correlation (*R*)	.763		.000
Upholding of Confidentiality by health workers	n	381		
	Chi-Square (χ^2)	2.864	2	.239
	Spearman's Correlation (*R*)	-.021		.687

The researcher further performed regression analysis to determine how uptake of ANC services was influenced by skilled health providers' attitude. Table 4.19 gives an R^2 of 0.819, suggesting that almost 82% of the variance in the number of ANC visits is influenced by reception during ANC visit, adequacy of privacy during ANC service provision and upholding of confidentiality by health workers. This shows that skilled health providers' attitude had a high degree of influence on uptake of ANC services.

Table 4.19: Influence of skilled health providers' Attitude on Uptake of ANC Services (Model Summary)

	Multiple R	**R Square**	**Adjusted R Square**	**Apparent Prediction Error**
Standardized Data	.905	.819	.818	.181

Dependent Variable: Number of antenatal visits made
Predictors: Reception during ANC visits, adequacy of privacy & confidentiality.

Table 4.20 shows that single improvement in quality of reception and level of privacy during ANC service provision leads to 0.685 and 0.284 increment, respectively in the number of visits the pregnant mothers make. This suggests that the higher the quality of reception and level of privacy during ANC service provision, the higher the uptake of ANC services.

Table 4.20: Influence of skilled health providers' attitude on Uptake of ANC Services (Regression Coefficients)

	Standardized Coefficients		df	F	Sig.
	Beta	**Bootstrap (1000) Estimate of Std. Error**			
Reception during ANC visits	.685	.041	1	279.514	.000
Adequacy of privacy during service provision	.284	.046	1	38.215	.000
Upholding of confidentiality by health workers	.049	.027	1	3.209	.074

Dependent Variable: Number of ANC visits made

A descriptive study carried out by Pell *et al*. (2013) in Africa; western Kenya, southern Malawi and central Ghana to identify the factors affecting antenatal care attendance established that pregnant women and healthcare workers interaction during ANC service delivery among other factors was influenced by social factors such as communication, educational level and wealth status of the pregnant woman. Kenyan women reported abuse and discrimination by the healthcare workers in instances where their birth-planning was viewed inadequate. In such cases, those women who had young children avoided those health facilities, leading to delay in initiation of antenatal care.

4.7 Influence of Community Health Volunteers on Uptake of ANC Services

The third objective was to establish the influence of availability of CHVs on uptake of antenatal care in public health facilities within Taita Taveta County. Respondents were first asked whether they know who CHVs are. Majority, 231 (60.6%) of mothers said they know who CHVs are, while all 17 (100%) in-charges reported that they know who CHVs are. Those who said they know CHVs, were further asked whether the CHVs are in their villages/catchment areas. In addition, 220 (95.2%) and 184 (88.2%) of the mothers and in-charges respectively, said CHVs are within their villages/catchment areas.

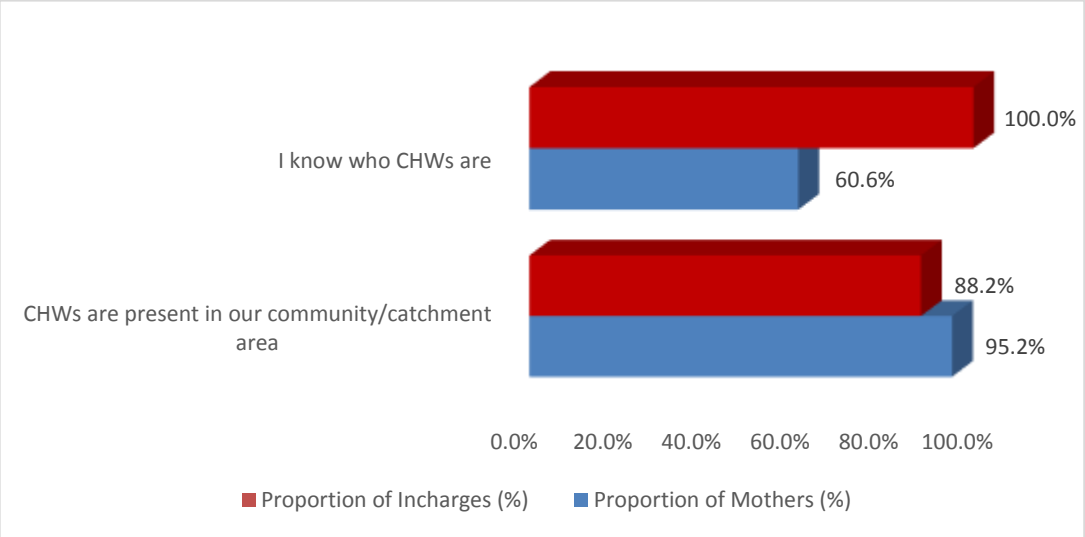

Figure 4.3: Presence of CHVs in the community

The researcher asked the 220 mothers who reported presence of CHVs in their villages to state how many times the CHVs had visited them during their previous pregnancies. Figure 4.4 shows that 138 (63%) of the mothers said they were visited 1-3 times, 41 (18%) said they were visited 4-9 time, 4 (2%) said they were visited more than 10 times while 28 (13%) said they were never visited.

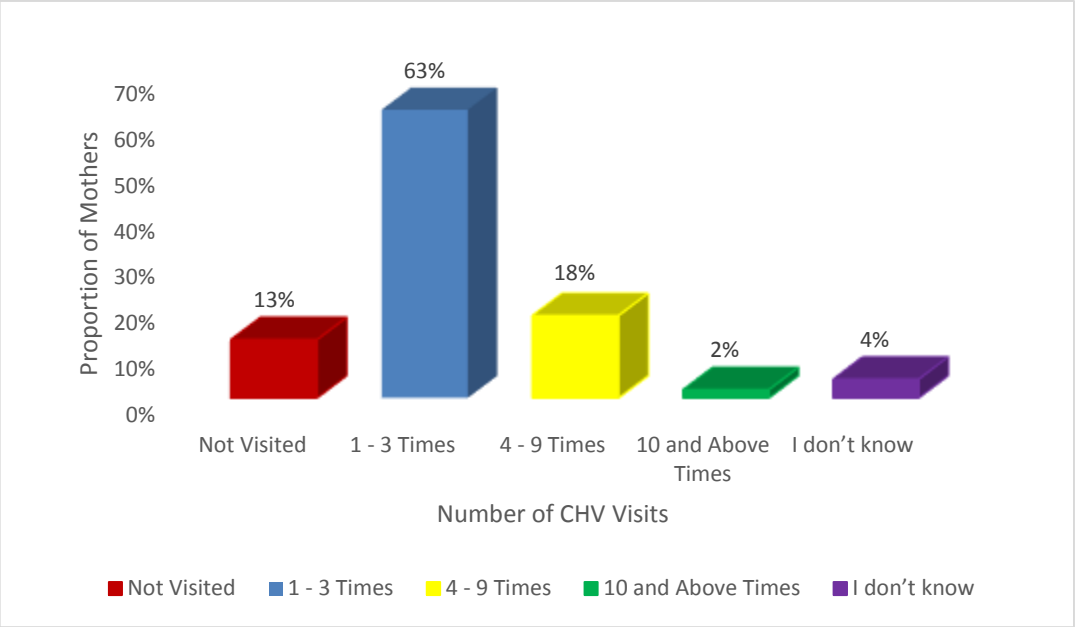

Figure 4.4: Number of times pregnant mothers were visited by CHVs

The respondents who reported presence of CHVs in their villages were further asked whether CHVs were important/influential in improving uptake of ANC services. Majority, 341 (89.6%) of the mothers affirmed the importance of CHVs. The responses are illustrated in figure 4.5.

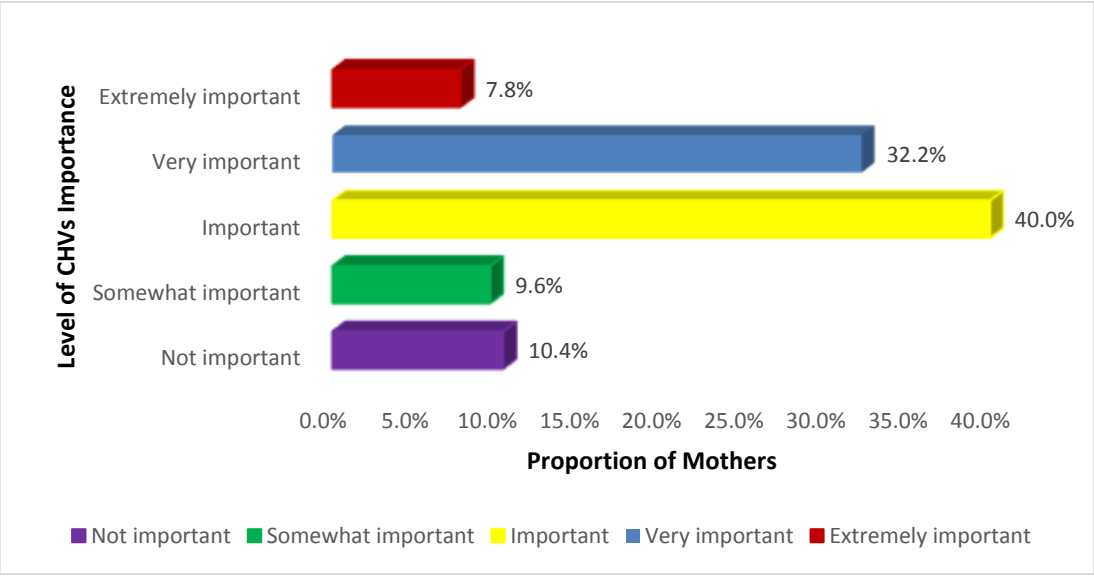

Figure 4.5: Mothers' opinion on the importance of CHVs in improving uptake of ANC services

Most, 16 (94.1%) of the health facility In-charges were also of the view that CHVs are influential in enhancing uptake of ANC services. When asked to outline the reasons why CHVs are important/influential in improving uptake of ANC services, majority, 11 (68.8%) of them said that CHVs are important because they educate pregnant women on the need for ANC visits, 9 (56.2%) said CHVs encourage mothers to seek early ANC, 5 (31.2%) said they refer pregnant women to health facilities, 2 (12.5%) said CHVs act as health companions to the pregnant women, 1 (6%) said they encourage women to deliver at health facilities, and another 1 (6%) said they do follow-up on pregnant women to encourage repeat ANC visits.

The mothers and in-charges further listed the services offered by the CHVs as shown in table 4.21 below.

Table 4.21: Services Offered by CHVs

Services offered by CHVs	Mothers		In-charges	
	n	%	n	%
The pass health messages	88	23.1	9	52.9
They refer pregnant women to health facilities	185	48.6	10	58.8
They carry out sanitation activities	180	47.2	5	29.4
They trace ANC defaulters and encourage them to make repeat visits	80	21.0	6	35.3
They participate in community outreaches e.g. home visits	191	50.1	5	29.4
They encourage pregnant women to undergo screening for conditions and diseases	50	13.1	1	5.9
They give monthly reports to health facilities	-	-	1	5.9
They monitor growth of children	-	-	6	35.3

In addition to the services offered by CHVs as listed in table 4.21, the mothers suggested that CHVs should provide counselling services and also accompany pregnant women to health facilities in order to encourage pregnant women access ANC.

The mothers were further asked to suggest ways of motivating CHVs, 175 (45.9%) of them said CHVs should be paid salaries, 80 (21%) said CHVs should be given token of appreciation, 53 (13.9%) said their capacity should be enhanced while 38 (10%) said they should be provided with permanent offices. Other ways of motivating CHVs are as listed in table 4.22

Table 4.22: Mothers Suggestions on Ways of Motivating CHVs

Ways of Motivating CHVs	n	%
Capacity building Through training, outreaches, working with nurses/doctors, etc.	53	13.9
Giving them salary	175	45.9
Giving them token of appreciation	80	21.0
Giving them support/facilitation e.g. transport	23	6.0
Providing them with working tools e.g. first aid kits	11	2.9
Providing them with offices in the community	38	10.0
Giving them incentives e.g. IDs, T-shirts, Uniform, etc.	30	7.9

4.7.1 Relationship between availability of CHVs and uptake of ANC Services

The researcher performed bivariate analysis using Chi-square and Spearman's correlation tests at a significance level of *alpha=0.05* so as to establish the significance, strength and the nature of association between uptake of ANC services and availability of CHVs, number of CHW visits and CHVs importance in uptake of ANC services. The results in table 4.23 show that number of CHVs visits had significant association ($\chi^2 = 317.099$, df = 8, $p < 0.001$) and high positive relationship (Spearman's R = 0.870, $p < 0.001$) with uptake of ANC services. In addition, CHVs perceived importance had significant association ($\chi^2 = 321.872$, df = 8, $p < 0.001$) and strong positive relationship (Spearman's R = 0.863, $p < 0.001$) with uptake of ANC services.

Table 4.23: Bivariate Analysis between sub-variables of Availability of CHVs and Uptake of ANC Services

		Uptake of ANC services		
	Tests of Association	**Value**	**df**	**Sig.**
Presence of CHVs at the village	n	231		
	Chi-Square (χ^2)	1.598	2	.450
	Spearman's Correlation (*R*)	-.080		.228
Number of CHW visits	n	231		
	Chi-Square (χ^2)	317.099	8	.000
	Spearman's Correlation (*R*)	.870		.000
CHVs perceived importance	n	230		
	Chi-Square (χ^2)	321.872	8	.000
	Spearman's Correlation (*R*)	.863		.000

The researcher performed regression analysis to determine how uptake of ANC services is influenced by availability of CHVs. Table 4.24 shows an R^2 of 0.784, suggesting that almost 78% of the variance in the ANC uptake is influenced by presence of CHVs, CHVs visits and CHVs perceived importance. This shows that availability of CHVs had a high degree of influence on uptake of ANC services.

Table 4.24: Influence of Availability of CHVs on Uptake of ANC Services (Model Summary)

	Multiple R	**R Square**	**Adjusted R Square**	**Apparent Prediction Error**
Standardized Data	.886	.784	.781	.216

Dependent Variable: Number of antenatal visits
Predictors: availability of CHVs at the village, number of CHVs visits & CHVs importance in improving uptake of ANC services

Table 4.25 shows that a single increment in the number of CHVs visits and level of perceived importance leads to 0.515 and 0.387 increment in predicted number of the ANC visits made by the mothers. This suggests that the higher the number of visits

made by the CHVs and the higher their perceived importance, the higher the uptake of ANC services.

Table 4.25: Influence of Availability of CHVs on uptake of ANC Services (Regression Coefficients)

	Standardized Coefficients		df	F	Sig.
	Beta	Bootstrap (1000) Estimate of Std. Error			
Presence of CHVs	-.035	.022	1	2.694	.102
Number of CHVs visits	.515	.081	1	40.576	.000
CHVs perceived importance	.387	.081	1	22.860	.000

Dependent Variable: Number of ANC visits made

Previous studies (Medhanyie et al., 2012; Okuga et al., 2015; World Vision Zambia, 2016; Condo et al., 2014) have underscored the importance of CHVs as a link between pregnant women and health care facilities. According to these studies, due to the availability of CHVs in their areas of study, there had been an increase in the proportion of women who had utilized ANC services.

4.8 Effects of Availability of Skilled Health Providers

The fourth objective was to find out the effects of skilled health Providers' availability on uptake of antenatal care in public health facilities within Taita Taveta County. This was assessed by the time taken by pregnant women waiting for health service provision, the presence of health providers during ANC visits and the adequacy of the time allocated by health providers in the health service provision.

4.8.1 Time spent by pregnant women during ANC services

The respondents were asked how long it took to be offered the ANC services at the health facility. Figure 4.6 shows that 122 (32%) of the mothers said they spent 30-45 minutes getting the ANC services, 115 (30.2%) took between 45-1 hour, 93 (24.4%) spent 1-2 hours and 51 (13.4%) spent over 2 hours to be served. The in-charges also gave almost similar responses to that of the mothers with 6 (35.3%) of saying pregnant

women take between 30-45 minutes to receive the ANC services, 5 (29.4%) said pregnant women take 46-1hour, 2 (11.8%) said they take 1-2 hours and a significant number, 4 (23.5%) said they take over 2 hours.

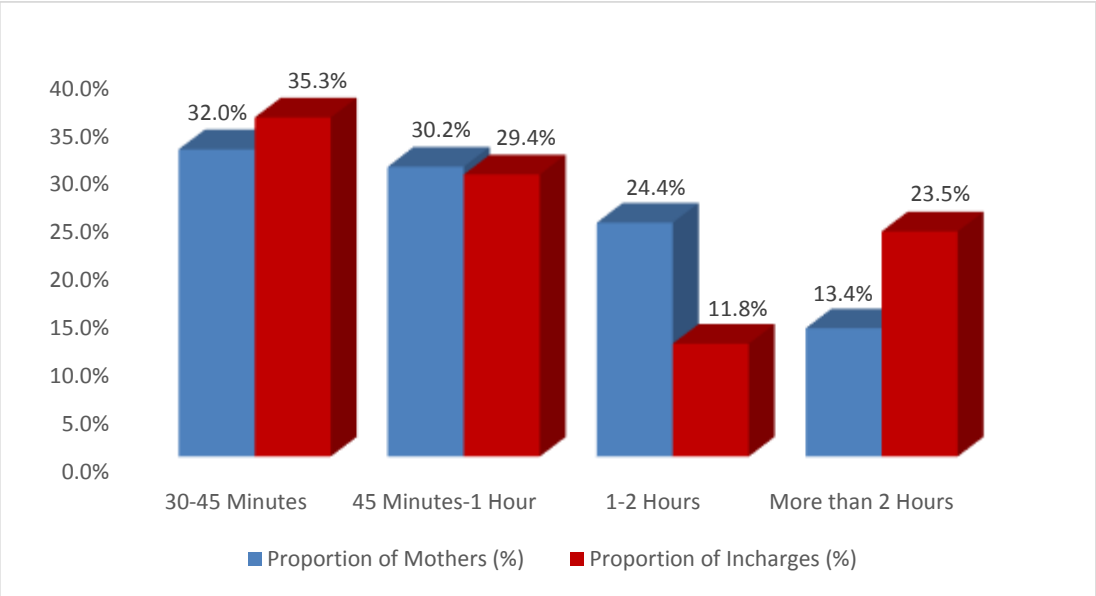

Figure 4.6: Time taken by pregnant women waiting for ANC services by All Respondents

The mothers were further asked the time they would wish to take to receive ANC services. Majority, 335 (87.9%) said 30-1 hour is the ideal time while 43 (11.3%) said they can wait for 2-3 hours with a few, 3 (0.8%) saying they can wait for over 3 hours.

4.8.2 Presence of skilled health providers

The mothers were asked how many times during their ANC visits, they found a skilled health worker in the facilities. Figure 4.7 shows that 167 (43.8%) of the mothers found health workers sometimes during their visits to the health facilities, 156 (40.9%) always found a health worker, and 58 (15.2%) found no health worker during their visits.

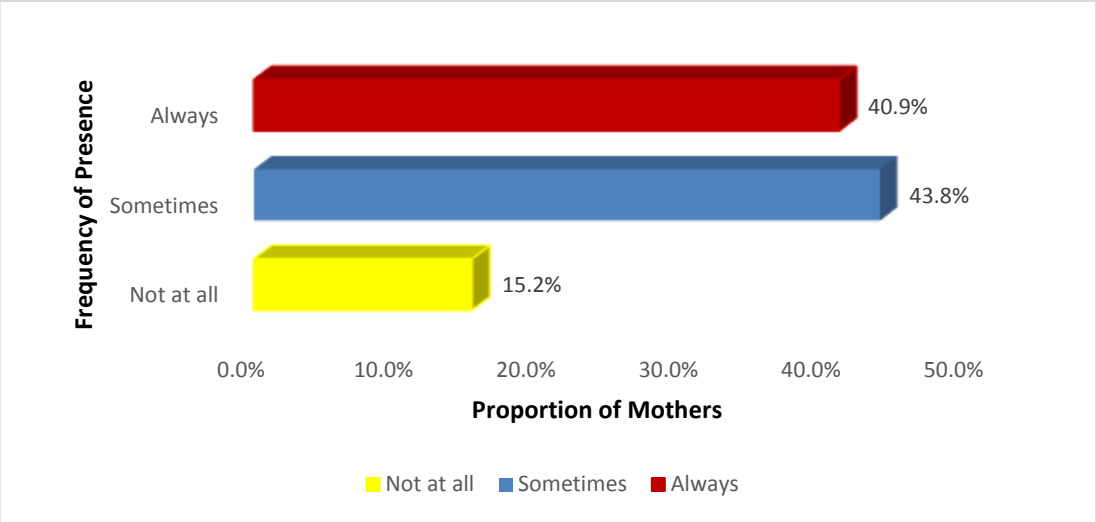

Figure 4.7: Mothers Responses on Presence of skilled health providers during ANC visits

4.8.3 Adequacy of ANC services

The mothers were further asked whether they felt that skilled health providers spent adequate time while serving them. Figure 4.8 shows that majority, 44 (90.3%) of them said health workers spent adequate time while serving them with only 37 (9.7%) saying the time was not adequate. The mothers who said health providers do not spend adequate time with them said that health providers were in a hurry, there was delay in service provision and that health providers gave less information.

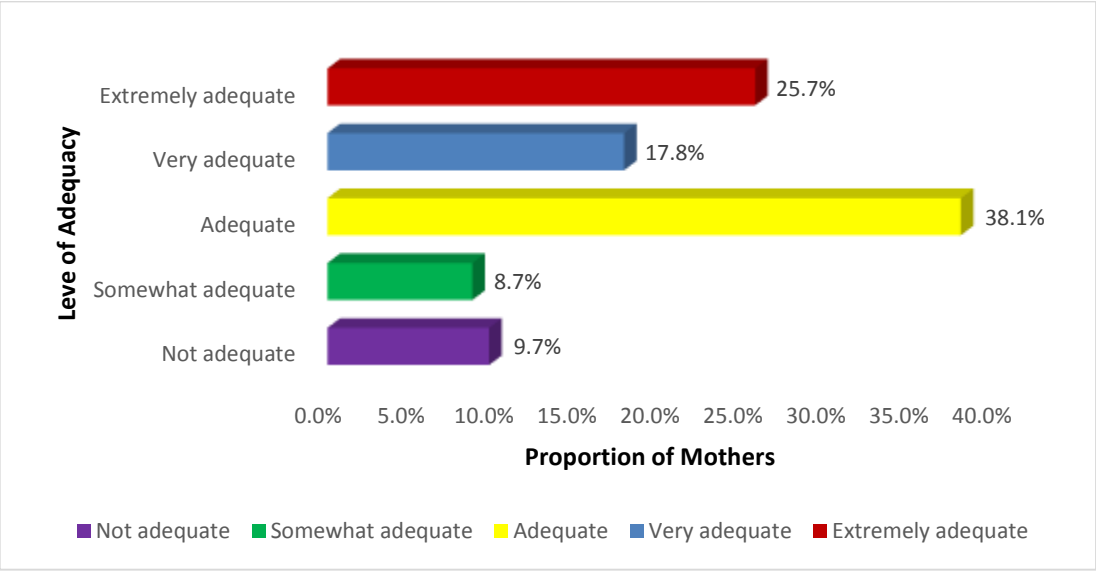

Figure 4.8: Mothers Responses on Adequacy of ANC services

On the other hand, 14 (82.4%) of the in-charges felt that the time they spend with the pregnant women was adequate. Out of the 3 (17.6%) in-charges who felt the time was inadequate, all of them attributed the inadequacy to heavy workload while some said it was due to shortage of staff.

Responding to whether in their opinion ANC services offered to them met their expectations, figure 4.9 indicates that majority of the mothers said their expectations were met, and only few, 39 (10.2%) said their expectations were not met.

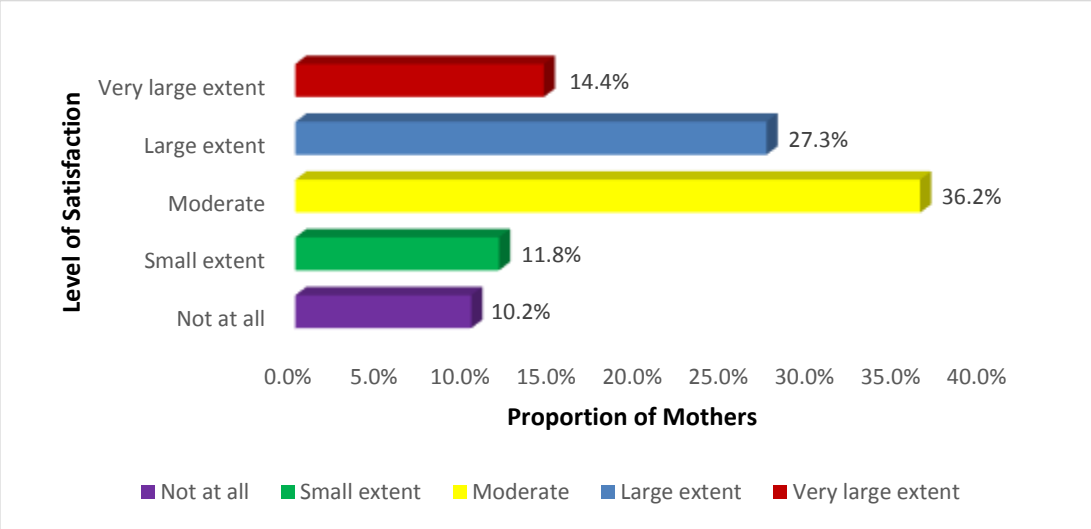

Figure 4.9: Mothers Responses on the Extent of Expectations Met

The reasons that were given by those who were dissatisfied with the ANC services are listed in table 4.26.

Table 4.26: Mothers Suggestions on reasons why they were not satisfied with the ANC services provided

Reasons why mothers were dissatisfied with ANC services	n	%
Health workers were rude	107	28.1
Delay in service provision	80	21.0
Procedures not well explained	168	44.1
Lack of drugs/medication	99	26.0
Some services not offered	99	26.0
Inadequate time spent with client	88	23.1
Inadequate information given	30	7.9
Absenteeism of health workers	11	2.9

On the other hand, majority, 16 (94.1%) of the in-charges said that in their opinion, pregnant women were satisfied by the services offered to them. The in-charges who felt that the pregnant women were satisfied gave the reasons listed in table 4.27.

Table 4.27: Health facility in-charges reasons why they felt that ANC clients were satisfied with services provided

Reasons	n	%
Pregnant women prefer their facility over others	3	17.6
Clients refer other pregnant women	1	5.9
Pregnant women opt to deliver at their facility	1	5.9
Pregnant women appreciate for services provided	12	70.6
Pregnant women take instructions seriously	3	17.6
Pregnant women do not complain about services provided	5	29.4

4.8.4 Effects of availability of Skilled Health Providers on Uptake of Antenatal Care Services

The health facility in-charges were asked to state the targeted number of ANC clients they were expected to serve and the actual number of clients expected to be served in a month at their facility. In addition, they also provided the number of skilled health workers available at the health facility.

Table 4.28: Targeted pregnant women and actual number served

Category of Health Facility	Average No. of SHP Available	Recommended Standard	Average No. of Patients Served	Average Targeted Mothers
Level 2	3	6	34	15
Level 3	4	20	39	30
Level 4	43	150	83	71

Source of norms/standards: Ministry of Health (2014).

The findings in table 4.28 show that the average number of skilled health workers available at level 2 health facilities was 3 against a recommended standard of 6, level 3 facilities had 4 against a recommended 20, and level 4 facilities had 43 against a recommended 150. This shows that there is a shortage of skilled health providers at

the three levels of health facilities. In addition, table 4.28 indicate that the average number of patients served per month at level 2 health facilities was 34 against a target of 15, level 3 facilities served an average of 39 against a target of 30, and level 4 served an average of 83 against a target of 71. This shows that the number of patients served in a month exceeded the target set by the health facilities. This could mean that the limited number of skilled health providers were overstretched by exceedingly high number of patients. These findings are supported by the Kenya Health Workforce Report of 2017 which revealed that the skilled health provider to population ratio in Taita Taveta County was 9.8 per 10,000 population against a recommended 22.8 per 10,000 population and 34.5 per 10,000 population according to WHO and ILO respectively (MOH, Kenya & Emory University of, 2017).

The mothers were asked to express their opinion on the effects of availability of skilled health providers on uptake of ANC services. Majority, 199 (52.2%) of them said shortage of health providers contributed to delays in service delivery, 122 (32%) said it leads to low turn up of pregnant women for ANC services, 73 (19.2%) said it leads to poor quality of services provided while 52 (13.6%) said it leads to burn out among health providers leading to ruddiness and absenteeism. Table 4.29 shows the effects.

Table 4.29: Mothers Suggestions on the Effects of Inadequate Availability of Skilled Health Providers

Effects	n	%
Delay in service provision	199	52.2
Burn-out of health workers leading to rudeness and absenteeism	52	13.9
Poor quality of services provided	73	19.2
Lack of trust in public health facilities leading to preference of private facilities for ANC	28	7.3
Low ANC visits	122	32.0

In order to address the availability of health providers at the facilities, 16 (94%) of the in-charges said the county government should employ more staff while 1 (6%) said the available staff should be fairly and equitably distributed across the various health facilities in the county.

4.8.5 Relationship between availability of Skilled Health Providers and Uptake of ANC Services

The researcher performed bivariate analysis using Chi-square and Spearman's correlation tests at a significance level of *alpha=0.05* to determine the significance, strength and the nature of association between and waiting time, presence of health workers and adequacy of ANC sessions.

Table 4.30: Bivariate Analysis between Sub-variables of Availability of Skilled Health Providers and Uptake of ANC Services

		Uptake of ANC Services		
	Tests of Association	**Value**	**df**	**Sig.**
Waiting Time	N	381		
	Chi-Square (χ^2)	354.829	6	.000
	Spearman's Correlation (*R*)	-.745		.000
Presence of Skilled Health workers	N	381		
	Chi-Square (χ^2)	668.9	4	.000
	Spearman's Correlation (*R*)	.947		.000
Adequacy of sessions	N	381		
	Chi-Square (χ^2)	589.38	8	.000
	Spearman's Correlation (*R*)	.899		.000

Results in table 4.30 reveal that waiting time had significant association (χ^2 = 354.829, df = 6, $p < 0.001$) and moderate negative relationship (Spearman's R = -0.745, $p < 0.001$) with uptake of ANC services. In addition, presence of skilled health workers

had significant association (χ^2 = 668.9, df = 4, p < 0.001) and strong positive relationship (Spearman's R = 0.947, p < 0.001) with uptake of ANC services. The results further indicate that adequacy of ANC session time had significant association (χ^2 = 321.872, df = 8, p < 0.001) and strong positive relationship (Spearman's R = 0.899, p < 0.001) with uptake of ANC services.

Regression analysis was performed to determine how uptake of ANC services was influenced by availability of skilled health providers. Table 4.31 indicates an R^2 of 0.920, suggesting that almost 92% of the variance in the number of ANC visits is influenced by waiting time, presence of skilled health workers and adequacy of sessions. This shows that availability of skilled health providers had a high degree of influence on uptake of ANC services.

Table 4.31: Influence of Availability of Skilled Health Providers on Uptake of ANC Services (Model Summary)

	Multiple R	R Square	Adjusted R Square	Apparent Prediction Error
Standardized Data	.959	.920	.919	.080

Dependent Variable: Number of antenatal visits
Predictors: Time taken waiting to be served, availability of a skilled health worker during ANC visits, adequacy of ANC session time with health worker

Table 4.32 shows that a single increment in the presence of a skilled health workers and the level of adequacy of sessions leads to 0.704 and 0.231 respectively, increment in ANC uptake. In addition, the results indicate that a unit increment in waiting time leads to 0.061 decrease in the number of ANC visits. This shows that the more the health workers are available the higher the uptake of ANC services.

Table 4.32: Influence of Availability of Skilled Health Providers on Uptake of ANC Services (Regression Coefficients)

	Standardized Coefficients		df	F	Sig.
	Beta	Bootstrap (1000) Estimate of Std. Error			
Waiting time	-.061	.027	1	5.099	.025
Presence of skilled health workers	.704	.059	1	140.918	.000
Adequacy of sessions	.231	.057	1	16.222	.000

Dependent Variable: Number of ANC visits made

A survey conducted by Wakaba et al (2013) on Nursing Workforce in Public Health Facilities in Kenya (n=47), revealed that there is shortage of nurses (range of 1.2 to 0.08 per 1000) in the public health facilities countrywide, and which is worsened by poor distribution among the counties. The national public sector nurse to population density is 0.42 per 1000. It also showed that TaitaTaveta County has a nurse to population density ranging from 0.61-0.80.

4.9 Summary of the key Findings

The response rate for both the mothers 377 (99.2%) and the in-charges 16 (94.4%) was adequate for purposes of analyzing the study findings. Majority 215 (59.6%) of the mothers ranged between the ages of 21-34 years, this corresponds to the mean child-bearing age for the Kenyan women which has its pick at 20-23 years (KNBS, 2015). Only 160 (42%) of the mothers had post primary level of education with majority 311 (81.6%) of them being Christians. On the other hand, all 17 (100%) in-charges were nurses/midwives, with 16 (94.1%) of them being below the age of 50 years. The highest educational level for the majority 15 (88.2%) of the health facility in-charges was diploma with majority 15 (88.2%) being Christians.

The first objective of this study was to assess the influence of early initiation of ANC on uptake of ANC services in public health facilities in Taita Taveta County. In spite

of majority, 280 (73.3%) of them having knowledge on the appropriate time of initiating ANC within the first 4 months of pregnancy, only 138 (36%) of them attended ANC within the first 4 months of their previous pregnancies. The main reason that made them seek for ANC from the skilled health providers was pregnancy-related complications while the main reasons that made them not seek for early ANC from the skilled health providers were; long distance to the nearest health facility, inadequate money for transport and also to minimize the number of ANC visits. Majority 267 (70%) of them said ANC is beneficial because it helps in timely detection of pregnancy complications for appropriate management while 229 (60%) said they get haematinic drugs and TT. Some of them 133 (35%) cited lack of information on the importance of making at least 4 ANC visits as the reason. Tests of association including Chi-square, and Spearman's correlation tests at a significance level of *alpha=0.05* indicated that timing of ANC initiation had significant association (χ^2 = 102.854, df = 6, $p < 0.001$) and weak negative relationship (Spearman's R = -0.201, $p < 0.001$) with uptake of ANC services. In addition, an R^2 of 0.071 was obtained when regression analysis was performed; indicating that 7% of the variance in uptake of ANC services was influenced by early initiation of ANC. This showed that early initiation of ANC had a low degree of influence on uptake of ANC services.

The second objective sought to determine the influence of skilled health care providers' attitude on uptake of antenatal care in public health facilities in Taita Taveta County. The findings showed that majority 347 (91%) of the mothers were received well with courtesy, dignity and politeness. In addition, 351 (92%) and 14 (82%) of the mothers and in-charges respectively, said the ANC sessions were private and majority 377 (99%) of the mothers confirmed that the health providers upheld confidentiality

of the information they shared during the visits. In order to enhance confidentiality, majority 9 (52.9%) of the in-charges said that pregnant mothers records were kept in secured cabinets while 8 (47.1%) said that information received from clients was not shared unless it would benefit the clients. In order to address the negative attitudes of health providers, majority 167 (44%) of the mothers said that the capacity of the health providers in terms of customer relations and time management should be enhanced while 20% said the health workers with negative attitudes should be punished. Chi-square and Spearman's correlation tests at a significance level of *alpha=0.05* indicated that reception during ANC visits had significant association (χ^2 = 564.235, df = 8, p < 0.001) and strong positive relationship (Spearman's R = 0.905, p < 0.001) with uptake of ANC services. In addition, adequacy of privacy during service provision had significant association (χ^2 = 459.447, df = 8, p < 0.001) and moderate positive relationship (Spearman's R = 0.763, p < 0.001) with uptake of ANC services. Furthermore, an R^2 of 0.819 was obtained when regression analysis was performed; indicating that 82% of the variance in uptake of ANC services was influenced by health care providers' attitude This showed that health care providers' attitude had a high degree of influence on uptake of ANC services.

The third objective sought to find out the influence of availability of CHVs on uptake of antenatal care in public health facilities in Taita Taveta County. Majority 233 (61%) of mothers said they know who CHVs are while all 17 (100%) in-charges reported that they know who CHVs are. Among those who said they know CHVs, 362 (95%) and 15 (88%) of the mothers and in-charges respectively, said CHVs are within their villages/catchment areas with majority 343 (90%) and 16 (94%) of the mothers and in-charges respectively affirming the importance of CHVs. The CHVs offered a

number of services including passing of health messages, referral of pregnant women to health facilities, sanitation activities, and follow up of pregnant women to encourage repeat ANC visits among others. In order to motivate the CHVs, 179 (47%) of the mothers said CHVs should be paid salaries, 80 (21%) said CHVs should be given token of appreciation, 54 (14%) said their capacity should be enhanced while 38 (10%) said they should be provided with permanent offices among others. Chi-square and Spearman's correlation tests at a significance level of *alpha=0.05* indicated that number of CHVs visits had significant association (χ^2 = 317.099, df = 8, p < 0.001) and high positive relationship (Spearman's R = 0.870, p < 0.001) with uptake of ANC services. In addition, CHVs perceived importance had significant association (χ^2 = 321.872, df = 8, p < 0.001) and strong positive relationship (Spearman's R = 0.863, p < 0.001) with uptake of ANC services. Furthermore, an R^2 of 0.784 was obtained when regression analysis was performed; indicating that 78% of variance in uptake of ANC services was influenced by the availability of CHVs. This showed that availability of CHVs had a high degree of influence on uptake of ANC services.

The fourth objective sought to explore the effects of availability of skilled health providers on uptake of antenatal care in public health facilities in Taita Taveta County. The findings indicated that majority 363 (62%) of the mothers spent between 45 minutes-1 hour to receive services with majority 324 (85%) reporting having found health workers at all the times during their visits to the health facilities. The findings also showed that majority 343 (90%) of mothers said health workers spend adequate time while serving them, with 343 (90%) affirming that the services offered met their expectations. The findings were also supported by the in-charges with majority 12 (68%) saying that pregnant women appreciated for services provided. However, the

findings indicated that the average number of skilled health workers available at level 2, 3 and 4 health facilities was 3, 4 and 43 respectively against a recommended standard of 6, 20 and 150 respectively. This shows that there is a shortage of skilled health workers at the three levels of health facilities. In addition, the average number of patients served per month at level 2, 3 and 4 health facilities was 34, 38.7 and 82.8 respectively against a target of 15, 30 and 71 respectively. This shows that the number of patients served in a month exceeded the target set by the health facilities.

Majority, 198 (52%) of mothers said the availability of health providers contributed to delays in services delivery, 122 (32%) said it leads to low turn up of pregnant women for ANC services, 80 (21%) said it leads to poor quality of services provided while 54 (14%) said it leads to burn out among health providers leading to ruddiness and absenteeism. In order to address the availability of health providers at the facilities, 16 (94%) of the in-charges said the county government should employ more staff while 23 (6%) said the available staff should be fairly and equitably distributed across the various health facilities. Chi-square and Spearman's correlation tests at a significance level of *alpha=0.05* indicated that waiting time had significant association (χ^2 = 354.829, df = 6, $p < 0.001$) and moderate negative relationship (Spearman's R = -0.745, $p < 0.001$) with uptake of ANC services. In addition, presence of skilled health workers had significant association (χ^2 = 668.9, df = 4, $p < 0.001$) and strong positive relationship (Spearman's R = 0.947, $p < 0.001$) with uptake of ANC services. The results also indicated that adequacy of sessions had significant association (χ^2 = 321.872, df = 8, $p < 0.001$) and strong positive relationship (Spearman's R = 0.899, $p < 0.001$) with uptake of ANC services. Furthermore, an R^2 of 0.920 was obtained when regression analysis was performed; indicating that 92% of the variance in uptake of

ANC services was influenced by availability of skilled health providers. This showed that availability of skilled health providers had a high degree of influence on uptake of ANC services.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the Study

This chapter presents the study summary, conclusions and recommendations the researcher made based on the findings, and gives suggestions for further research. This research was on factors that influence uptake of antenatal care health services conducted in public health facilities in Taita Taveta County.

General objective for this study was to find out factors which influence uptake of antenatal care services among pregnant women in public health facilities in Taita Taveta County, while its specific objectives were; to find out the influence of early initiation of antenatal care services on uptake of ANC in public health facilities in Taita Taveta County , determine influence of attitude of health care providers on uptake of antenatal care in public health facilities in Taita Taveta County, establish the influence of availability of community health volunteers on uptake of antenatal care and explore the effects of staff availability on the uptake of antenatal care for pregnant women in public health facilities in the county.

A detailed literature review drawn from theories that back up the study was conducted as well as related past studies on factors which influence uptake of antenatal care. The researcher reviewed several studies globally, regionally and locally. The researcher specifically reviewed literature on early initiation of antenatal care, health care providers' attitude, community health volunteers and the health workers' availability as influencing factors on uptake of antenatal care services

The research design adopted was cross sectional survey targeting mothers visiting the

public health facilities, who had delivered within the last 5 years and did not make at least 4 ANC visits, and the health facility in-charges from the public health facilities. A total of 384 mothers and 18 health facility in-charges were sampled using simple random sampling. The study used structured questionnaires for the mothers and key informant interview for the health facility in-ccharges. Data collected was then analysed by use of Statistical Package for the Social Sciences (SPSS) version 23. Descriptive analysis (percentages and frequencies) and inferential analysis (Chi-square and Spearman's correlation tests, and regression analysis at a significance level of alpha=0.05) were performed. Results indicated that 166 (43.6%) of the mothers managed 2 ANC visits, 159 (41.7%) made 3 visits and 56 (14.7%) managed to make just 1 ANC visit

5.1.1 Influence of Early Initiation of ANC on Uptake of ANC Services

The findings revealed that timing of ANC initiation had significant association (χ^2 = 102.854, df = 6, $p < 0.001$) and weak negative relationship (Spearman's R = -0.201, $p < 0.001$) with uptake of ANC services. An R^2 of 0.071 (7%) showed that early initiation of ANC had a low degree of influence on uptake of ANC services.

5.1.2 Influence of Skilled Health Providers' Attitudes on Uptake of ANC Services

Reception during ANC visits had significant association (χ^2 = 564.235, df = 8, $p < 0.001$) and strong positive relationship (Spearman's R = 0.905, $p < 0.001$) with uptake of ANC services; and adequacy of privacy had significant association (χ^2 = 459.447, df = 8, $p < 0.001$) and moderate positive relationship (Spearman's R = 0.763, $p < 0.001$) with uptake of ANC services. An R^2 of 0.819 (81.9%) showed that skilled health care providers' attitude had a high degree of influence on uptake of ANC services.

5.1.3 Influence of Availability of CHVs on Uptake of ANC Services

The number of CHVs visits had significant association (χ^2 = 317.099, df = 8, p < 0.001) and high positive relationship (Spearman's R = 0.870, p < 0.001) with uptake of ANC services; and CHVs perceived importance had significant association (χ^2 = 321.872, df = 8, p < 0.001) and strong positive relationship (Spearman's R = 0.863, p < 0.001) with uptake of ANC services. An R^2 of 0.784 (78.4%) showed that availability of CHVs had a high degree of influence on uptake of ANC services.

5.1.4 Influence of Availability of Skilled Health Providers on Uptake of ANC Services

The results showed that waiting time had significant association (χ^2 = 354.829, df = 6, p < 0.001) and moderate negative relationship (Spearman's R = -0.745, p < 0.001) with uptake of ANC services; presence of skilled health providers had significant association (χ^2 = 668.9, df = 4, p < 0.001) and strong positive relationship (Spearman's R = 0.947, p < 0.001) with uptake of ANC services; and adequacy of sessions had significant association (χ^2 = 321.872, df = 8, p < 0.001) and strong positive relationship (Spearman's R = 0.899, p < 0.001) with uptake of ANC services. An R^2 of 0.920 (92%) showed that availability of skilled health providers had high degree of influence on uptake of ANC services.

5.2 Conclusions

The researcher made the following conclusions based on the findings;

5.2.1 Initiation of antenatal care

Pregnant women and the healthcare providers in Taita Taveta County have got adequate information about the benefits of antenatal care, however timely initiation of

ANC services is poor. Pregnant mothers managing to start ANC early do not necessarily make 4 ANC visits as recommended by the WHO, therefore timely initiation of ANC services has a minimal contribution towards improved ANC services uptake.

5.2.2 Staff Attitude

Staff attitude, and availability of healthcare providers contribute significantly towards improved ANC uptake among the pregnant women in the County. The healthcare providers' attitude is positive, which is critical in meeting the expectations of pregnant women in the public health facilities. Pregnant women seek for antenatal care services from healthcare workers when they have pregnancy complications despite having adequate knowledge of ANC.

5.2.3 Availability of Community Health Volunteers

Community health volunteers play a critical role in the improvement of uptake of antenatal care, pregnant mothers who have been visited by CHVs initiate ANC services at the appropriate time and enjoy the benefits the ANC package.

5.2.4 Availability of Skilled Health Providers

Availability of healthcare providers in the right number and mix significantly contribute to improved uptake of ANC, and that waiting time in majority of the public health facilities is acceptable among the pregnant women seeking ANC services. However healthcare providers are inadequate and inequitably distributed in most of the public health facilities.

5.3 Recommendations from the findings

The following recommendations were put forward based on the study findings;

The department of health in Taita Taveta County should conduct regular trainings on customer care for its healthcare workers so as to render better antenatal care

Community awareness on the importance of antenatal care should be strengthened through daily health talks at the facility level and other available forums such as chiefs' community meetings.

Furthermore, having established that presence of CHVs influence uptake of ANC, the county government of Taita Taveta should continue motivating CHVs by giving them lunch and transport allowance so that they continue doing regular visits to pregnant women.

The county government of Taita Tavet should employ additional health workers, deploy them equitably and motivate them so as to continue offering quality ANC

5.4 Suggestions for further research

There is need to carry out a study to establish why having knowledge of ANC does not necessarily translate into timely initiation of ANC and subsequent improved uptake of ANC.

It is also necessary to carry out similar research covering both the public and private health facilities in the county.

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APPENDICES

Appendix 1: Informed Consent

Dear Respondent,

My names are Ndegwa Mwanyoha Ndegwa, I am Msc student from Kenya Methodist University. I am conducting a study titled: **Factors influencing uptake of antenatal care**, the findings will be utilized to strengthen the health systems in Kenya and other Low-in- come countries in Africa. As a result, countries, communities and individuals will benefit from improved quality of healthcare services. This research proposal is critical to strengthening health systems as it will generate new knowledge in this area that will inform decision makers to make decisions that are research based.

Procedure to be followed:

Participation in this study will require that I ask you some questions and also access all the hospital's department to address the six pillars of the health system. I will record the information from you in a questionnaire check list.

You have the right to refuse participation in this study. You will not be penalized nor victimized for not joining the study and your decision will not be used against you nor affect you at your place of employment.

Please remember that participation in the study is voluntary. You may ask questions related to the study at any time. You may refuse to respond to any questions and you may stop an interview at any time. You may also stop being in the study at any time without any consequences to the services you are rendering.

Discomforts and risks:

Some of the questions you will be asked are on intimate subject and may be embarrassing or make you uncomfortable. If this happens; you may refuse to answer if you choose. You may also stop the interview at any time. The interview may take about 40 minutes to complete.

Benefits:

If you participate in this study you will help us to strengthen the health systems in Kenya and other Low-in- come countries in Africa. As a result, countries, communities and individuals will benefit from improved quality of healthcare services. This field attachment is critical to strengthening the health systems as it will generate new knowledge in this area that will inform decision makers to make decisions that are research based.

Rewards:

There is no reward for anyone who chooses to participate in the study.

Confidentiality:

The interviews will be conducted in a private setting within the hospital. Your name will not be recorded on the questionnaire and the questionnaires will be kept in a safe place at the University.

Contact Information:

If you have any questions you may contact the following supervisors:

Mr. Musa Oluoch @072248390 and Mr. Fredrick Kimemia, Department of Health Systems Management of Kenya Methodist University, Nairobi campus.

Participant's Statement:

The above statement regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept private and that I can leave the study at any time. I understand that I will not be victimized at my place of work whether I decide to leave the study or not and my decision will not affect the way I am treated at my work place.

Name of Participant…….

Date…….

Signature…….

Investigator's Statement:

I, the undersigned, have explained to the volunteer in a language s/he understands the procedures to be followed in the study and the risks and the benefits involved.

Name of Interviewer……Date……

Interviewer Signature……

Appendix 2: Mothers Questionnaire (English Version)

Section 1: General information about the respondents:

1. Please state your age (Years)
    a) 15-20
    b) 21-34
    c) 35-40
    d) 41-45
    e) >45

2. Indicate your highest level of education
    a) None
    b) Primary
    c) Secondary
    d) Diploma
    e) Graduate
    f) Post graduate

3. Which is your religion?
    a) Christianity
    b) Islam
    c) Hindu
    d) Other (specify)----------

Section 2 (a): Early initiation of ANC (This section seeks to assess the influence of early initiation of antenatal care on uptake of ANC services)

1. When do you think a pregnant woman should seek ANC from a skilled health provider?

    a) Immediately she suspects she is pregnant within 1 month
    b) 1-4 months
    c) 5-7 months
    d) 8-9 months
    e) I do not know

2. When did you make your first ANC visit to a skilled health provider?

    a) 1-4 months

    b) 5-7 months

    c) 8-9 months

    d) I do not know

Section 2 (b): Outcome variable (This section seeks to establish the number of antenatal visits made by pregnant mothers)

3. How many visits did you make to a skilled health provider for ANC? ----------

4. Could you explain why you did not make at least 4 ANC visits----------
---

---

5. What made you seek for ANC from a skilled health provider?
   a) Pregnancy complications
   b) Family pressure
   c) Referred by CHV
   d) Health facility within easy reach
   e) Any other (specify)----------

6. Which benefits of seeking early ANC from a skilled health provider do you know?
   a) Timely detection of pregnancy complications
   b) Provision of LLITNs
   c) Provision of haematinics and TT
   d) Any other (specify)----------

      ---

7. What other things do you think influence early initiation of ANC ?----------
---

Section 3: Influence of skilled health providers' attitude on uptake of antenatal care (This section seeks to determine the influence of skilled health providers' attitude on uptake of antenatal care)

1. In your opinion, how was the reception by the skilled health provider during your visit for ANC?
   a) Not good
   b) Somewhat good
   c) Good
   d) Very good
   e) Extremely good

2. Could you please explain how you were attended to?
   a) With courtesy , dignity and politeness
   b) Ruddiness
   c) Not explained to procedures

d) Others (specify)----------

---

3. In your opinion, how adequate was the privacy during ANC sessions?

a) Not adequate
b) Somewhat adequate
c) Adequate
d) Very adequate
e) Extremely adequate

4. After you were served, did you hear anybody talk about your information you had shared with the skilled health provider?

a) No
b) Yes

5. If yes please explain----------

---

6. Please explain how you would wish the skilled healthcare providers' attitude be addressed to improve uptake of ANC services----------
---

Section 4: Influence of community health volunteers on uptake of antenatal care (This section seeks to establish the influence of availability of CHVs on uptake of antenatal care)

1. Do you know who CHVs are?
   a) Yes
   b) No
2. If yes, are there CHVs in your village?
   a) Yes
   b) No
3. If yes, which services do they offer that you know?
   a) Passing health messages
   b) Referral of pregnant women to health facilities
   c) Carry out sanitation activities
   d) Others (specify)----------

      ---
4. How many times were you visited by CHVs during your previous pregnancy?
   a) 1-3
   b) 4-9
   c) Above 10

d) I do not know

5. In your own opinion, how important are CHVs in improving uptake of ANC services?
    a) Not important
    b) Somewhat important
    c) Important
    d) Very important
    e) Extremely important

6. If yes, what can be done to motivate the CHVs ?----------

---

7. What other services CHVs should offer to encourage pregnant women utilize ANC?----------
---

Section 5: Effects of availability of skilled health providers (This questionnaire seeks to determine the effects of availability of skilled health providers on uptake of antenatal care)

1. How long did you take in one visit to the skilled health provider?
    a) 30-45 minutes
    b) 45-1 hour
    c) 1-2 hours
    d) More than 2 hours

2. How long did you wish to take during your ANC visits?
    a) 30 min-1 hour
    b) 2-3 hours
    c) 4- 5 hours
    d) Over 5 hours

3. During your ANC visit (s) did you find a skilled health provider?
    a) No
    b) Sometimes
    c) Always

4. In your own opinion, how adequate was the time spent by the skilled health providers while serving you?
    a) Not adequate
    b) Somewhat adequate
    c) Adequate
    d) Very adequate
    e) Extremely adequate

5. If no (Please Specify)----------

   ---

6. In your own opinion, to what extent did the ANC services given to you meet your expectations?
   a) Not at all
   b) Small extent
   c) Moderate
   d) Large extent
   e) Very large extent

7. If Not at all , please explain----------

   ---

8. Please explain in which other ways does availability of healthcare providers affect uptake of ANC services? ----------
   ---

Appendix 3: Mothers Questionnaire (Kiswahili Version)

Maswali ya akina mama wajawazito)

Sehemu ya 1 :(Taarifa tangulizi)

1. Tafadhali eleza umri wako (Miaka):

    a) 15-20
    b) 21-34
    c) 35-40
    d) 41-45
    e) >45

2. Je umefika kiwango gani cha elimu?
    a) Shule ya msingi
    b) Shule ya upili
    c) Chuo cha kadri
    d) Chuo kikuu

3. Dini yako ni gani?
    a) Mkristo
    b) Mwislam
    c) Mhindu
    d) Nyenginezo (eleza)----------

Sehemu ya 2: (Maswali kuhusu kuanza kliniki mapema):

1. Ni wakati gani mama mjamzito astahili kuanza kliniki ya mimba?
    a) Mara tu anapojihisi mjamzito
    b) Miezi 1-4
    c) Miezi 5-7
    d) Miezi 8-9
    e) Sijui

2. Je ulianza kliniki ya mimba ikiwa na miezi mingapi?

    a) Miezi 1-4
    b) Miezi 5-7
    c) Miezi 8-9
    d) Sijui

3. Ulienda kliniki mara ngapi wakati ulipokuwa mja mzito? ----------

4. Eleza kwa nini hukuweza kuenda kliniki mara nne ulipokuwa mjamzito?

---

5. Ni jambo gani lilokufanya uende klinik?

    a) Shida za mimba

b) Familia
c) Nilitumwa na mhudumu wa afya nyanjani
d) Hospitali iko karibu
e) Sababu zingine (eleza)----------

6. Ni faida gani mama mjamzito hupata anapoanza kliniki mapema?
a) Shida za mimba hutambuliwa mapema
b) Kupewa neti
c) Kupewa dawa za kuongeza damu
d) Faida zingine (eleza)----------

7. Ni mambo gani mengine huchangia mama mjamzito kuanza kliniki mapema?

Sehemu ya 3 :(Athari za tabia za madaktari)

1. Kwa maoni yako, mapokezi yalikuwaje ulipoenda kliniki?
   a) Si mazuri
   b) Mazuri kiasi
   c) Mazuri
   d) Mazuri sana
   e) Mazuri zaidi
2. Eleza ulihudumiwa kwa njia gani? ----------
   a) Kwa heshima na upole
   b) Kwa madharau
   c) Si kuelezwa huduma nilizopewa
   d) Mengineyo (eleza)----------

3. Kwa maoni yako, kiwango cha faraga katika kliniki kilikuwaje?

a) Chini
b) Nzuri kiasi
c) Nzuri
d) Nzuri sana
e) Nzuri zaidi

4. Baada ya kuhudumiwa, ulisikia watu wakizungumza juu yako?

a) Ndio
b) La

5. Kama ndio (eleza) ----------

6. Eleza kwa njia gani tabia za madaktari zaweza kurekebishwa ili kuboresha huduma za mama wajawazito----------

Sehemu ya 4 :(Athari za wahuduma wa afya nyanjani)

1. Je unajuwa wahuduma wa afya wa nyanjani (CHVs)?

    a) Ndio
    b) La

2. Kama ndio, je wako kwenye kijiji chako?

    a) Ndio
    b) La

3. Kama ndio, ni huduma gani wanazopeana?

    a) Hupeana jumbe za afya
    b) Hutuma mama wajawazito kliniki
    c) Huduma za usafi
    d) Nyinginezo (eleza)----------

4. Ulitembelewa mara ngapi na hao wahudumu wa afya nyanjani?

    a) 1-3
    b) 4-9
    c) Zaidi ya 10
    d) Sijui

5. Kwa maoni yako, wahudumu wa afya ya nyanjani ni muhimu?

    a) Si muhimu
    b) Ni muhimu kiasi
    c) Ni muhimu
    d) Ni muhimu sana
    e) Ni muhimu zaidi

6. Kama ndio, ni nini kinaweza kuwatia motisha? ----------

7. Ni huduma zipi zaidi wahudumu wa afya nyanjani wapeane ili mama wajawazito wa hudhurie kliniki ipasavyo? ----------
    ----

Sehemu ya 5 :(Athari za kuwepo madaktari)

1. Ulichukua mda gani ulipohudhuria kliniki?

    a) Dakika 30-45
    b) Dakika 45-Saa1
    c) Saa 1-Masaa 2
    d) Zaidi ya masaa 2

2. Ungependa kuchukuwa mda gani katika kliniki?

    a) Dakika 30-Saa 1
    b) Masaa 2-3
    c) Masaa 4- 5
    d) Zaidi ya masaa 5

3. Je, ulipoenda klinik, ulipata madaktari?
    a) La
    b) Mara mojamoja
    c) Ndio, kila wakati
4. Kwa maoni yako, madaktari walikuwa na mda wa kutosha kwako?

    a) Haukutosha
    b) Kiasi
    c) Ulitosha
    d) Ulitosha sana
    e) Ulitosha zaidi

5. Kama la (eleza)----------

6. Kwa maoni yako, kwa kiasi gani huduma ulizopata zilifikia matarajio yako?
    a) Hazikutimiza kamwe
    b) Kiasi
    c) Zilitimiza matarajio yangu
    d) Zilitimiza matarajio yangu sana
    e) Zilitimiza matarajio yangu zaidi

7. Kama hazikufikia matarajio yako (eleza)----------

8. Tafadhali eleza kuweko kwa madaktari kunavyo athiri huduma za mama wajawazito----------

Appendix 4: Key Informant Interview Schedule

1. What is your cadre?
2. How old are you?
3. What is your highest level of education?
4. Which is your religion?
5. When do you think a pregnant woman should seek antenatal care from a skilled health provider?
6. According to the current WHO guidelines, how many visits should a pregnant woman make to a skilled health provider for antenatal care?
7. At which month of pregnancy do pregnant women come for their first antenatal care visit in this facility?
8. Which benefits of seeking early antenatal care from a skilled health provider do you know?
9. In your own opinion, what makes pregnant women not seek for early antenatal care from a skilled health provider?
10. Approximately how many pregnant women do you expect per month?
11. How many pregnant women do you attend to per month?
12. Do you think in your own opinion that you attend to pregnant women well during their visits for antenatal care?
13. Could you please explain how you attend to them?
14. In your own opinion, is there adequate privacy in this facility?
15. How long does a pregnant woman take to receive the antenatal care services?
16. Please explain how you ensure confidentiality of the antenatal care clients' information?
17. Do you know who CHVs are?
18. If yes, are there CHVs in your catchment area?
19. If yes, which services do they offer that you know?

20. In your own opinion, do you think CHVs have any influence on uptake of antenatal care?

21. If yes (please explain)

22. How many skilled health providers are available in this facility?

23. What do you think should be the ideal number of skilled providers in this facility?

24. Do you feel that skilled health providers spent adequate time while giving ANC services?

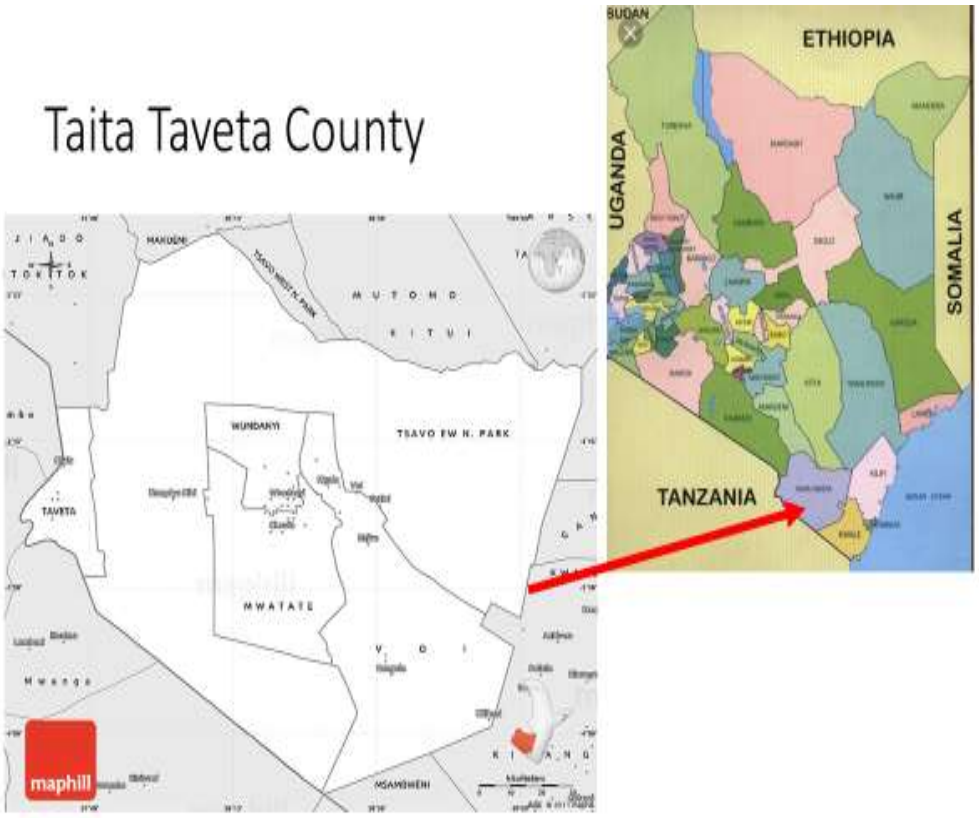
25. In your own opinion, do antenatal care clients get satisfied with services given to them?

26. If yes, please explain?

27. What do you think should be done to improve availability of skilled health providers in this facility?

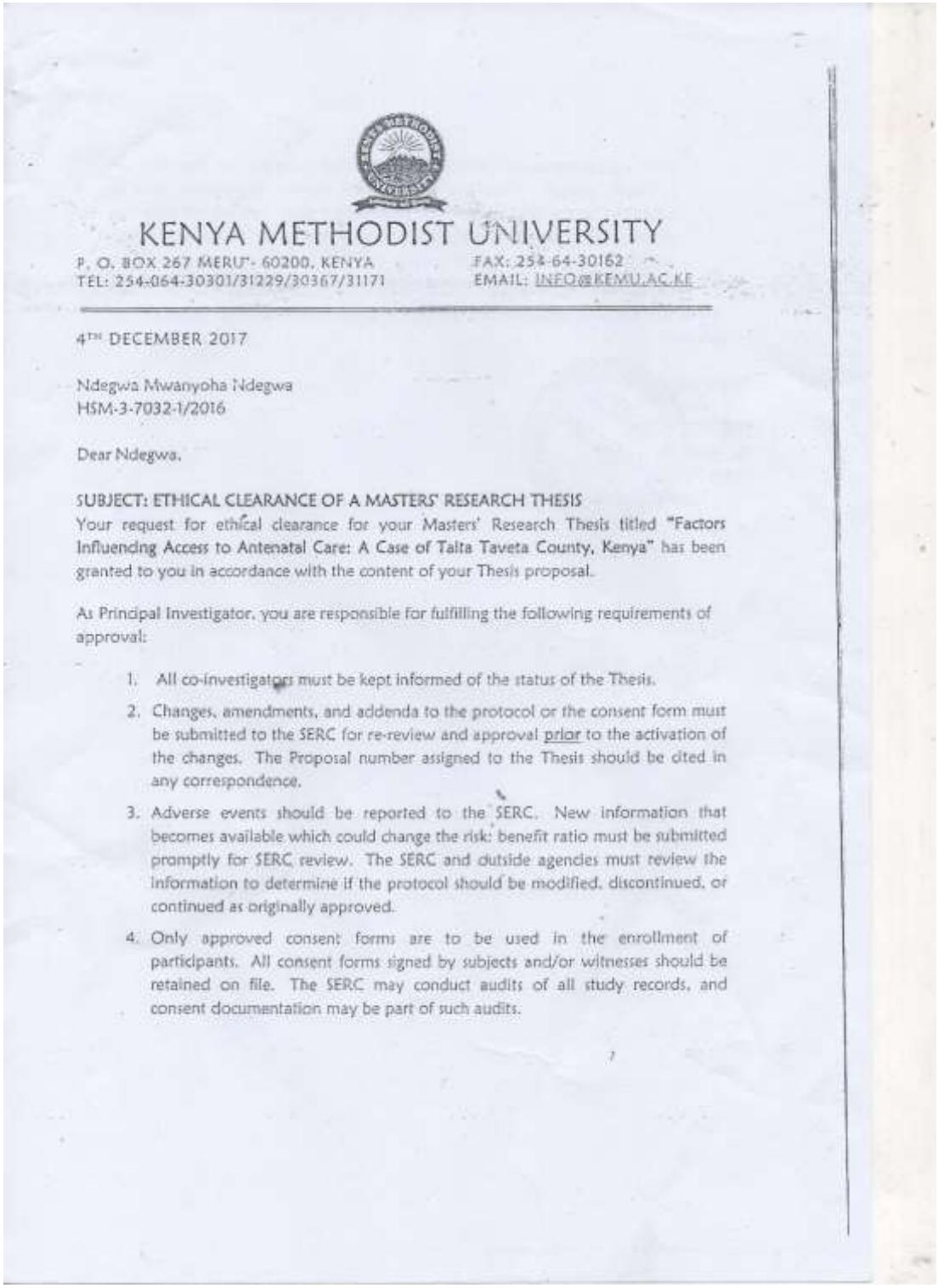
Appendix 5: Map of Taita Taveta County

N



Source: Google map

Appendix 6: KeMU Ethical Clearance



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4TH DECEMBER 2017

Ndegwa Mwanyoha Ndegwa
HSM-3-7032-1/2016

Dear Ndegwa,

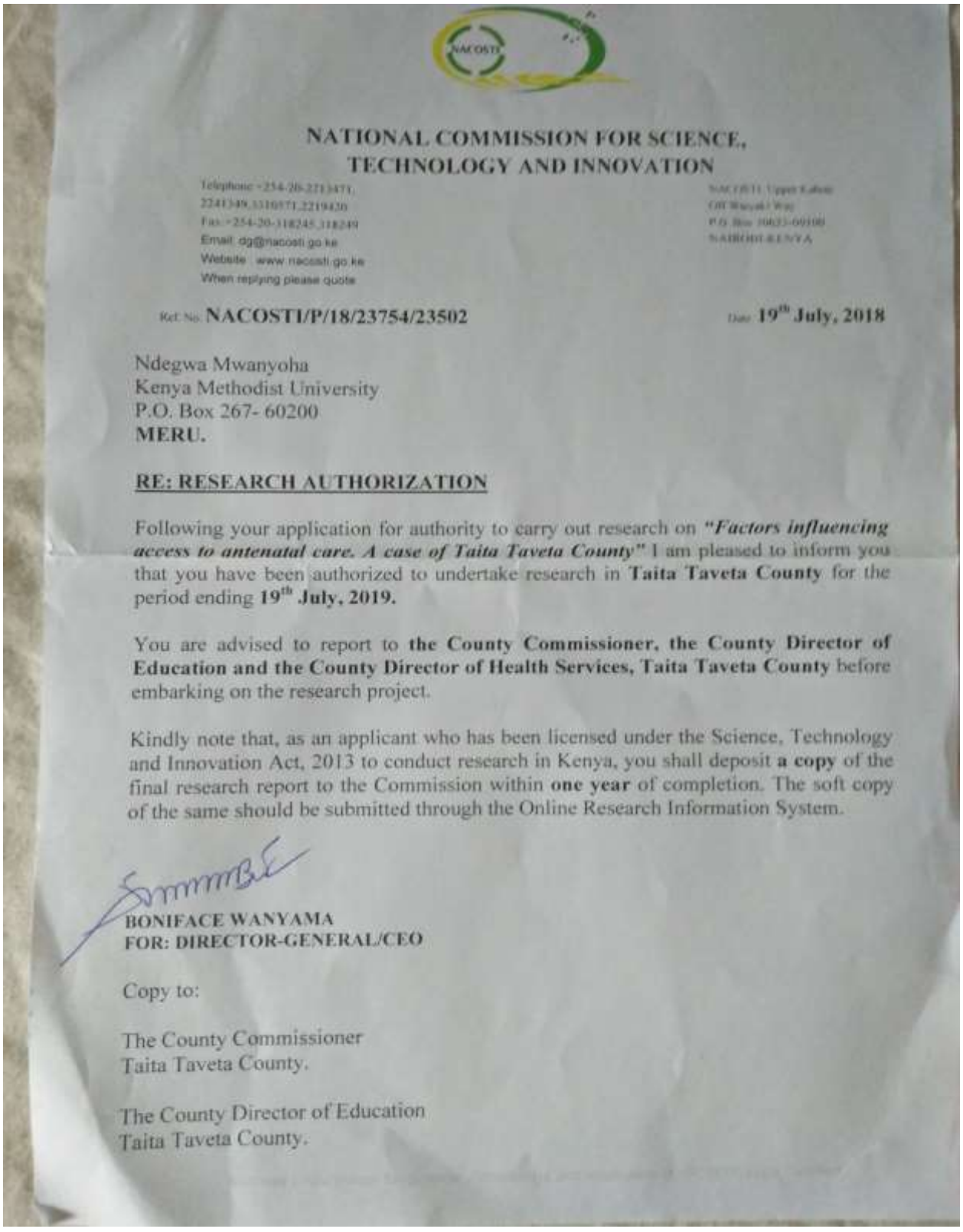
SUBJECT: ETHICAL CLEARANCE OF A MASTERS' RESEARCH THESIS

Your request for ethical clearance for your Masters' Research Thesis titled "Factors Influencing Access to Antenatal Care: A Case of Taita Taveta County, Kenya" has been granted to you in accordance with the content of your Thesis proposal.

As Principal Investigator, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the Thesis.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the SERC for re-review and approval prior to the activation of the changes. The Proposal number assigned to the Thesis should be cited in any correspondence.
3. Adverse events should be reported to the SERC. New information that becomes available which could change the risk: benefit ratio must be submitted promptly for SERC review. The SERC and outside agencies must review the information to determine if the protocol should be modified, discontinued, or continued as originally approved.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by subjects and/or witnesses should be retained on file. The SERC may conduct audits of all study records, and consent documentation may be part of such audits.

Appendix 7: NACOSTI Authorization



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete,
Off Waiyaki Way,
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/18/23754/23502**

Date: **19th July, 2018**

Ndegwa Mwanyoha
Kenya Methodist University
P.O. Box 267- 60200
MERU.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Factors influencing access to antenatal care. A case of Taita Taveta County"*** I am pleased to inform you that you have been authorized to undertake research in **Taita Taveta County** for the period ending **19th July, 2019.**

You are advised to report to **the County Commissioner, the County Director of Education and the County Director of Health Services, Taita Taveta County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Taita Taveta County.

The County Director of Education
Taita Taveta County.

Appendix 8: County Authorization

County Government of Taita Taveta

Office of the County Director Of Health Services

Ref: TTVTC/DOH/CDH/TR/7/2018

P.O BOX 18-80100

VOI

30TH July 2018

Ndegwa Mwanyoha Ndegwa

Kenya Methodist University

P.O BOX 267-60200

MERU

RE: RESEARCH AUTHORISATION

Refer to research authorisation letter Ref:NACOSTI/P/23754/23502 dated 19th July, 2018 on a study entitled "**Factors influencing access to antenatal care, a case of Taita Taveta County**", the Department of Health has no objection on this research.

You will be required to share the findings of this study with the Department of Health Taita Taveta County

Mrs Eunice Masamo

Ag County Director of Health

Taita Taveta County

TAITA TAVETA COUNTY GOVERNMENT
OFFICE OF THE COUNTY DIRECTOR
30 JUL 2018
HEALTH SERVICES
P. O. Box 1216 - 80304, WUNDANYI

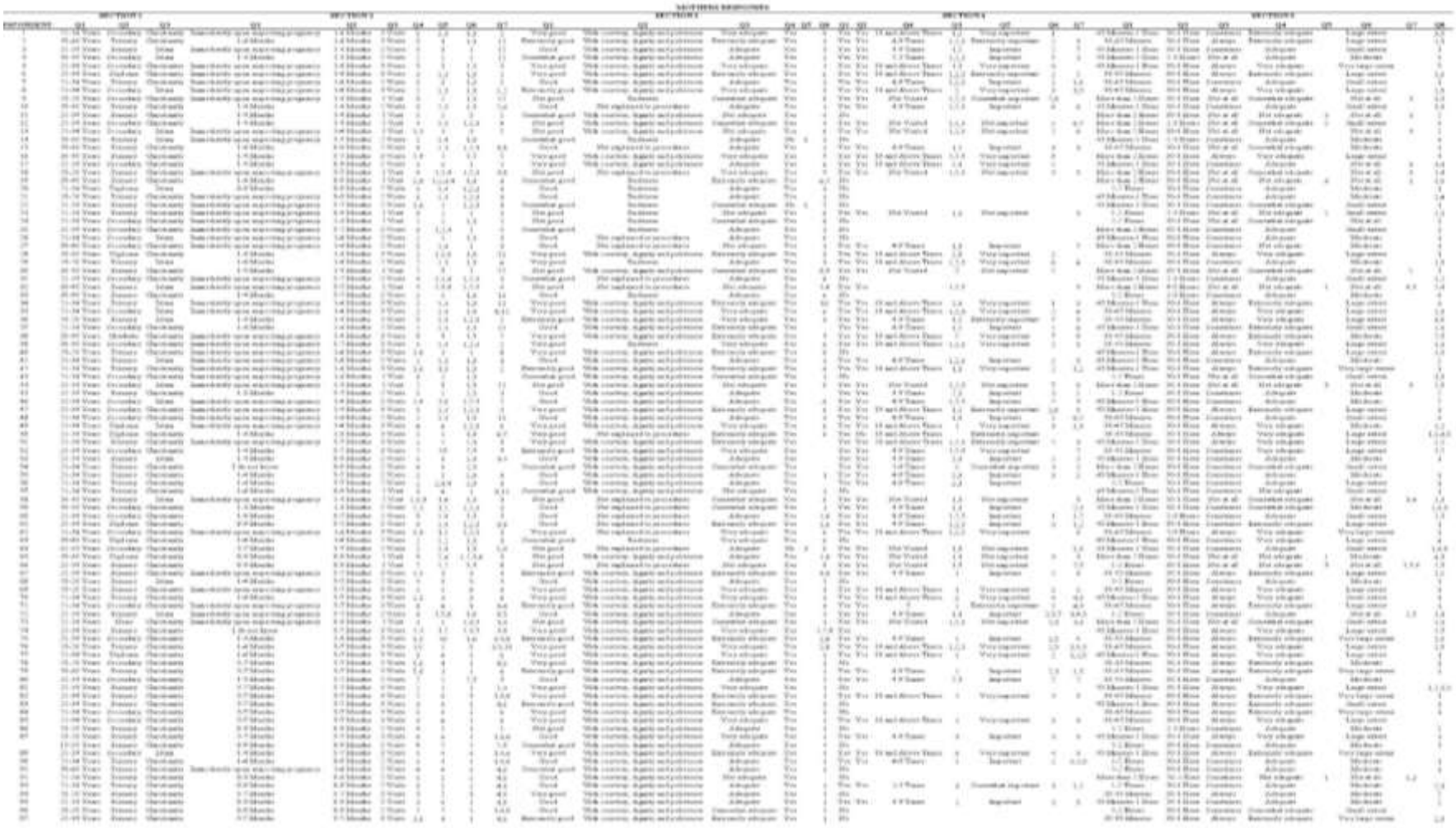
Cc:

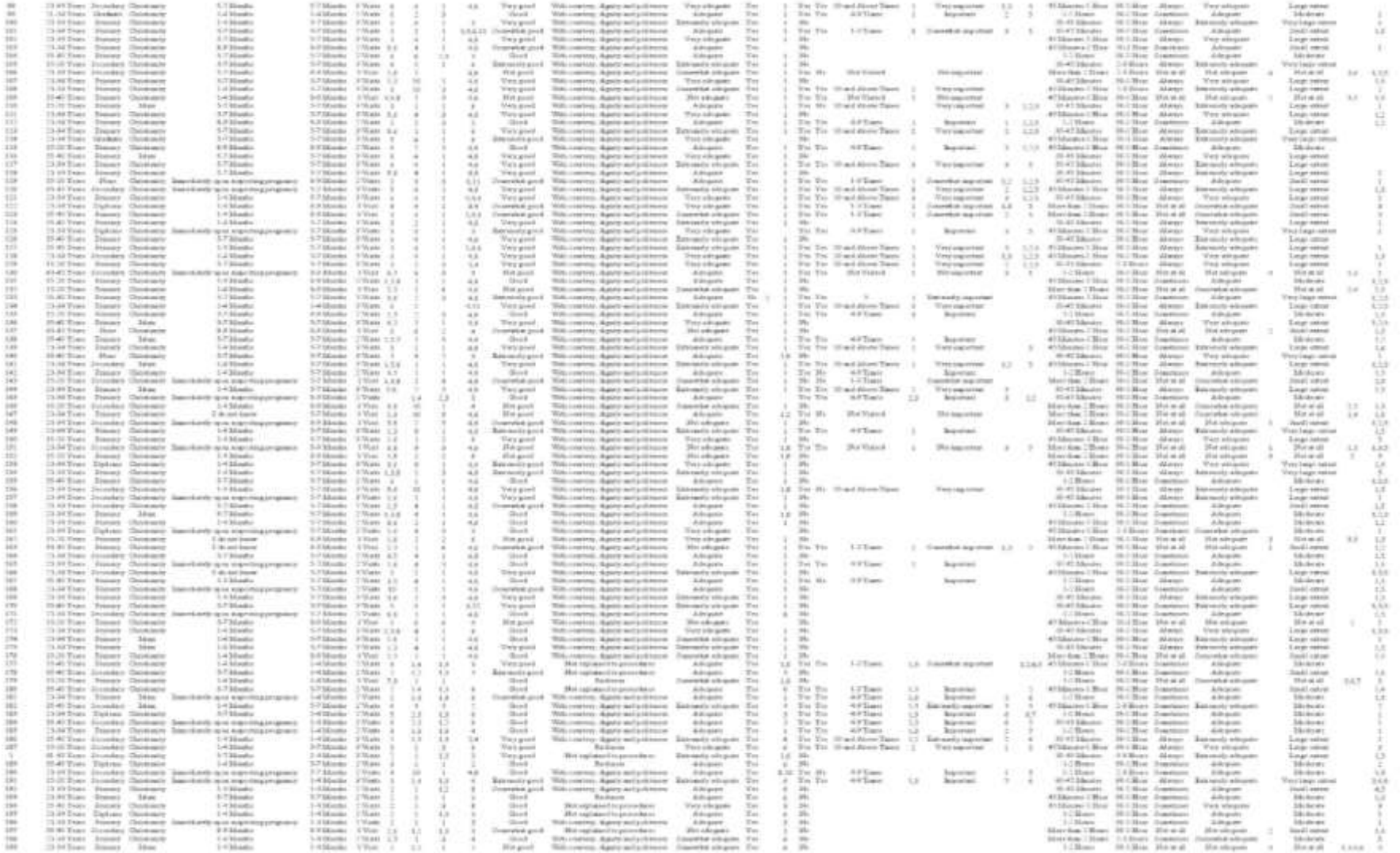
- County Executive Committee Member Health Services
- County Chief Officer Health Services

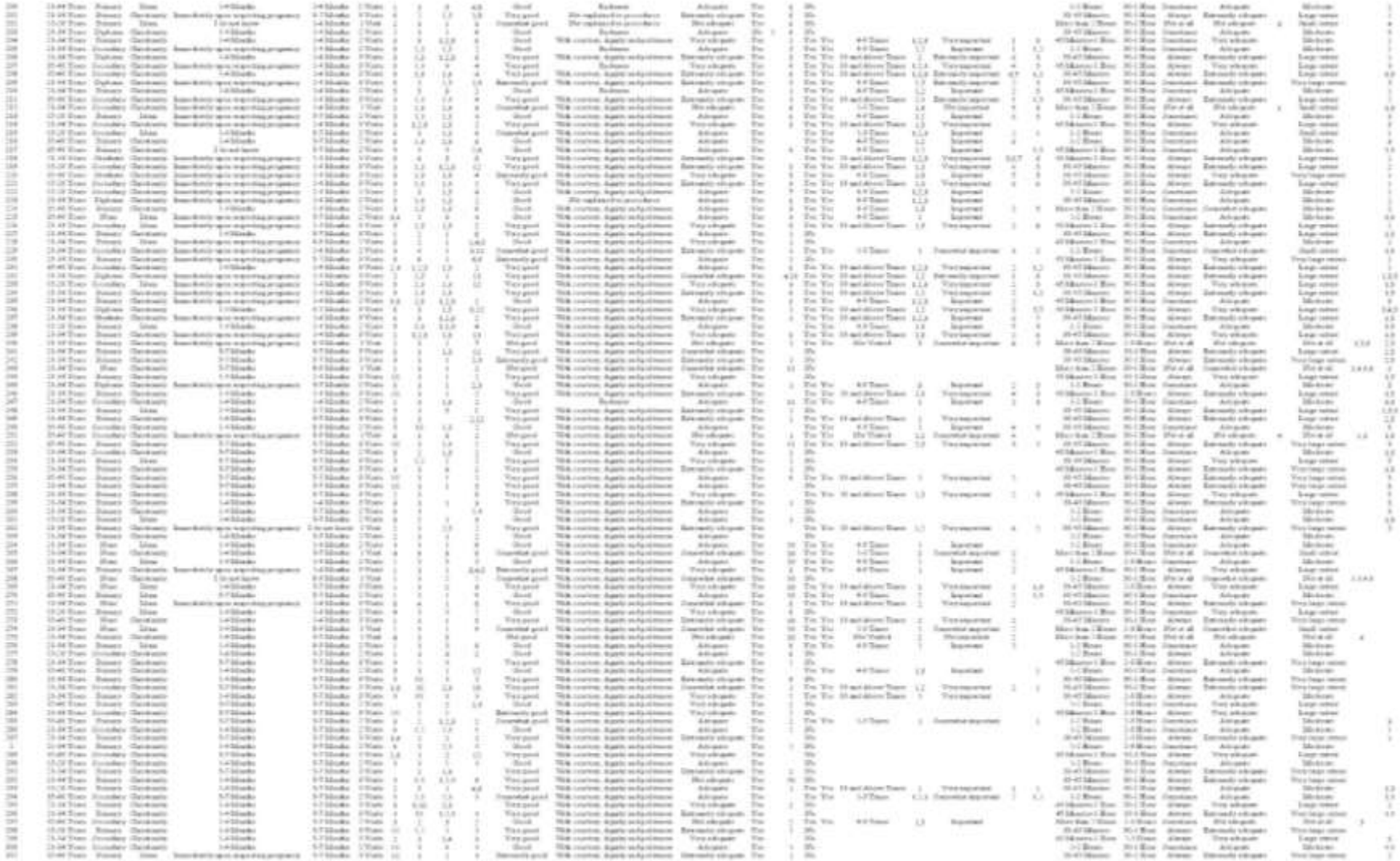
Appendix 9: List of Public Health Facilities

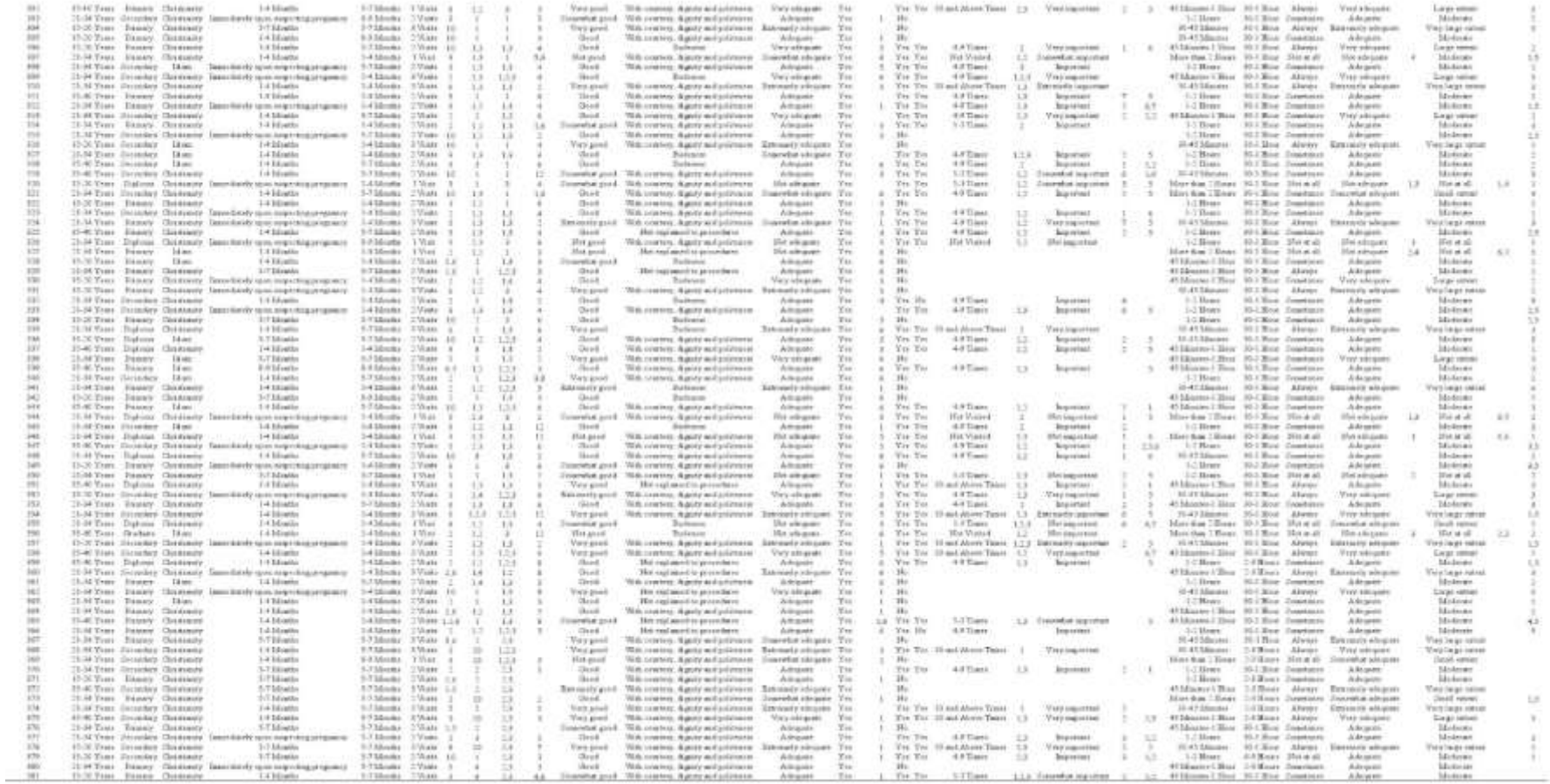
1. Moi referral hospital maternity
2. Taveta hospital
3. Rekeke health centre
4. Ndilidau dispensary
5. Mpizinyi health centre
6. Modambogho dispensary
7. Mwatate hospital maternity department
8. Wesu hospital maternity department
9. Buguta health centre
10. Moi hospital MCH clinic
11. Moi hospital outpatient department
12. Maungu health centre
13. Mwatate hospital MCH clinic
14. Mwatate hospital outpatient department
15. Wesu hospital MCH department
16. Wesu hospital outpatient department
17. Moi hospital paediatric ward
18. Bura health centre

Appendix 10: Raw Data









DISCHARGES' RESPONSES

RESPONDENT	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27
1	Nurse/Midwife	30-40 Years	Diploma	Christianity	1-4 Months	Minimum of 4 Visits	5-7 Month	1,4,5	1,3,5	Above 50 Cleats	Above 50 Cleats	Yes	2,3	Yes	No	1,2	Yes	No		Yes	3	4-6	7-8	Yes	Yes	4,5	Employ more staff
2	Nurse/Midwife	20-30 Years	Diploma	Christianity	Immediately upon suspecting pregnancy	Minimum of 8 Visits	1-4 Month	3	1,2	11-20 Cleats	Above 50 Cleats	Yes	1	Yes	More than 2 Hours	1,2,3	Yes	Yes	1,3,8	Yes	3	4-6	7-8	Yes	Yes	1,4,6	Employ more staff
3	Nurse/Midwife	20-30 Years	Diploma	Christianity	1-4 Months	1-4 Visits	5-7 Month	1	1,5	41-50 Cleats	Above 50 Cleats	Yes	1	Yes	45-1 Hour	1,5	Yes	Yes	5	Yes	3	9-12	13 and Above	No	Yes	4	Employ more staff
4	Nurse/Midwife	30-40 Years	Diploma	Christianity	1-4 Months	Minimum of 4 Visits	1-4 Month	1,5	1,2,5	11-20 Cleats	11-20 Cleats	No	1	No	More than 2 Hours	2	Yes	Yes	2,4	No		4-6	9-12	Yes	Yes	4	Employ more staff
5	Nurse/Midwife	40-50 Years	Diploma	Christianity	Immediately upon suspecting pregnancy	Minimum of 4 Visits	1-4 Month	1	1,2,3	Above 50 Cleats	Above 50 Cleats	Yes	1,5	No	1-2 Hours	2,5	Yes	Yes	2	Yes	1,2,6,7	4-6	4-6	No	Yes	4,6	Employ more staff
6	Nurse/Midwife	40-50 Years	Diploma	Misc	Immediately upon suspecting pregnancy	Minimum of 8 Visits	5-7 Month	2,5	1,3,6	21-30 Cleats	41-50 Cleats	Yes	1	Yes	30-45 Minutes	1	Yes	Yes	1,2,3,5	Yes	1,3	7-8	9-12	Yes	Yes	4,6	Employ more staff
7	Nurse/Midwife	41-45 Years	Diploma	Mussamic Scholars	Immediately upon suspecting pregnancy	Minimum of 4 Visits	5-7 Month	1,2,3	2,3,7	11-20 Cleats	11-20 Cleats	Yes	1	Yes	30-45 Minutes	1,2,4	Yes	Yes	1,2,3,4,8	Yes	3	7-8	13 and Above	No	Yes		Employ more staff
8	Nurse/Midwife	Above 50 Years	Certificate	Christianity	Immediately upon suspecting pregnancy	Minimum of 4 Visits	5-7 Month	1,5	1,2,3,8	31 Cleats and Below	11-20 Cleats	Yes	1	Yes	30-45 Minutes	1,4,5	Yes	Yes	2,3,4,8	Yes	1,2,3	7-8	7-8	Yes	Yes	4,6	Staff should be equitably distributed
9	Nurse/Midwife	20-30 Years	Diploma	Christianity	Immediately upon suspecting pregnancy	Minimum of 4 Visits	5-7 Month	1,3,6,7	1,2,6	31-40 Cleats	Above 50 Cleats	Yes	1,6	Yes	45-1 Hour	3,4	Yes	Yes	2,5	Yes	3,2	9-12	13 and Above	Yes	Yes	5	Employ more staff
10	Nurse/Midwife	31-37 Years	Diploma	Christianity	1-4 Months	Minimum of 4 Visits	1-4 Month	2,5,7	1,3,4	21-30 Cleats	Above 50 Cleats	Yes	2,6	Yes	More than 2 Hours	3	Yes	Yes	1,8	Yes	1,8	13 and Above	13 and Above	Yes	Yes	4,6	Employ more staff
11	Nurse/Midwife	40-50 Years	Diploma	Christianity	Immediately upon suspecting pregnancy	Minimum of 8 Visits	5-7 Month	2,3	2,3	11-20 Cleats	31-40 Cleats	Yes	1	Yes	45-1 Hour	2,3	Yes	Yes	4	Yes	1,2,3	7-8	9-12	Yes	Yes	5	Employ more staff
12	Nurse/Midwife	20-30 Years	Diploma	Christianity	Immediately upon suspecting pregnancy	Minimum of 8 Visits	5-7 Month	1,2,5	2,5	31 Cleats and Below	31 Cleats and Below	Yes	1	Yes	30-45 Minutes	1	Yes	No		Yes	2	1-3	1-3	Yes	No		Employ more staff
13	Nurse/Midwife	30-40 Years	Diploma	Christianity	1-4 Months	Minimum of 4 Visits	5-7 Month	1,3	4	31 Cleats and Below	11-20 Cleats	Yes	1	No	45-1 Hour	1,4	Yes	Yes	1,2,6,8	Yes	3	1-3	4-6	Yes	Yes	4	Employ more staff
14	Nurse/Midwife	40-50 Years	Diploma	Christianity	1-4 Months	Minimum of 4 Visits	5-7 Month	2,3,5,6	3,4	31 Cleats and Below	31 Cleats and Below	Yes	1	Yes	45-1 Hour	3	Yes	Yes	4,5	Yes	3,2	4-6	4-6	Yes	Yes	4	Employ more staff
15	Nurse/Midwife	31-37 Years	Diploma	Christianity	Immediately upon suspecting pregnancy	Minimum of 4 Visits	5-7 Month	1,3,7	3	31 Cleats and Below	11-20 Cleats	Yes	1,3	Yes	30-45 Minutes	2,4	Yes	Yes	3,2	Yes	2,3	4-6	4-6	Yes	Yes	5	Employ more staff
16	Nurse/Midwife	20-30 Years	Diploma	Christianity	1-4 Months	Minimum of 4 Visits	1-4 Month	2,3,8	1,3	11-20 Cleats	11-20 Cleats	Yes	1,2,4	Yes	30-45 Minutes	1,2	Yes	Yes	1,3	Yes	1,3	1-3	4-6	Yes	Yes	3,4	Employ more staff
17	Nurse/Midwife	40-50 Years	Certificate	Christianity	Immediately upon suspecting pregnancy	Minimum of 4 Visits	1-4 Month	1,4	1,2	31 Cleats and Below	31 Cleats and Below	Yes	1,2	Yes	More than 2 Hours	1	Yes	Yes	2,3	Yes	1,2	4-6	7-8	Yes	Yes	3,2	Employ more staff