ADOLESCENTS' UTILISATION OF ANTENATAL SERVICES IN MUHEZA DISTRICT, TANZANIA

by

Omar Ndano Lweno

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SUPERVISOR: Prof. J.H. Roos

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Student Number: 35927534

DECLARATION

I declare that ADOLESCENTS' UTILISATION OF ANTENATAL SERVICES IN MUHEZA DISTRICT, TANZANIA is my own work and that all sources I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

SIGNATURE	DATE

DEDICATION

This study is dedicated to my late father, Juma Omar Lweno.

ACKNOWLEDGEMENTS

I want to thank the following people for their respective contributions to this dissertation:

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ADOLESCENTS' UTILISATION OF ANTENATAL SERVICES IN MUHEZA DISTRICT, TANZANIA

STUDENT NUMBER: 3592-753-4

STUDENT: O.N. Lweno

DEGREE: MASTER OF PUBLIC HEALTH

DEPARTMENT: HEALTH STUDIES, UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: PROF. J.H. ROOS

ABSTRACT

The purpose of this study was to identify and describe factors that affect the utilisation of antenatal services by pregnant adolescents in Muheza district, Tanzania. Quantitative, descriptive study was used. The Andersen and Newman Framework of Health Services Utilisation were used as a conceptual framework. The study population consisted of 235 adolescents who delivered in the Muheza district while attending postnatal clinics and health centres providing reproductive health services between January 2012 and March 2012. The findings revealed a high percentage of underutilisation of ANC due to low level of education, low individual and household income, inadequate knowledge about sexuality and poor attitudes towards reproductive health services as exemplified by low prevalence of contraceptive use. The distance from clinic, the use of family planning methods, source of antenatal care and having more than four children under 16 years were associated with adequate utilisation of antenatal services. Recommendations were made to promote antenatal services usage by pregnant adolescents in Tanzania.

KEY CONCEPTS

Adolescent mothers; health services utilisation, antenatal services, promoting factors, barriers to ANC usage, recommended strategies

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LIST OF ABBREVIATIONS AND ACRONYMS

ACT - Artemisinin Combination Therapy

AIDS - Acquired Immune Deficiency Syndrome

ANC - Antenatal Care

ARV - Antiretrovirals

CHF - Community Health Fund

CI - Confidence Intervals

CVI - Content Validity Index

FANC - Focused Antenatal Care

FEAST - Fluid Expansion as Supportive Therapy

HIV - Human Immune Deficiency Virus

I-CVI - Item Content Validity Index

ITN - Insecticide Treated Nets

MCH - Maternal and Child health

MNH - Maternal and Newborn Health

MSW - Medical Social Worker

NBS - National Bureau of Statistics

NIMR - National Institute for Medical Research

OR - Odds Ratio

PCA - Principal Component Analysis

PHN - Public Health Nurse

RCH - Reproductive and Child Health

S-CVI - Scale Content Validity Index

SES - Socio-economic Status

STD - Sexually Transmitted Disease

TDHS - Tanzania Demographic and Health Survey

TOP - Termination of Pregnancy

TPP - Teen Parenting Partnership Programme

TZS - Tanzania Shillings

UNICEF - United Nations Childrens' Fund

USD - United States Dollars

WHO - World Health Organization

WIC - Women Infants and Children Programme

CHAPTER 1

INTRODUCTION TO THE STUDY

1.1 BACKGROUND INFORMATION

The United Republic of Tanzania is the largest country in East Africa, covering 940,000 square kilometres, 60,000 of which are inland water. Tanzania lies south of the equator and shares borders with eight countries: Kenya and Uganda to the north; Rwanda, Burundi, the Democratic Republic of Congo, and Zambia to the west; and Malawi and Mozambique to the south (TDHS 2010:1). The map of the Republic of Tanzania is illustrated in Figure 1.1.

For administrative purposes, mainland Tanzania is divided into 21 regions, and Zanzibar (which forms a semi-autonomous part of Tanzania) is divided into 5 regions. Each region is subdivided into several districts (TDHS 2010:1). The population of Tanzania is 44,928,923 (NBS2013). Although the population of Tanzania has trebledin the past four decades, the country is still sparsely populated. Despite the low population, density is high in some parts of the country and has been increasing over time. The average population density was 14 persons per square kilometrein 1967, but it has increased to 39 persons per square kilometre in 2002 (TDHS 2010:2).

The high population growth rate in Tanzania has been brought about by high fertility and declining mortality levels. According to the 2002 census, the life expectancy at birth is 51 years. The population of Tanzania has continued to be predominantly rural despite the increase in proportion of urban residents over time, from 6 percent in 1967to 23 percent in 2002(TDHS 2010:2) and 51 in 2012 (NBS 2013:6).

1.2 STUDY AREA

Muheza is a small district town in the North East of Tanzania 40km inland from the port of Tanga and about 100km south of the Kenyan border. It lies at the foot of the East Usambara Mountains on the edge of the coastal plain (FEAST 2011). The study was carried out in Teule Hospital, all health centres and dispensaries within the catchment area of the hospital.

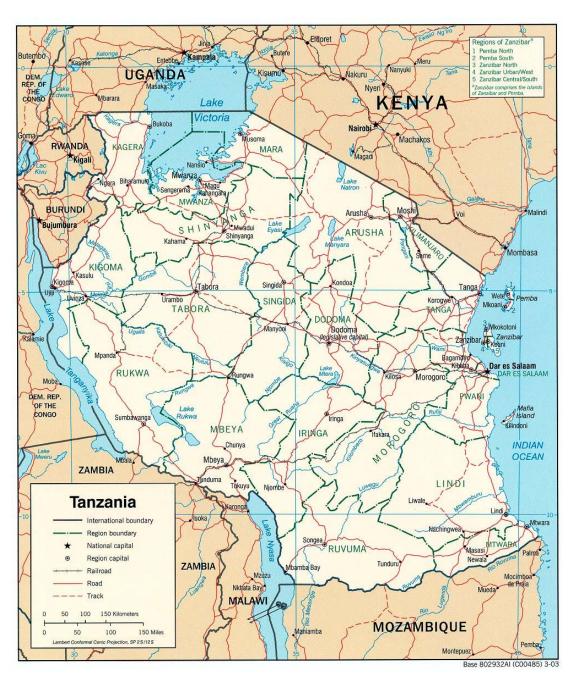


Figure 1.1 Map of the Republic of Tanzania.

Source: http://mapsget.com/africa/tanzania/maps-of-tanzania

Teule Hospital is a district hospital with a bed capacity of 330, located in Muheza. It is an Anglican Church hospital but designated by the government as the district hospital for Muheza district. The hospital providesmedical services to a population of about 280,000 covering an area of 5000 square kilometres(See figure 1.2). It has served as a research site for a number of trials that include FEAST (Fluid Expansion as Supportive Therapy), surveillance of paediatric inpatients from Salmonella typhi and part of the ACT consortium examining the interaction of Artemisinin Combination Therapy (ACT) with Antiretrovirals (ARV) (Hospitali Teule Muheza 2007).

In Tanzania, one in every six girls and young women aged 15 to 19 years is married (TDHS 2010:91), and the country has one of the highest adolescent pregnancy and birth rates. The adolescent fertility rate was estimated to be 116 per 1000 girls aged 15-19 years (World Health Statistics 2012).

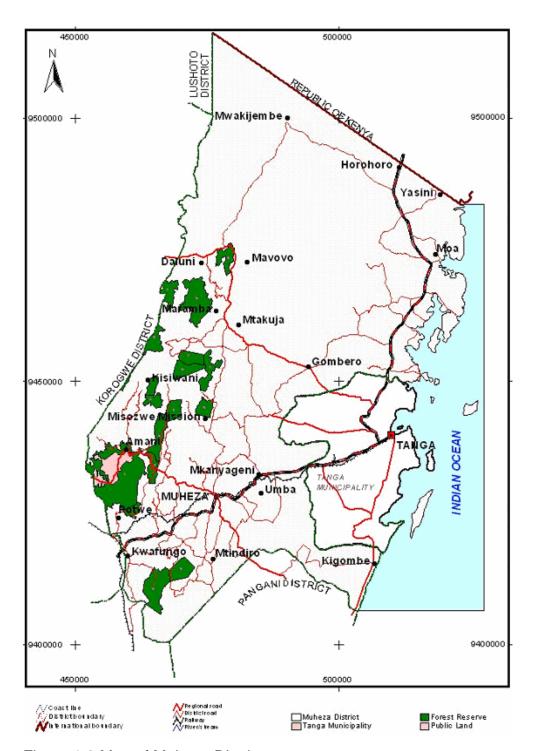


Figure 1.2 Map of Muheza District

Source: http://jpfirstlab.com/Reports/BOCAF Paper No 1.pdf

1.3 ANTENATAL SERVICES IN TANZANIA

According to TDHS 2010, forty-three percent of women whose last birth occurred in the five years before the survey made four or more ANC visits. This is a sharp decline from the 62 percent recorded in the 2004-05 TDHS (TDHS 2010:129).

In Mainland, there is marked variation between urban and rural areas (55% compared with 39%). In Tanzania, pregnant women are advised to start attending antenatal clinics before the 16th week of gestation so that their general baseline health can be assessed and monitored regularly (TDHS 2005:133). The recommended number of visits according to the guidelines of the World Health Organization (WHO 1994:7) for pregnant women without complications is at least four antenatal care visits during pregnancy. For women with complications more frequent visits are recommended for close follow- up and if necessary admission to the hospital.

The majority of Tanzanian women did not make the recommended number of ANC visits and only 15% made their first ANC visit before the fourth month of pregnancy (TDHS 2010:129). Nearly one-third of women did not seek ANC until their six month of pregnancy. The median number of months that women are pregnant at their first visit is 5.4. There is little urban-rural variation in terms of when the first ANC visit occurred (TDHS 2010:129).

The 2010 TDHS specified coverage of antenatal care by source of care or provider of care. Ninety-six percent of women who gave birth in the five years preceding the survey received ANC from a skilled provider at least once (TDHS 2010:127). The majority of mothers who participated in the survey (80%) were attended by nurse/midwife, followed by, in decreasing percentage, Maternal and Child Health (MCH) aide (8%), clinical officer (5%) and doctors (4%) for ANC services (TDHS 2010:127). Two percent of women received some kind of antenatal care from people who were not medical professionals, such as village health workers. No women received ANC from a traditional birth attendant whether trained or untrained (TDHS 2010:127).

1.4 PROBLEM STATEMENT

Adolescent pregnancy poses a challenge to the antenatal services in Tanzania. However little information about factors that motivate and prevent pregnant adolescents to use the antenatal services in Tanzania is available. Studies related to teenage

mothers have focused on factors contributing to high adolescent pregnancy rate, social economic characteristics and the source of knowledge on reproductive health issues (Philemon 2007:69). The Tanzanian government has recently developed national guidelines that allow pregnant girls to return to school and continue their education after giving birth as a means of addressing the problem of the growing number of girls dropping out from school (United Nations 2010). There are no alternative arrangements such as late afternoon clinic hours, school-based health centres and alternative schools available for pregnant adolescents in a country with limited resources, both financial resources and the number of trained personnel to run these facilities. The problem seems to be that although the antenatal clinics are available in the Muheza district, Tanzania, it seems that pregnant adolescents are not utilising the antenatal services as outlined in the WHO guidelines (1994).

1.5 THE PURPOSE OF THE RESEARCH

The main purpose of this study is to describe the utilisation of antenatal services and identify and describe factors that will promote the utilisation of antenatal services by pregnant adolescents in Muheza District, Tanzania. Factors that affect the under-utilisation of antenatal services by pregnant adolescents in Muheza, Tanzania will also be identified and described. This information will be used to recommend ways in which the antenatal services in Tanzania will become more accessible to pregnant adolescents.

1.5.1 Objectives of the study

The objectives of the study are as follows: to

- describe the utilisation of prenatal services by pregnant adolescents in Muheza District, Tanzania.
- identify possible barriers that may prevent pregnant adolescents from utilising the antenatal services.
- develop strategies that will promote antenatal usage by pregnant adolescents in Tanzania.

1.5.2 Research questions

A research question is a concise statement that is worded in the present tense and includes one or more variables or concepts (Burns & Grove 2005:158).

The following research questions will direct this study:

- What are the factors that promote adequate utilisation of antenatal services by pregnant adolescents in Muheza District, Tanzania?
- What are the barriers that prevent pregnant adolescents from utilising the antenatal services?
- What strategies could be developed will promote antenatal usage by pregnant adolescents in Tanzania?

1.6 SIGNIFICANCE OF THE STUDY

This study would contribute to the improvement of the quality of antenatal service delivery to pregnant adolescents by identify factors that either positively or negatively affect the utilisation of antenatal care services by pregnant adolescent in Muheza District, Tanzania. Knowledge gained from the findings of this study would be used to formulate strategies for improving the provision of antenatal services to pregnant adolescents by promoting factors that enhance utilisation of Antenatal (ANC) services. It will also suggest different ways to overcome the barriers to the utilisation of these services.

1.7 OPERATIONAL DEFINITIONS

Adolescent mothers: An adolescent is a young person who is developing into an adult (Cambridge Advanced Learners Dictionary 2008). Adolescent mothers are described by Ehlers, Maja, Sellers and Gololo (2000:46) as mothers aged 19 years or younger at the time of delivery irrespective of the outcome of the pregnancy and irrespective of the mother's marital status. In this study adolescent mothers will refer to women who are 19 years or younger at the time of delivery or during their first visit to Reproductive and Child Health (RCH) clinic for vaccination of newborns.

Antenatal care is the care that women receive during pregnancy that helps to ensure healthy outcomes for women and newborns (WHO/UNICEF 2003:2). In this study, antenatal care will refer to the number of visits made by a pregnant adolescent to the ANC before delivery and not to the content of care.

Utilisation: is described using the frequency or number of visits to the antenatal care clinic made by a pregnant adolescent from the first visit until the end of pregnancy. For

the purpose of this study, a pregnant adolescent who makes less than four visits will be defined as inadequately utilised ANC whereas those with four visits or more will be categorised as adequately utilising ANC services.

1.8 THEORETICAL FRAMEWORK

The Andersen Health Seeking Behaviour Model assumes that health seeking behaviour is the result of interaction between characteristics of individuals, population and the surrounding environment (Trinh & Rubin 2006:2). It has also been used in several studies on antenatal care (ANC) in other countries like Vietnam (Trinh, Dibley & Byles 2007) and Russia (Ivanov 2000).

1.9 RESEARCH DESIGN AND RESEARCH METHODOLOGY

In this section a brief overview of the research design and methodology is provided while a more detailed discussion on the research process undertaken for this study will be provided in Chapter 3.

1.9.1 Research design

A quantitative and descriptive study was used to identify and describe factors that affect utilisation of antenatal care services by adolescent mothers.

1.9.2 Study population and sampling

The study population was all the pregnant adolescents who delivered their babies at the Muheza District Hospital between January 2012 and March 2012. The sample for this study included adolescent mothers who attended the RCH clinic for the first time in the postnatal period.

A nonprobability (nonrandom) sampling design was used to identify research participants. The method used was convenience sampling in which subjects are included in the study because they happened to be in the right place at the right time (Burns & Grove 2005:350). The non-random sampling design may lead to bias in selection of participants but it was adopted because of time limitation for data collection and lack of a reliable sampling frame in the study area. It will be acknowledged as one of the study's limitation. The sample size required for the study was 236 adolescent mothers as calculated in chapter 3 of the report.

1.9.3 Research setting

The data was collected from the postnatal ward after delivery and during the first visit to the Reproductive and Child Health Clinic for vaccination of newborn.

1.9.4 Collection of data

A questionnaire (see Annexure A) specifically designed was used for the study. It comprised of close and open-ended questions that wereused to obtain demographic information and information on the utilisation of antenatal care services. It was translated into Swahili (see Annexure B), the national language that is easily understood by all Tanzanians from different ethnic and tribal lines. Before starting data collection, the questionnaire was subjected to critical review by nurse midwives, Maternal and Child Health (MCH) aides and clinicians with an experience of running antenatal care services.

1.9.5 Pre-test of the instrument

The questionnaire was pretested on ten adolescent mothers in Muheza District to make sure that questions were clearly understood to reduce ambiguities. This group of adolescent mothers were excluded from the study sample. No amendments were made to the questionnaire.

1.9.6 Data analysis

The collected data was analysed with the help of a statistician, using the STATA 10 computer programme.

1.9.7 Descriptive analysis

Frequencies and percentages were used to describe adolescent mother's utilisation according to their demographic characteristics including age groups, residence, education level and marital status.

1.9.8 Inferential statistics

Logistic regression analysis was used to identify factors that significantly affect utilisation of antenatal care services in univariate analysis. Factors that were significant in the univariate analysis were used to fit a multivariate model that explains significant predictors of utilisation of antenatal care services among adolescent mothers.

1.10 OVERVIEW OF ETHICAL CONSIDERATIONS

The questionnaires were completed anonymously. Serial numbers were used instead of respondent's names to ensure confidentiality. The Law of the Child Act of 2009 of the United Republic of Tanzania defines a child to be a person below the age of eighteen years [Section 4(1)] under the Right of a child. According to the law it is parental duty [Section 9(3)] and responsibility:

- (a) to protect the child from neglect, discrimination, violence, abuse, exposure to physical and moral hazards and oppression.
- (b) Provide guidance, care, assistance and maintenance for the child and assurance of the child's survival and development
- (c) Ensure that in the temporary absence of a parent, the child shall be cared for by a competent person, except where the parent has surrendered his rights and responsibilities in accordance with a written law or any traditional or customary arrangement (The Law of the Child Act of United Republic of Tanzania 2009: 15).

Participation was voluntary and an informed consent form was signed by each participant above 18 years. For minors below 18 years, the consent for participation was sought from their parents or guardiansin accordance with the Law of the Child Act of 2009 as stipulated above. The consent form also summarised the purpose of the study, its benefits to adolescent mothers and clearly indicated that the decision to either participate or not will not interfere with the quality of services rendered to the individual mother or her baby.

The ethical principles of respect for human dignity, beneficence, fair treatment, self-respect, protection of human rights and how they were applied to this study was discussed in details in chapter 3. Ethical approval to conduct the study was sought from the National Institute for Medical Research (NIMR) ethics committee (Annexure E). Permission was also obtained from the Higher Degrees Committee of the Department of Health Studies, Unisa (Annexure F).

1.11 VALIDITY

To produce quality research findings, researchers should be aware of factors that might threaten the validity and reliability of their research, especially the integrity of the data they produce. The validity of the study might be affected by sample size if it does not reach the required number of study participants because of either low response rate or short duration of data collection.

The study supervisor who is experienced in the field of research provided input and recommended the necessary changes to the research instrument thereby enhancing its validity.

The sampling method i.e. convenience sampling might affect the generalisability of study findings since it does not involve probability sampling and hence the representativeness of teenage adolescents in Muheza district.

The validity of a research instrument is a determination of the extent to which the instrument actually reflects the abstract construct being examined (Burns & Grove 2005:376). There are different types of validity that includes; Content-related validity, face validity, criterion - related validity, concurrent and construct validity. In this study the researcher applied content related validity and construct validity.

1.11.1 Content related validity

It examines the extent to which the method of measurement includes all the major elements relevant to the construct being measured (Burns & Grove 2005:377). The following three sources are used to obtain evidence for content-related validity; the literature, representatives of the relevant populations and content experts. In this study the questionnaire was constructed using the components of Andersen Health Seeking Behaviour model that has been used in previous research on health utilisation studies to ensure content-related validity. The study questionnaire was also reviewed by nurse midwives, MCH aides and clinicians with an experience of conducting antenatal services before starting data collection. The researcher developed a scale to establish the relevance of items in the questionnaire (Polit & Beck 2008:482). This scale was given to four experts in the field to complete. The scale as well as its ratings is discussed in chapter 3.

1.11.2 Construct validity

It examines the fit between the conceptual definitions and operational definitions of variables (Burns & Grove 2005:217). For example, in this study the utilisation of

antenatal care services as a research concept is operationally defined using the number of visits to the clinic. The WHO recommended number of four visits is used as a cut-off point to make meaningful interpretation of the concept.

1.12 RELIABILITY

Is the likelihood that a given measurement procedure will yield the same description of a given phenomenon if that measurement is repeated (Babbie & Mouton 2001:125).

Reliable instruments enhance the power of a study to detect significant differences or relationships actually occurring in the population under study (Burns & Grove 2005:374). Estimates of reliability are specific to the sample being tested. Reliability is usually expressed as a form of correlation coefficient (Cronbach Alpha), with 1.00 indicating perfect reliability and 0.00 indicating no reliability. The lowest acceptable value for a well-developed psychosocial measurement instruments is 0.80(Burns & Grove 2005:374). Reliability testing focuses on the following three aspects of reliability: stability, equivalence and homogeneity.

1.12.1 **Stability**

Stability is concerned with the consistency of repeated measures of the same attribute with the use of the same scale or instrument. It is usually referred to as test – retest reliability (Burns & Grove 2005:374). The study questionnaire was supposed to be readministered to a small sample of adolescent mothers 2 weeks after the initial survey to check for stability but the instructions were not clearly understood and the adolescents did not turn up for a re-test.

1.12.2 Equivalence

Polit and Beck (2012:334) describe equivalence "in the context of reliability assessment, primarily concerns the degree to which two or more independent observers or coders agree about scoring." This aspect of reliability was addressed in this study by the training given by the researcher to the data collectors used to collect the data. The researcher was always available to consult when the data collectors experienced problems with the data collection process

1.12.3Homogeneity

It examines the extent to which all the items in the instrument consistently measure the construct. It is a test of internal consistency (Burns & Grove 2005:376).

The statistical procedures used for this process are Cronbach's alpha coefficient and when the data are dichotomous the Kuder-Richardson formula (K-R 20). Three other approaches to testing internal consistency are by means of the Cohen's Kappa statistics, correlating each item with the total score for the instrument or correlating each item with each other item in the instrument (Burns & Grove 2005:376).

Reliability testing was done with the assistance of the statistician and reported in Chapter 3 of this study.

1.13 OUTLINE OF STUDY

This dissertation consists out of five chapters.

- Chapter 1 gives an orientation to the study that including an introductory part, background information about the study, significance of the study and its foundations.
- Chapter 2 presents literature review about adolescent utilisation of antenatalservices in Tanzania as well as different parts of the world.
- In chapter 3the research design and methodology is discussed in detail.
- Chapter 4 comprises the data analysis, presentation and description of research findings.
- Chapter 5 contains the conclusions, limitations and recommendations drawn from the study.

1.14 SUMMARY

This chapter introduced the topic of adolescent pregnancy, its prevalence and their maternal outcomes in different parts of the world. Despite an increase in coverage of antenatal care services worldwide, pregnant adolescents are still grouped among the marginalised or vulnerable populations. The purpose of this study was to identify and describe factors that affect the utilisation of pregnant adolescents of these important services using a quantitative and descriptive study approach.

Information generated from the study will be used to recommend ways in which the antenatal services in Tanzania will become more accessible to pregnant adolescents.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Antenatal care is one of the "four pillars" of safe motherhood, as formulated by the Maternal Health and Safe Motherhood Programme, Division of Family Health, of the World Health Organization (WHO) (World Health Organization 1994:xi). The other three are family planning, clean/safe delivery and essential obstetric care. The package was devised to ensure that women experience safe pregnancy and childbirth and have healthy infants, in other words, to prevent the dreaded outcomes: maternal death, and perinatal and infant death.

2.2 ANTENATAL CARE

Antenatal care is the care that women receive during pregnancy that helps to ensure healthy outcomes for women and newborns (WHO/UNICEF 2003:2). The World Health Organization (WHO) has replaced the traditional approach to antenatal care, "a risk approach" by an updated approach to antenatal care that emphasises quality over quantity of visits. The Maternal and Neonatal Health (MNH) programme promotes a minimum of four antenatal care visits- ideally, at 16 weeks, 24-28 weeks and 36 weeks for women with normal pregnancies (WHO 1994:7).

The new approach is termed as focused antenatal care (FANC). The major goal of antenatal care is to help women maintain normal pregnancies through

- targeted assessment to ensure normal progress of the childbearing cycle and newborn period, and to facilitate the early detection of complications, chronic conditions, and other problems/potential problems that will affect the pregnancy; and
- individual care to help maintain normal progress, including preventive measures, supportive care, health messages and counselling (including empowering women and families for effective self-care), and birth preparedness and complication readiness planning (FANC 2007:2).

Focused antenatal care visits include goal-directed interventions that comprise four categories:

- health promotion and disease prevention
- detection and treatment of existing diseases and conditions
- early detection and management of complications
- birth preparedness and complication readiness

2.2.1 Health promotion and disease prevention

An individual interaction between a provider and a pregnant woman provides a platform to discuss important issues affecting the woman's health, her pregnancy, and her plans for childbirth. The issues discussed during this interaction include the following:

- recognition of danger signs, what to do and where to get help
- good nutrition and its importance to the health of the mother and baby
- good hygiene and infection prevention practices
- risks of using tobacco, alcohol, medications, local drugs and traditional remedies
- rest and avoidance of heavy physical work
- benefits of child spacing to mother and child, including options for family planning services after the baby's birth
- benefits of breastfeeding, importance of early and exclusive breastfeeding
- protection against HIV and other STDs through individualised risk reduction, availability and benefits of HIV testing and specific issues related to mother to child transmission and living with AIDS (after a positive test results).
- it also advocates the following preventive interventions for all pregnant women: immunisation against tetanus, reduction of iron deficiency anaemia, presumptive treatment for hookworm, prevention of mother-to-child transmission of HIV, protection against malaria, protection against vitamin A and/or iodine deficiency (FANC 2007:2)

2.2.2 Detection and treatment of existing diseases and conditions

Antenatal care involves the detection and treatment of diseases and conditions including conditions that can severely affect mothers and babies if they are left untreated like HIV, malaria, syphilis and other sexually transmitted disease, anaemia, heart disease, diabetes, malnutrition and tuberculosis (Gloyd, Chai & Mercer 2001:29).

2.2.3 Early detection and management of complications

These include conditions such as severe anaemia, infection, vaginal bleeding, preeclampsia/eclampsia, abnormal foetal growth and abnormal foetal position after 36 weeks (FANC 2007:3).

2.2.4 Birth preparedness and complication readiness

It is important for the health of the mother and the baby that the mother will be well-prepared for the birth of the baby as well as possible complications accompany the birth of a baby. This includes preparation for the following

- a skilled provider to be at the birth
- the place of birth and how to get there, as well as emergency transportation if needed
- items for example sterile gloves and cotton wool needed for the birth
- money to pay for the skilled provider and any needed medications, as well as unexpected costs of an emergency
- a person designated to make decisions on the woman's behalf, in case she is ill
 and unable to make decisions herself
- a way to communicate with a source of help (skilled provider, facility, transportation)
- support during and after the birth, including someone to accompany the woman and someone to take care of her family while she is away.
- blood donors in cases of emergency (FANC 2007:3).

2.2.5 Coverage of Antenatal Care

The number of pregnant women in developing countries who received antenatal care during pregnancy was reported to increase significantly by 20% between 1990 - 2001, according to the joint report issued by UNICEF and WHO (WHO/UNICEF 2003:8). The greatest progress was reported in Asia (31%) and the least improvement in Sub-Saharan Africa (4%).

Despite increase coverage of antenatal services worldwide, pregnant adolescent women, especially the unmarried ones are still categorised among the marginalised groups who do not get maximum benefits and seize all the opportunities of antenatal care. Other marginalised groups include migrants, ethnic minorities, the very poor and those living in isolated rural communities (WHO 2005:42).

2.3 ADOLESCENT PREGNANCY

Adolescent pregnancy is pregnancy in girls age 19 or younger at the time of delivery irrespective of the outcome of the pregnancy and irrespective of the mother's marital status (Ehlers et al 2000:46). The alternative term is "teenage pregnancy". Teenage pregnancy is common in parts of the developing world where fertility rates are high and early marriages are common (Reynolds, Wong, & Tucker 2006: 6).

In the year 2003, the proportion of teenage women who were mothers or pregnant was greatest in Sub-Saharan Africa (20-40%). They were lower in other regions, 6-21% in Asia, and 13-25% in Latin America (Westoff 2003:12). Because of high levels of early child bearing in developing countries, pregnancy and childbirth were founded to be the leading causes of death among women aged 15-19 (Save the Children 2004:10).

2.4 EFFECTIVE ANTENATAL CARE INTERVENTIONS

A review of the scientific literature regarding antenatal care has identified a number of antenatal interventions that are effective, as well as those that are not effective but still used because of tradition. The effective interventions for antenatal care include:

- antenatal education for breastfeeding
- energy/protein supplementation in women at risk for low birth weight
- folic acid supplementation to all women before conception and up to 12 weeks of gestation to avoid neural tube defects in the foetus
- iodine supplementation in populations with high levels of cretinism
- calcium supplementation in women at high risk of gestational hypertension and in communities with low dietary calcium intake
- smoking and alcohol consumption cessation for reducing low birth weight and preterm delivery
- bran or wheat fibre supplementation for constipation
- exercise in water, massages and back care classes for backache
- screening for pre-eclampsia with a comprehensive strategy including an individual risk assessment at first visit, accurate blood pressure measurement, urine test for proteinuria and education on recognition of advanced pre-eclampsia symptoms
- anti-D given during 72 hours postpartum to Rh-negative women who have had a Rh-positive baby
- Downs syndrome screening

- screening and treatment of asymptomatic bacteriuria during pregnancy
- screening of hepatitis B infection for all pregnant women and delivery of hepatitis B
 vaccine and immunoglobulin to babies of infected mothers
- screening for HIV in early pregnancy, a short course of antiretroviral drugs, and caesarean section for infected mothers at 38 weeks, to reduce vertical transmission
- screening for rubella antibody in pregnant women and postpartum vaccination for those with negative antigen
- screening and treatment of syphilis
- routine ultrasound early in pregnancy (before 24 weeks)
- external cephalic version at term (36 weeks) by skilled professionals, for women who have an uncomplicated singleton breech pregnancy; and
- a course of corticosteroids given to women at risk of preterm delivery to reduce respiratory distress syndrome in the baby and neonatal mortality (DiMario 2005:17).

2.5 THE ANDERSEN HEALTH SEEKING BEHAVIOUR MODEL

This chapter is on literature review about antenatal care, its importance to adolescent mothers and how their utilisation of antenatal services is affected by different factors. The theoretical framework that will be used to discuss the influence of different variables is the Andersen Health-Seeking behaviour model. The Andersen model originated from the behavioural model of 1960s. It was developed in four phases, with input from a number of collaborating researchers at the Centre for Health Administration Studies, University of Chicago (Andersen 1995:6).

The determinants of health care utilisation were added at different phases of its development so as to get a model that could best explained changes in health care use over time and access to care.

- Phase 1 (1960s)
- Phase 2 (1970s)
- Phase 3 (1980s-1990s)
- Phase 4 (emerging model)

The phase 4 model which he called the emerging model portrayed the multiple influences on health services use and, subsequently on health status. It also included

feedback loops showing that outcome, in turn, affects subsequent predisposing factors and perceived need for services as well as health behaviour (Andersen 1995:7).

The diagrammatic representation of the emerging model is shown in figure 2.1.

ENVIRONMENTPOPULATION CHARACTERISTICSHEALTH BEHAVIOUR OUTCOMES

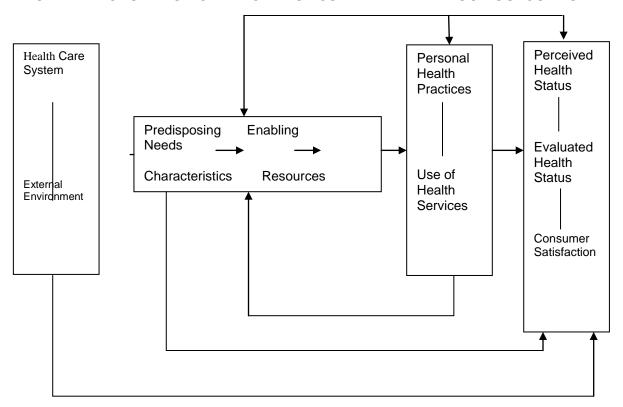


Figure 2.1Andersen's Emerging Health Seeking Model Phase 4

2.5.1 Predisposing Characteristics

These are socio-cultural characteristics of individuals that exist prior to their illness. They include

- Social Structure: education, occupation, ethnicity, social networks, social interactions and culture
- Health Beliefs: attitudes, values and knowledge that people have concerning and towards the health care system
- Demographic: age and gender (Andersen and Newman Framework of Health Services Utilization, Annexure G).

2.5.1.1 Age

In the study done by Hueston, Geesey and Diaz (2008:245) to examine changes in the initiation of antenatal care by teenage girls in the United States of America between 1978 and 2003 older adolescents (aged 17-19) were more likely to start care in the first trimester than younger adolescents (aged 15-16) whereas younger adolescents (aged 15-16) were more likely to start care earlier than preteens.

Findings similar to those obtained by Hueston et al (2008) were reported from Kenya by van Eijk, Bles, Odhiambo, Ayisi, Blokland, Rosen, Adazu, Slutsker and Lindblade (2006:4) when assessing the provision and use of antenatal services and delivery care among women in rural Kenya. Adolescents (women younger than 18years) and older women (older than 34 years) were the least likely to attend antenatal care services. Similar results were also reported from India by Pallikadavath, Foss and Stones (2004:1152) whereby antenatal check-ups were more frequently among women who married at the age of 19 or above compared with those who married younger.

2.5.1.2 Marital Status

Marital status of adolescents was also found to influence utilisation of antenatal services in several studies. Treffers, Olukoya, Ferguson and Liljestrand (2001:116) reported that unmarried adolescents were utilising antenatal care services less than their married counterparts. This was supported by Luo, Wilkins and Kramer (2004:1303) in their study on disparities in pregnancy outcomes according to marital and cohabitation status in Canada. They found that single mothers had higher odds of adverse pregnancy outcomes than mothers in legal or common law marriages.

Marriage or established paternity was regarded as proxy for increased family income, as well as increased psychosocial support during pregnancy and thereby contributed to improved outcomes (Partington, Steber, Blair & Cisler 2009:106). A study by Hueston et al(2008:245) in the United States also reported that being unmarried was associated with delayed initiation of prenatal care.

2.5.1.3 Educational Level

The educational level of adolescents has been reported to influence antenatal care utilisation in different parts of the world. In a study on trends in marriage and early child bearing in developing countries, teenage pregnancy was found to be concentrated among adolescents with relatively low levels of education (Westoff 2003:13). This is confirmed by a study done by Hueston and colleagues (2008:245) who found that low levels of education are among the factors that were associated with delayed initiation of prenatal care in the United States. Van Eijk et al (2006:4) also reported that women with less than 8 years of education were found to have infrequent visits (less than 3 times) or not visiting ANC at all in their Kenyan study.

A comparative study between teenage (less than 20 years) and adult (20-34 years) mothers was carried out in Ethiopia to examine their differences in terms of sociodemographic characteristics, pregnancy outcomes, and child survival from a population-based national data. Significantly higher percentage of teenage mothers were found to live in rural areas, were illiterate or did not have education beyond primary school level, and belonged to the poorest two quartiles of the economic index compared with adult mothers (Taffa & Obare 2004:91). Less proportion of teenage mothers compared with the adult mothers (36.5% versus 46.2%) actually had antenatal visit. However, their differences in utilisation of ANC and rate of delivery in health facilities were cancelled after adjustments for education level, place of residence and wealth index were done (Taffa & Obare 2004: 91).

In a survey conducted in different parts of South India during the National Family Health Survey of 1992 and 1993, husbands' education was shown to be a significant predictor of receiving antenatal care especially in Andhra Pradesh. Women whose husbands had at least high school level education were four times more likely to receive antenatal check-up relative to women whose husbands had no education (Navaneetham & Dharmalingam2002:1858). A cross-sectional community-based study was carried out in Kassala, Eastern Sudan to investigate coverage of antenatal care and identify factors associated with inadequacy of antenatal care. The low coverage of antenatal care was associated with high parity and low husband education which was defined as below secondary level (Ali 2010:3).

2.5.1.4 Religion

Religion as a cultural factor has been shown to influence antenatal care utilisation. In a study conducted in India by Pallikadavath and colleagues (2004:1155), Muslims were much more likely to seek routine antenatal services in India than pregnant women from other religions. Contrary to the above a different study conducted in Bangladesh to examine factors affecting the utilisation of skilled maternity care services among married adolescents, religion was not found to be a significant factor in the seeking of antenatal care and having a child delivered at medical institutions but it appeared to be a significant factor in the seeking of assistance from skilled birth attendants (p<0.1). The utilisation rates of these services were found to be relatively higher among non-Muslim women than among their Muslim sisters (Haque 2009:159).

2.5.1.5 Family Size

A community-based cross-sectional study was conducted in Hadiya Zone of Southern Ethiopia from January to February 2009 to identify factors influencing antenatal care service utilisation. Family size was found to be a strong factor of antenatal care utilisation. Mothers who lived in a household having less than three children were eight times more likely to utilise ANC than those living in a household size with more than five children (Abosse, Woldie & Ololo 2010: 78).

2.5.1.6 Intended Pregnancy

In a study among Ecuadorian women, it was found that women from rural areas with undesired pregnancies and a parity of five or more had a higher risk of inadequate prenatal care, whereas an adverse outcome of a previous pregnancy (abortion, intrauterine fatal demise, or ectopic pregnancy) decreased the risk of inadequate prenatal care (Paredes, Hidalgo, Chedraui, Palma & Eugenio 2005:170).

2.5.2 Enabling Resources

Enabling resources can be regarded as the logistical aspects of obtaining care. These include:

- Personal/Family: the means and know-how to access health services, income, health insurance, a regular source of care, transport, extent and quality of social relationships
- Community: available health personnel and facilities, and waiting time

 Possible additions: genetic factors and psychological characteristics (Andersen and Newman Framework of Health Services Utilization, Annexure G).

2.5.2.1 Socio-economic Status

In a study on factors affecting utilisation of skilled maternity care services among married adolescents in Bangladesh, women's education and wealth index were the most important determinants (p<0.001) in maternity care services utilisation. As expected, a highly significantly positive association was found between the utilisation of maternal health care services and the wealth index (p<0.001). Utilisation of antenatal care, seeking assistance from skilled birth attendants and delivery at medically-facilitated places increased with the increase of the wealth index (Kamal 2009:159). The rate of receiving antenatal care was 32% among women with no formal education, and substantially higher at 67% for those with at least secondary education. Husband's education was also found to have a significant positive association with maternity care services utilisation (Kamal 2009:159).

The socio-economic status was also found to influence the utilisation of reproductive health services in Pakistan. The utilisation of antenatal services was found to increase with socio-economic status and educational attainment (Sultana 2005:4).

2.5.2.2 Health Insurance

Trinh, Dibley and Byles (2007:301) carried out a study to identify determinants of antenatal care utilisation in rural Vietnam. Although the target group for the study was not teenage mothers, it provided an insightful information regarding factors associated with any use of antenatal care (ANC), gestational age at entry to ANC, number of visits and overall ANC utilisation in rural Vietnam. They found that factors associated with having three or more visits (enough visits) were belonging to the richest group, having health insurance, early ANC attendance and more items of ANC content reported which was related to patient satisfaction (Trinh et al 2007:306). Factors associated with a decrease in any ANC use included; belonging to an ethnic minority group, having three or more children and never having used contraception. ANC contents refer to different items that are supposed to be checked or given to pregnant women during antenatal attendance. For example in a survey to evaluate the adequacy of antenatal care in three provinces of Vietnam, thirteen different items were asked which constituted a typical minimum ANC content in Vietnam. There were seven items on bio-medical

assessments (body weight, blood pressure, fundal height, foetal heart rate, vaginal examination, urine testing and ultrasound). Four items were on care provision (tetanus toxoid immunization, provision of tablets or advice on iron/folate supplement, malaria prevention, and preparation for safe delivery) and two items on health promotion/education (resting and nutrition) (Trinh, Dibley& Byles 2006: 470).

Lack of health insurance was also found to be a barrier to the access and use of prenatal care among adolescents in the United States of America by Anderson, Smiley, Flick and Lewis (2000:360). The other barriers were lack of knowledge regarding its importance and lack of transportation.

2.5.2.3 Source of Care

Parenting as a teen is one of the most common causes for dropping out of school among teenage girls and consequently they are more likely to require public assistance and to have an income below the poverty line (Barnet, Arroyo, Devoe & Duggan 2004: 267). In this study, absenteeism and dropout rates were reduced for pregnant adolescents receiving prenatal care at a school-based health centre in an urban alternative school.

Apart from school-based health centres the other intervention that has been attempted in the US to improve resource utilisation among pregnant adolescents, is home visitation under the Teen Parenting Partnership (TPP) programme. A pilot study was done in New Jersey whereby home visits were conducted on alternating basis, by a public health registered nurse (PHN) and a medical social worker (MSW) assigned to each teen. The PHN and MSW provided information regarding special supplemental nutrition programme for women, infants and children (WIC) programme. They assisted teens recruited in the TPP programme in locating and selecting a prenatal care provider, independently make and keep their own appointments and arranged for transportation to prenatal care appointments (Flynn, Budd& Modelski 2008:142).

The impact assessment carried out after three months of programme participation showed increase in the proportion of prenatal adolescents who

- had a prenatal care provider
- made and kept appointments with their prenatal care provider
- enrolled in the WIC programme and were receiving WIC nutritional supplements.

After three months of exposure to this intervention, only 1 of the 83 programme prenatal adolescents did not keep prenatal care appointments (Flynn et al 2008:144).

In a study by Arthur, Unwin and Mitchell (2007:674) in the South-West of England, teenage mothers perceived that they were being treated differently from other pregnant women. They also expressed the desire to have antenatal clinics specifically for young people in easily accessible venues, less intimidating groups, where they could learn about their pregnancy and the delivery without having to face the scrutiny and questions from older pregnant women.

"It would be really good if we had a lot more group for young mums to go to, places where they can stay with other young mums and chat."

Apart from getting guidance on pregnancy, they also received financial advice and how to access money throughout pregnancy and after delivery through community care grants.

"Young mums group was really brilliant cos they teach you about labour, pregnancy, everything so I did loads of work, got loads of certificates."

"She helped me get income support and things like that and she has helped me get a higher income support.....so that's good."

2.5.2.4 Psycho-social Support

Participants in the study by Arthur et al (2007:674) expressed mixed feelings about support from family and friends. They often "fell out" with parents at the start of pregnancy, generating disharmony in the family but this tended to subside as the pregnancy continued and the mother then continued to be the main source of support and advice to young women.

The low level of social support for adolescent mothers has also been reported by Dawson, Hosie, Meadows, Selman and Speak (2005:72) who emphasised the need for health professionals to assist young parents during the transition to parenthood.

The importance of social support was emphasised strongly by Warren (2005:484) when studying the relationship between social support for first-time mothers and their confidence in infant care practices in Southern Ireland. There was a statistically significant relationship between confidence in infant care practices and two functional elements of social support namely informational and appraisal support. Husbands/partners and maternal mothers were identified most frequently as having given social support, while the health professionals and public health nurses were reported by most respondents to have given informational support.

Similar findings were reported by Harper, Callegari, Raine, Blum and Darney (2004:22) in San Francisco whereby support from mothers and male partners was found to increase visits to the clinic, uptake of contraceptive services and choice of more effective contraceptive methods. It is assumed that the antenatal visits increased as well in a clinic system that provided comprehensive care to women.

2.5.2.5 Staff Attitude

In a study done by Smith and Roberts (2009:623) in one of London's primary care trust, young parents who did not attend the antenatal support classes were asked their reason for not attending. The main reasons for non-attendance were lack of confidence and they were either at school or college at the time of classes.

The young mothers were not encouraged to bring their partners to appointments and when they did attend, fathers-to-be felt excluded:

- ".....just sitting there like I am not there" (father-to-be, age 16)
- ".....they have never spoken to me, never" (father-to-be, age 22)

During the postnatal period, relatives and friends were seen as the most helpful sources of support, whereas doctors and midwives were considered less helpful.

Doctors were reported as having no time:

"....have a 10-minute slot and they are like hurry up" (mother, age 19) and midwives were reported as being judgmental:

"my midwife was really old, she called me a baby" (mother, age 20).

In addition to lack of men's involvement, restrictive age limits of support and negative treatment from health professionals, lack of knowledge was also reported as a barrier to attendance (Smith & Roberts 2009: 626).

2.5.3 **Needs**

Andersen and Newman(1995) regarded needs as the most immediate cause of health service use, from functional and health problems that generate the need for health care services. "Perceived need will better help to understand care-seeking and adherence to a medical regimen, while evaluated need will be more closely related to the kind and amount of treatment that will be provided after a patient has presented to a medical care provider" (Andersen and Newman Framework of Health Services utilization, Annexure G).

2.5.3.1 Parity

In a study on factors affecting utilisation of skilled maternity care services among married adolescents in Bangladesh, the seeking of antenatal care services, assistance from skilled birth attendants and having a child delivered at medical institutions was higher among those with first-time pregnancy experiences than those who have had previous experience of childbirth (Haque 2009:159).

Increasing parity as a risk of inadequate utilisation of prenatal care was also reported by Paredes et al (2005:170) among Ecuadorian women and Trinh et al (2007:301) in Vietnam. In Ecuador, a parity of five or more had a higher risk of inadequate prenatal care whereas in rural Vietnam, having three or more children was significantly associated with decrease in usage of antenatal care.

Chandhiok, Dhillon, Kambo and Saxena (2006:49) reported on determinants of antenatal care utilisation in rural areas of India using a cross-sectional study from 28 districts. They found that there was a statistically significant reduction in the proportion of women obtaining antenatal care services with increasing age (P=0.007365), parity (P=0.026) and number of living children (P=0.0001). However, no association was observed with other factors like outcome of previous pregnancy and presence of a health facility in the village.

2.5.3.2 Outcome of Previous Pregnancy

The history of obstetric problems was shown to be a statistically significant factor affecting the utilisation of antenatal care in Bornova, Turkey. Obstetric history included items like number of previous pregnancies, deliveries, abortions, curettages, low birth weight (LBW<2500gm) and preterm deliveries (Ciceklioglu, Soyer & Ocek2005:538). A history of at least one abortion was found to increase the likelihood of obtaining an adequate amount of care. Similar findings were reported from Ecuador by Paredes et al (2005:170) whereby an adverse outcome of a previous pregnancy (abortion, intrauterine fatal demise, or ectopic pregnancy) was found to decrease the risk of inadequate prenatal care.

2.5.4 Patient Satisfaction

Handler, Rosenberg, Raube and Lyons (2003) conducted a study to examine the relationship between satisfaction with care and subsequent prenatal care utilisation among African-American women who were attending a Midwest managed care organisation in the United States. A sample of 125 Medicaid and 275 non-Medicaid adult women were interviewed about personal characteristics, prenatal care experience and rating of care (satisfaction) before or at 28 weeks gestation.

Non-Medicaid women were significantly (P<0.05) less satisfied with prenatal care (mean score, 79.1) than Medicaid women (mean score, 82.8). Medicaid women had significantly fewer visits on average than non-Medicaid women subsequent to the interview. The final analyses showed no significant difference in subsequent utilisation according to whether a woman had high versus low level of satisfaction at the prenatal care interview (Handler et al 2003:23).

Using data from large scale population-based surveys that were carried out among youth in Kenya and Zimbabwe, Erulkar, Onoka and Phiri (2005:55) reported on the perceptions of young people on youth-friendly services and what characteristics influence their utilisation of reproductive health services. They restricted their analysis to unmarried adolescents aged 10-19 years. They found that the rating of youth-friendly characteristics was similar for Kenyan and Zimbabwean adolescents. The most important characteristics for Kenyans were short waiting time, low cost or free services, the "one-stop shop" i.e. the ability to obtain all services at one site and friendly staff. Among Zimbabwean adolescents, having confidential services, a nurse that takes her

time, short waiting time, "one-stop shop" approach, and low cost or free services were the most important characteristics. The least important characteristics included facilities where adolescents are assured of anonymity or where their parents would not see them, having a youth-only facility, a nurse that is the same sex or young, a facility that is for youth only, and a single sex (girls only/boys only) facility.

Their findings implied that in many developing country settings, existing facilities can be upgraded with minimal monetary investments to meet the reproductive health service preferences of adolescents and make them youth friendly.

2.5.5 Personal Health Practices

A cross-sectional study (Ibeh 2008:138) was carried out to assess the use of maternal services in Anambra State, Nigeria. They found that almost all the subjects (99.7%: n=698) attended antenatal clinic during their last pregnancy and the use of formal health facilities for delivery services was also found to be very high among the subjects as 97.3% (n=680) of the deliveries took place in health centres, private hospitals, maternity homes and general hospitals; only0.9% (n=6) of the mothers in their study delivered their babies at home without the assistance of health workers. The majority of mothers attended health facilities for antenatal clinics and for delivery of their babies in places less than 1km from their homes. The mean distance to the health facility was about 1.4-1.6km. Factors that influenced choice of place for antenatal clinics were mainly attitude of health workers (n=265; 37.9%), proximity of the clinic (n=244; 34.9%) and cost of the service (n=106; 15.1%). They concluded that the problem of maternal mortality in Nigeria may not necessarily lie with utilisation but with the quality of services; hence the need for the health care system to be repositioned to meet up with the challenges of modern obstetric care.

A cross-sectional survey of 7005 pregnant women was carried out in rural areas of India (Chandhiok et al 2006:49) to identify factors contributing to women obtaining antenatal care services and whether these services influence their decision regarding the place of delivery. On the whole, 34.2% of pregnant women who had antenatal care services planned to deliver at home and 51.7% at a government or private health facility. In comparison, 58.6% and 27.6% of women without antenatal care planned to deliver at home and at a health facility respectively. The difference were statistically significant (P<0.001)(Chandhiok et al 2006:50)

Participants in this survey (Chandhiok et al 2006:50) were also asked about the need for taking TT (Tetanus Toxoid), IFA (Iron Folic acid tablets) during pregnancy and register with ANM (Auxiliary Nurse Midwife). A significantly larger number of women who had antenatal contact with a health functionary at home or at the health facility, as compared to those who did not have it mentioned the need for taking TT (91.3%vs 61.7%, P<0.001) and IFA (79.7%vs 49.9%, P<0.001) during pregnancy. The need to register with ANM or to visit any health facility, primary or higher level, was mentioned by significantly fewer (P<0.001) women with no antenatal care than those with antenatal care (Chandhiok et al 2006:49).

2.5.6 Use of Health Services

A descriptive survey was conducted among 80 adolescent mothers who had delivered their babies without attending Antenatal care (ANC) in Bulawayo to identify factors influencing non-utilisation of ANC services (Chaibva, Roos, & Ehlers2009). Several factors were identified including socio-economic issues, limited knowledge about antenatal care and restrictive policies such as requirement of national identity cards from pregnant adolescents (or from their spouses) prohibited some of them from utilising antenatal services (Chaibva et al 2009:20).

In a different survey that was conducted in Tshwane, South Africa by Ehlers (2003) to identify reasons why adolescent mothers failed to utilise contraceptive, emergency contraceptive and/or termination of pregnancy (TOP) services, a number of reasons were given by adolescent mothers. Reasons provided included that their mothers did not approve, they were ignorant about contraceptives, they were afraid to go to the clinic because their mothers might find out, they feared picking up weight and/or never having children, their boyfriends opposed their use of contraceptives (Ehlers 2003:19).

The author recommended that clinics providing antenatal services should be open over weekends and during evenings so that adolescents can obtain contraceptive services without fear of meeting their mothers, aunts or teachers at the antenatal clinics.

2.6 CONCLUSION

This chapter introduced the topic of focused antenatal care, the interventions involved in it and its coverage in developing countries and Tanzania as a case study. The review of literature about different factors affecting the utilisation of antenatal services has been discussed using the Andersen and Newman Health Services Utilisation model as a conceptual framework. The variables selected were categorised into the three main population characteristics of the model namely; the predisposing characteristics, enabling resources and needs.

CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

This chapter provides a detailed discussion on the research process and methods that were followed during the study. A research design is described by Polit and Beck (2012:741) as "the overall plan for addressing a research question, including specifications for enhancing the study's integrity", while research methods "are techniques researchers use to structure a study and to gather and analyze information relevant to the research question" (Polit & Beck 2012:12).

3.2 PURPOSE OF THE STUDY

The purpose of this study is to describe the utilisation of antenatal services and identify and describe factors that will promote the utilisation of antenatal services by pregnant adolescents in Muheza District, Tanzania. Factors that affect the under-utilisation of antenatal services by pregnant adolescents in Muheza District, Tanzania will also be identified and described. This information will be used to recommend ways in which the antenatal services in Tanzania will become more accessible to pregnant adolescents.

The objectives of the study were as follows: to

- describe the utilisation of prenatal services by pregnant adolescents in Muheza District, Tanzania
- identify possible barriers that may prevent pregnant adolescents from utilising the antenatal services
- develop strategies that will promote antenatal usage by pregnant adolescents in Tanzania

3.3RESEARCH SETTING

Researchers make decisions about where to conduct a study based on the nature of the research question and the type of information needed to address it (Polit & Beck 2004:28). Research site is the overall location for the research whereas settings are the more specific places where data collection occurs. In some cases, the setting and the site are the same, as when the selected site is a large hospital, and the information is

collected exclusively within that setting (Polit & Beck 2004:28). Because the nature of the setting can influence the way people behave or feel and how they respond to questions, the selection of an appropriate setting is important.

This study was carried out in both the postnatal ward at Muheza district hospital, the Reproductive and Child Health (RCH) clinics in the same hospital and surrounding health centres which are providing RCH services.

3.4RESEARCH DESIGN

A quantitative and descriptive study was used to identify and describe factors that affect utilisation of antenatal care services by adolescent mothers.

3.4.1 Quantitative

Quantitative research is a formal, objective, systematic process in which numerical data are used to obtain information about the world (Burns & Grove 2005:23). It is used to describe variables, examine relationships among variables, and determine cause-and-effect interactions between variables.

The research project on adolescent utilisation of antenatal services in Muheza, Tanzania will follow quantitative methodology which has the following characteristics:

- Its focus is usually concise and reductionistic
- It incorporates logistic, deductive reasoning as the researcher examines particulars to make generalizations about the universe
- It requires the use of structured interviews, questionnaires, or observations; scales;
 or physiological instruments that generate numerical data
- Statistical analyses are conducted to reduce and organise data, determine significant relationships, and identify differences among groups
- Its findings can be generalized to the population from which the research sample was drawn (Burns & Grove 2005:25).
- In this study the researcher used a self-developed questionnaire to collect numerical data from the respondents.

3.4.2 Descriptive

Polit and Beck (2008:274) describe descriptive research as a broad class of non-experimental studies. In a descriptive study the researcher observes, relates and

describes measurable attributes of the phenomenon in a natural environment. In this study the researcher intended to describe the utilisation of antenatal services by pregnant adolescents and identify factors that positively or negatively affect the utilisation of pregnant adolescents of the antenatal services in Muheza, Tanzania.

The information generated from this study will be used to recommend strategies that will promote antenatal services usage by pregnant adolescents in Tanzania.

3.5 RESEARCH POPULATION AND SAMPLE

3.5.1 Population

A population is a well-defined set that has certain specified properties. The population descriptors should form the basis for the inclusion (eligibility) or exclusion (delimitations) criteria that are used to select the sample from the array of all possible units - whether people, objects, or events (LoBiondo-Wood & Haber 2002:241). Examples of these criteria include the following: gender, age, marital status, socio-economic status, religion, ethnicity, age of children, health status and diagnosis.

Homogeneity of the group allows the researcher to interpret the findings meaningfully and make generalizations about the target population (LoBiondo-Wood & Haber 2002: 241).

The inclusion criteria for this study were the following:

- Adolescent mothers aged between 10-19 years
- Resident of Muheza District during the study period
- Admitted in the postnatal ward or attending the RCH clinic during the study period
- Signed informed consent to participate in the study for those above 18 years
- Signed assent form by parent or guardian for those below 18 years.

3.5.2 Sampling

Sampling is a process of selecting a portion or subset of the designated population to represent the entire population (LoBiondo-Wood & Haber 2002:242). Nonprobability (nonrandom) sampling method called convenience sampling was used for the selection of participants in this study.

In convenience sampling, subjects are included in the study because they happened to be in the right place at the right time (Burns & Grove 2005:350). Convenience sampling is also defined as the use of the most readily accessible persons or objects as subjects in a study (LoBiondo-Wood & Haber 2002:243). Convenience samples are inexpensive and accessible, and they usually require less time to acquire than other types of samples (Burns & Grove 2005:351). Because of time limitation for data collection and lack of reliable sampling frame in the study area, convenience sampling was adopted instead of random sampling methods

The study sample constituted adolescent mothers who attended the Reproductive and Child Health (RCH) clinic in Muheza district hospital and surrounding satellite clinics (Health Centres) and adolescents who gave birth in the postnatal ward. Adolescent mothers who attended the clinics from Monday to Friday were asked for their informed consent to participate in the study.

3.5.3 Sample size

The following formula was used to estimate the sample size

$$N = z^2pq$$
 where z=1.96 at 95% confidence interval D^2 p= prevalence D = tolerable standard error of 0.05

N = required sample size

Using estimated prevalence of teenage pregnancy in Tanzania of 19% as p=0.19 and q = 1-0.19= 0.81, the calculated sample size is 236.

3.6 Data Collection

Polit and Beck (2012:293) caution researchers that "it is a challenging goal, typically requiring considerable time and effort " to collect accurate, valid and meaningful data. In this study the researcher used a questionnaire to collect data.

3.6.1 Data collection approach and method

A questionnaire is a printed self-report form designed to elicit information that can be obtained through the written responses of the subject (Burns & Grove 2005:398). Questionnaires can be designed to determine facts about the subject or persons known by the subject; or beliefs, attitudes, opinions, levels of knowledge, or intentions of the subject.

3.6.2 Development of the questionnaire

The questionnaire was developed using the components of the Andersen Health Seeking Behaviour model after reviewing the literature of studies that have been conducted about utilisation of antenatal services by pregnant adolescents. The questionnaire was divided into two sections; section A includes demographics and socio-economic characteristics; section B addresses the different aspects of utilisation of antenatal services by individual pregnant adolescents.

The variables were selected using the Andersen Health Seeking Behaviour Model. They were divided into the following categories: predisposing characteristics, enabling resources, personal health care behaviour, patient satisfaction and external environment.

Predisposing characteristics

The predisposing characteristics include the age of pregnant adolescent, marital status, level of education, the education level of partner/husband, religion and whether the pregnancy was planned or unplanned.

Enabling resources

The enabling resources include the socio-economic status, health insurance coverage, source of financial support and physical escort to the clinic, and source of care at the antenatal clinic.

Personal Health Care

Variables that address the personal health care behaviour include history of contraceptive use, history of obstetric problems, the timing of confirming pregnancy, gestational age at the first visit to the antenatal clinic and frequency of attendance.

Patient satisfaction

The questionnaire comprise of one question, number 27 with 9 different items that assessed patient's satisfaction with the quality of services rendered to pregnant adolescents. Each item has a 5-point rating scale ranging from not at all satisfied (1) to completely satisfied (5). For each item, a score of 4 or greater indicated "satisfaction", and a total score of 28-35 indicated "overall satisfaction". At the stage of analysis, adolescent mothers with a total score below 28 will be classified as dissatisfied

whereas those with a total score more than 28 will be considered to be satisfied with the quality of care during antenatal attendance (Yang, Wen, Walker, Beduz & Kim 2007:309).

External environment

The variables for external environment include place of residence (within municipality/outside the municipality) and distance between the antenatal clinic and place of residence.

Needs

This component of the Andersen Health Seeking Behaviour model is addressed by a single item in the questionnaire i.e. the parity of pregnant adolescent.

The questionnaire consists of both closed-ended and open-ended questions. The closed-ended questions provide a greater uniformity of responses and are more easily processed after transferring into a computer format. On the other hand, open-ended responses must be interpreted by the researcher and coded before they can be processed for computer analysis. In designing the closed-ended responses, two structural elements were taken into consideration namely the response categories should be exhaustive, including all the possible responses that might be expected plus an additional category called "other" where necessary; and the response categories should be mutually exclusive, that the respondent should not feel compelled to select more than one response (Babbie & Mouton 2001:233).

The closed-ended questions have response options that were selected by the researcher. The response item "others" was included to accommodate participants that have different responses apart from researcher's options; whereas for those who might not have an answer to a specific question, were asked to choose a "don't know" response. The open-ended question at the end of the questionnaire is used to obtain personal opinions and suggestions from participants on how to improve provision of antenatal services to pregnant adolescents.

The Likert scale was used in this questionnaire to determine how satisfaction with service delivery affected utilisation of antenatal services by pregnant adolescents. The Likert scale is a scaling technique that is used to determine the opinion or attitude of a subject and contains a number of declarative statements with a scale after each statement (Burns & Grove 2005:402). A scoring system was developed during the analysis stage to classify participants into the following categories: low satisfaction score (below 28) and high satisfaction score (above 28).

To ensure consistency in the way the questionnaire is filled, its administration was restricted to:

- individual adolescent mothers
- close family member/partner to write the responses that the mother dictates in the presence of the data collector.
- All participants were asked to read and understand instructions indicated in the questionnaire before responding to it.

Participants were not allowed to take the questionnaires away from the postnatal wards or reproductive health clinics.

3.6.3 Data collection process

The data collection was conducted in either of the two settings:

The first setting was the postnatal ward after delivery process. A nurse midwife obtained verbal and written consent to participate in the study from the adolescent mother. After agreeing to participate, a questionnaire was given to be filled anonymously before discharge from the hospital. The filling of questionnaire did not interfere with the timing of postnatal care given to the mother and newborn, for example, the counselling on breastfeeding, care of the perineum or surgical wound and vaccination of the newborn. The nurse midwife then briefly countercheck information collected in the questionnaire on some key elements of the study using the antenatal card before discharge of the mother.

The second setting was the reproductive and child health clinic. According to the Tanzanian primary immunization guidelines, newborns are required to return for vaccination 4 weeks after receiving the BCG vaccination and oral polio vaccine at birth. This was an appropriate time for adolescent mothers who did not participate in the study during hospitalisation with the birth of their baby or for mothers who did not give birth to their babies in the hospital. Upon completion of the questionnaire, an attendant in the reproductive and child health clinic (RCH) went through the antenatal card to

verify the information collected in the questionnaire. In case of information mismatch, clarification was sought from the mother before leaving the clinic.

3.6.4 Ethical considerations related to data collection

Studies that have animals or human beings as their subjects should ensure to adhere to ethical issues (Polit & Beck 2012:150). The ethical considerations in this study considered the principle of protecting the rights of human research participants as follows:

- right to self-determination
- right to privacy and dignity
- right to anonymity and confidentiality
- right to fair treatment
- right to protection from discomfort and harm

Right to self-determination

It is based on the ethical principle of respect for persons; people should be treated as autonomous agents who have the freedom to choose without external controls (LoBiondo-Wood & Haber 2002:273). In this study, a written informed consent was mandatory for participants above 18 years and for minors below 18 years, consent to participate in the study was sought from their parents or guardians. The informed consent form also explains the right to withdraw from the study without penalty and that it will not interfere with the quality of services provided to the adolescent mother by RCH staff.

Right to privacy and dignity

It is based on the principle of respect, privacy is the freedom of a person to determine the time, extent, and circumstances under which private information is shared or withheld from others (LoBiondo-Wood & Haber 2002:273). In this study serial numbers were used instead of names (anonymous) and other personal identifiers like antenatal cards was only used to verify/clarify information given by respondents on antenatal clinic attendance. The antenatal cards were returned immediately to participants upon completion of the interview process or filling of questionnaires and not in any way linked to the main questionnaire. The informed consent form explains clearly the right not to respond to questions perceived to be sensitive to the respondent and the right to end the interview at any point in time. Respondents also have the right of choosing the

research setting that is comfortable and feel secure either in the postnatal ward or in the RCH clinic after discharge from the hospital.

Right to anonymity and confidentiality

"Anonymity, the most secure means of protecting confidentiality, occurs when the researcher cannot link participants to their data" (Polit & Beck 2012:162). Confidentiality means that individual identities of subjects will not be linked to the information they provide and will not be publicly divulged (LoBiondo-Wood & Haber 2002:273). The respondents' names were not recorded on the questionnaires to ensure anonymity and confidentiality.

Right to fair treatment

It is based on the ethical principle of justice, people should be treated fairly and should receive what they are due or owed. Fair treatment is equitable selection of subjects and their treatment during the research study (LoBiondo-Wood & Haber 2002:274). In this study, no financial incentives were given to any participant because they were not expected to incur any costs in their participation. The selection process was based on the inclusion criteria for the study. Respondents were treated fairly throughout the research process.

Right to protection from discomfort and harm

It is based on the ethical principle of beneficence; people must take an active role in promoting good and preventing harm in the world around them, as well as in research studies. Discomfort and harm can be physical, psychological, social, or economic in nature (LoBiondo-Wood & Haber 2002:275). In this study, there was no anticipated harm or risk to the research participants. The consent form clearly explained the freedom not to respond to questions that would cause any form of social or psychological discomfort.

3.6.5 Data analysis

The collected information/data from participants was entered and stored in Microsoft Excel sheet. Using Stat transfer program, the stored data was transferred into STATA format before analysis using STATA 10 computer program. The qualitative information generated from open-ended responses was interpreted by the researcher before assigning meaningful codes to the responses. After the coding process, the data was

transferred into the computer for statistical analyses. Descriptive analysis of data was done using frequencies and percentages. Logistic regression analysis was used for inferential statistics. Variables that are significant in univariate analysis were used to fit a multivariate model that explains significant predictors of utilisation of antenatal services among adolescent mothers.

3.7 Validity and reliability of the questionnaire

It is important to establish the validity and reliability of the instrument, in this case the questionnaire, in any research.

3.7.1 Validity of the questionnaire

Polit and Beck (2012:336) define validity of an instrument as "the degree to which an instrument measures what it is supposed to measure."

There are different types of validity. In this study, the researcher made use of face and content validity. Face validity was established by requesting two experts (an experienced clinician and registered nurse) to look at the instrument and confirm if it is measuring the construct what it is supposed to measure.

The content validity of the instrument was established by developing a content validity index (CVI). (See Annexure C). Experts in the field were asked to rate the items on the questionnaire from not relevant (1) to highly relevant (4). The items in the questionnaire that were rated 3= quite relevant and 4= highly relevant were used to calculate the item content validity index (I-CVI). The scale content validity index was taken to be the average of the item CVI for all items on the questionnaire which was 26.25 divide by 29 equalled 0.905 as illustrated by (Polit & Beck 2006:493). The results indicated that the instrument was regarded as valid by these experts.

3.7.2Reliability of the questionnaire

"An instrument's reliability is the consistency with which it measures the target attribute" (Polit & Beck 2012:331). Reliability in this study was linked to the clarity and consistency of the research instrument. To ensure clarity, the instrument was pretested by giving the instrument to ten adolescent mothers in the Muheza District to complete to establish the clarity of the questions and to reduce ambiguities. These adolescent mothers were not included in the main study.

The internal consistency of the instrument was determined by means of the Cronbach alpha statistical test and the alpha value was determined to be 0.39 as shown in annexure D. The low reliability coefficient could be caused by the homogeneous sample, which makes it difficult for the instrument to discriminate. Polit and Beck (2012:335) regard reliability of an instrument "rather of the instrument when administered to certain people under certain conditions", than of the instrument itself.

3.8 CONCLUSION

This chapter summarised the research design, the research population and setting. Sample size estimation was calculated to indicate the number of study participants required. The development of study questionnaire was described in details followed by the data collection process. Ethical considerations related to data collection were described followed by data handling process before analysis using STATA 10 computer software. Strategies that were employed to ascertain validity and reliability were discussed.

CHAPTER 4

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

The study was a quantitative, non-experimental, descriptive survey to identify and describe factors that affect utilisation of antenatal care services by adolescent mothers, in Muheza District, Tanzania.

The objectives of the study were to

- describe the utilisation of prenatal services by pregnant adolescents in Muheza district, Tanzania
- identify possible barriers that may prevent pregnant adolescents from utilising the antenatal services
- developstrategies that will promote antenatal usage by pregnant adolescents in Tanzania

4.2 DATA ANALYSIS

Trained research assistants administered the questionnaire during the interview with adolescent mothers. Six clinical officers working with Teule District Hospital and health centres within the catchment population of the hospital were involved, interviewing an average of 6-8 mothers per session depending on the availability of adolescent mothers during scheduled clinical visits. A total of 235 adolescent mothers were interviewed.

The questionnaire was divided into two sections, namely:

Section A: Demographic and socio-economic characteristics data

Section B: Assessment of sexual health behaviour, enabling factors, satisfaction with services and the actual utilisation of prenatal services.

The statistician cleaned and analysed the data using STATA version 10. Data entry was initially done in Microsoft Access 2003 and the completed database was transformed into STATA format using Stat Transfer Program. Descriptive statistical tests including frequencies and percentages were used. The presented percentages were rounded off to one decimal point.

The responses from the open-ended question in section B was initially coded before grouping them into four main themes so as to get meaningful interpretation of the responses.

4.3 SECTION A: DEMOGRAPHIC DATA

Section A of the questionnaire consisted of 13 questions covering demographic, cultural background, education and socio-economic characteristics and is summarised in table 4.1.

4.3.1 Age distribution

The age distribution for adolescent mothers is shown in table 4.1 and indicates that most respondents fell into the 17-19 years age category i.e. older adolescents (78.7%; n=185). The results of this survey are closely comparable to the national figure given in the Tanzania Demographic and Health Survey of 2010. According to the survey, the percentage of women who had a live birth between 15 and 19 years, the majority falls between 17 and 19 years i.e. 81.4% (TDHS 2010).

4.3.2 Marital Status

More than half of the adolescent mothers were single (59.2%; n=139) and only 23%(n=54) were married. The remaining mothers were either co-habiting (16.2%; n=38) or divorced from their partners (1.3%; n=3). The higher proportion of single adolescent mothers is also reported in the 2010 Tanzania Demographic and Health Survey. It has increased from 72% in the 2004-05 TDHS to 80% in the 2010 TDHS (TDHS 2010: 92). It indicates there is early onset of sexual activity among adolescents who have limited knowledge and access to family planning services. It is also a reflection of early age at first marriage in the study population because 23% of respondent mothers were married resulting into early childbearing and high fertility.

4.3.3 Education level

The majority of adolescent mothers completed primary education (79.2%; n=186), a small percentage (18.3%; n=43) finished their secondary level of education and none of them reached tertiary level i.e. university/college level. The figure for primary education exceeds the percentage reported in the Tanzania Demographic and Health Survey (40.9%) indicating that majority of adolescents in Muheza attended primary school but because of conception they are terminated from school. There is a strong inverse

relationship between early child bearing and education; adolescents with less education are much more likely to start childbearing than better educated women (TDHS 2010).

4.3.4 Education level of partners

On the other hand, the partners of the respondents were also mostly primary school leavers (59.0%; n=138), followed by secondary school leavers (37.2%; n=87) and very few had attained university or college education (1.7%; n=4). Education provides people with the knowledge and skills that can lead to a better quality of life. It correlates with the health of mothers and their children, and with reproductive behaviour (TDHS 2010:33). Adolescent mothers with low levels of education could most likely interact with partners who were also less educated and not likely to influence positively their reproductive health seeking behaviour. The urban-rural differences in terms of education among men are also reported in the 2010 TDHS. The proportion of urban men who have attended secondary education was 42% compared to 16% of men in rural areas (TDHS 2010: 91).

4.3.5 Distance from ANC

More than half of the adolescent mothers had their households located within 1-5km to the nearest clinic providing antenatal services (53.2%; n=125), followed by, in decreasing frequencies, by those located less than 1km from antenatal clinic (27.2%; n=64), and 6-10km (16.6%; n=39). These results indicate that antenatal services are easily accessible to majority of adolescent mothers in Muheza district and reflect those reported in the Tanzania Demographic and Health Survey of 2010. According to TDHS (2010) only 15.4% of the 2172 adolescent mothers included in the survey cited access to health care facility to be a problem.

4.3.6 Income

The majority of adolescent mothers belonged to family income category of less than TZS 200,000 per month (91.9%; n=216) and personal income below TZS 200,000 per month (99.1%; n=233). However when other variables apart from the income like type of housing and wall materials and source of water for domestic use were taken into consideration in constructing socioeconomic status 34.9% (n= 82) only belonged to the low socioeconomic group. The low income levels might influence adolescent mothers not to use the antenatal services and these percentages are relatively higher than that reported in the Tanzania Demographic and Health Survey of 2010. Only 20.3% of the

surveyed adolescent mothers cited getting money for treatment to be a problem in accessing health care (TDHS 2010).

Table 4.1 Background characteristics of adolescent mothers in Muheza District

Variable	Frequency	Percentage
Age category		-
10-14	3	1.3
15-16	47	20.0
17-19	185	78.7
Residence		
Urban	56	23.8
Peri-urban	179	76.2
Religion		
Muslim	136	57.9
Christian	96	40.9
Missing	3	1.2
Marital status	G	
Single	139	59.2
Married	54	23.0
Divorced	3	1.3
Co-habiting	38	16.2
Missing	1	0.3
Education level	1	0.3
	186	79.2
Primary Secondary	43	18.3
Secondary No formal education		1.7
	4 2	
Missing Partners education	2	0.8
	400	50.0
Primary	138	59.0
Secondary	87	37.2
University/College	4	1.7
No formal education	4	1.7
Missing	1	0.4
Distance from ANC		
Less than 1km	64	27.2
1-5km	125	53.2
6-10km	39	16.6
More than 10km	4	1.7
Missing	3	1.3
Personal income (TZS)		
Less than 50,000	211	89.8
50,000-100,000	21	8.9
100,000-200,000	1	0.4
200,000-300,000	1	0.4
Missing	1	0.4
Family income (TZS)		
Less than 100,000	137	58.3
100,000-200,000	79	33.6
200,000-400,000	11	4.7
400,000-600,000	5	2.1
600,000-800,000	1	0.4
800,000-1,000,000	1	0.4
More than 1,000,000	1	0.4
SES	•	0. -т
Low	82	34.9
Medium	77	32.8
High	71	30.2
Missing	7 I 5	30.2 2.1

1USD = 1500 TZS (Tanzanian Shillings) SES= Socioeconomic status

4.3.7 Residence

More than three quarters (76.2%; n=179) of adolescent mothers reside in peri-urban areas surrounding Muheza District. The difference between urban and rural areas in terms of percentage of women receiving antenatal care from a skilled provider was reported to be urban (55%) against rural (39%) area in the Tanzania Demographic and Health Survey of 2010. The place of residence might not influence the adolescents not to use antenatal services in Muheza since most of them were living very close to the health centres offering ANC services.

4.3.8 Religion

Religion as a cultural factor could influence the adolescents either to use or not to use the antenatal clinics but the researcher had no background knowledge of any denominations that prohibit their followers from attending clinics. Adolescents mothers who participated in the survey were predominantly Muslims (57.9%; n=136) and Christians (40.9%; n=96). Qualitative studies involving key informants will be recommended to evaluate the role of religion in influencing the acceptance of health care services.

4.4 SECTION B: HEALTH BEHAVIOUR, ENABLING RESOURCES, SATIS-FACTION WITH CARE AND ACTUAL UTILISATION OF ANC SERVICES

Section B of the questionnaire consisted of 15 questions covering obstetrics history, contraceptive use, enabling resources, satisfaction with services and utilisation of antenatal services. A summary is given in table 4.2.

4.4.1 Planning to get pregnant

Of the 235 adolescent mothers interviewed only 59 (25.1%) had planned their last pregnancy and the rest did not intend i.e. unplanned pregnancies (72.8%; n=171). This information was missing for 5 adolescent mothers. (See table 4.2). Because of unplanned pregnancies, adolescent mothers are prone to adverse health, social and economic implications for themselves, their children and usually for the grandmothers as well (Ehlers 2003:14). The adverse health implications include pregnancy-induced hypertension, anaemia, discontinuation from school that limit the chances of adolescent mothers to find jobs to sustain themselves and their children. Financial hardships can aggravate the adolescent mothers' social adjustment problems, increasing the likelihood of resorting to prostitution to augment their incomes (Ehlers 2003:14).

4.4.2 Confirmation of pregnancy

Almost all adolescent mothers confirmed their pregnancy before or during the 4th month of gestation (97.4%; n=229) and only a small percentage (2.6%; n=6) confirmed relatively late between 5-7 months of pregnancy. (See table 4.2).

4.4.3 Booking visit

The early confirmation of pregnancy did not completely translate into early attendance to the antenatal clinic. It is only a proportion of these adolescent mothers that actually started attending antenatal clinic i.e. booking visit before the 4th month of pregnancy (69.3%; n=163). The remaining mothers started antenatal visits between the 5th and 7th month of pregnancy (30.6%; n=72). (See table 4.2). Surveyed adolescent mothers in Muheza were attending the clinic earlier for the first time compared with other parts of Mainland Tanzania. According to the (TDHS 2010) only 15% of women made their first ANC visit before the 4th month of pregnancy. Nearly a third of women did not seek antenatal care until their sixth month of pregnancy. The median number of months that women are pregnant at their first visit is 5.4 (TDHS 2010). The late attendance to the antenatal clinic put the lives of adolescent mothers and their babies at risk because of late detection of pregnancy associated complications.

4.4.4 Frequency of attendance

The frequency of attendance which was used to classify adolescent mothers among those who adequately utilised antenatal care and those who underutilised antenatal care revealed a higher percentage of inadequate utilisation. Only 23% (n=54) of the surveyed adolescent mothers made the minimum four antenatal visits recommended by WHO i.e. focused antenatal care approach (FANC). The low number of women who make a minimum of 4 antenatal visits is also reported in the Tanzania Demographic and Health Survey of 2010 where only 39% of women visited the ANC more than four times (TDHS 2010).

4.4.5 Antenatal service provider

Antenatal services were mostly provided by Maternal and Child Health (MCH) Aide (53.6%; n=126) followed by, in decreasing percentage, public health nurse (22.6%; n=53) and nurse midwives (15.7%; n=37). (See table 4.2). This is in contrast to the findings of demographic survey of 2010. According to TDHS (2010) majority of adolescent women who had a live birth in the five years preceding the survey were

attended by Nurse Midwife (NM) as skilled provider (79.8%), followed by MCH Aide (6.3%) and Clinical Officer (5.2%). It is an indication that MCH Aides are more available in Muheza District than other skilled providers.

Table 4.2 Antenatal information of adolescent mothers in Muheza district (N=235)

Variable	Frequency	Percentage
Last pregnancy		
Planned	59	25.1
Unplanned	171	72.8
Missing	5	2.1
Confirmation of pregnancy		
Less than 2months	115	48.9
2-4 months	114	48.5
5-7 months	6	2.6
Booking visit		
Less than 2 months	17	7.2
2-4 months	146	62.1
5-7 months	72	30.6
Frequency of attendance		
Less than 4 times	180	76.6
4-5 times	52	22.1
More than 5 times	2	0.9
Missing	1	0.4
Service provider (ANC)		
Nurse midwife	37	15.7
MCH aide	126	53.6
Public health nurse	53	22.6
Clinician	2	0.9
More than 1 provider	16	6.8
Missing	1	0.4
Family planning		
Male condom	43	18.3
Female condom	0	0
Oral contraceptive pill	9	3.8
Injectables	13	5.5
Others	2	0.9
Never used contraception	168	71.5

4.4.6 Methods of family planning

The use of contraception was very low among adolescent mothers, as the majority of them (71.5%; n=168) had never used contraception before getting pregnant. None of the adolescent mothers had ever used a female condom and the remaining few relied on their male partners for contraception (18.3%; n=43). (See table 4.2). The low contraception prevalence rate among adolescent mothers has also been reported in the Tanzania Demographic and Health Survey of 2010.

For married adolescents, 15-19 years the prevalence is 14.9% whereas for sexually active unmarried women aged between 15-19 years it is 39.7% (TDHS 2010). It shows the high unmet need for family planning methods among adolescent mothers in Muheza District. The low contraceptive prevalence among adolescents' mothers has also been reported by Ehlers (2003:19) in Tshwane, South Africa (37%) and 28.5% in Marondera District, Zimbabwe (Ehlers 2010:22). In Tshwane, none of the interviewed adolescents had ever used emergency contraception or termination of pregnancy services despite their availability free of charge in the region (Ehlers 2003:19). In Zimbabwe, the non-utilisation of contraceptive services was attributed to several factors that include the lack of timely sex education, lack of knowledge about contraceptives, fears of infertility after the utilisation of contraceptives, lack of knowledge about and the inaccessibility of emergency contraceptives and termination of pregnancy services (Ehlers 2010:22).

Similar reasons could explain the low uptake of contraceptive services in Muheza but in addition to that the limited access to contraceptives for young unmarried women has been previously reported in Tanzania by Speizer, Hotchkiss, Magnani, Hubbard and Nelson (2000:13).

Table 4.3 Satisfaction with antenatal service delivery

ITEM DESCRIPTION	STRONGLY DISAGREE		DISA	GREE	NEU	TRAL	AG	REE		ONGLY SREE	TO	ΓAL
	n	%	n	%	n	%	n	%	n	%	n	%
Quality of service was good	1	0.4	4	1.7	32	13.7	70	29.9	127	54.3	234	100
Good attitude of service providers	1	0.4	2	0.85	36	15.4	66	28.2	129	55.1	234	100
Friendliness of nurses	2	0.9	5	2.2	41	17.6	34	14.6	151	64.8	233	100
Short duration of waiting	3	1.3	6	2.6	56	23.9	97	41.5	72	30.8	234	100
Availability of drugs and		1.3	0	2.0		23.9	91	41.5	12	30.6	234	100
vaccines	5	2.2	8	3.5	33	14.4	55	23.9	129	56.1	230	100
Continuous social support	3	1.3	5	2.2	18	7.7	49	21.0	158	67.8	233	100
Procedures were adequately explained	8	3.4	6	2.6	33	14.2	77	33.1	109	46.8	233	100
Danger signs explained	9	3.9	5	2.1	30	12.8	52	22.2	138	59.0	234	100
Delivery items were explained	9	3.9	2	0.9	26	11.2	32	13.7	164	70.4	233	100

4.4.7 Satisfaction score

Surveyed mothers were interviewed to indicate their level of satisfaction with antenatal services using a 5- point Likert scale on different items such as service quality, attitude of service providers, time they waited before getting services, availability of essential drugs and vaccines, explanations on different procedures or examinations before their conduct in the clinic and whether or not the danger signs and pregnancy complications were explained to them. The satisfaction score of 28 out of 45 was used to differentiate between those who were not satisfied and those who were satisfied with the antenatal services. The majority of adolescent mothers (94%; n=220) were satisfied with the services they received from the providers.

More than half of adolescent mothers strongly agreed (percentage> 50%) for different items that were used to construct a satisfaction score. An exception to this are the time spent waiting before getting the services (30.8%; n=72) and explanations given before the conduct of procedures or examinations in the clinic (46.8%; n=109) where less than half of adolescents strongly agreed (See Table 4.3).

4.4.8Inferential statistics

Logistic regression analysis was used for inferential statistics. Variables that were significant in univariate analysis at 5% level of statistical significance were used to fit a multivariate model that explained significant predictors of utilisation of antenatal services among adolescent mothers in Muheza.

4.4.9 Study findings

In univariate analysis the following variables were significantly associated with utilisation of antenatal services at 5% level of statistical significance: the number of children under the age of 16 years who are living with the respondents in the house, number of people in the house, family income between 200,000 and 400,000 TZS, socioeconomic status, adolescent mothers living in 4 or more room houses, service provider in the antenatal clinic (Public Health Nurse), method of family planning and distance from the antenatal clinic (P<0.05). (See tables 4.4 & 4.5).

However, in multivariate analysis taking into consideration other co-variates in the study only the following variables remained statistically significant namely:

- Households with more than 4 children under 16 years
- Socioeconomic status
- Source or provider of antenatal services
- Methods of family planning
- Distance from the antenatal clinic

4.5.1 Households with more than 4 children under 16 years

Adolescents residing in households with more than four children were 6 times more likely to utilise adequately antenatal services as compared to households with less than 4 children under the age of 16 years (OR=6.25, P=0.042, 95% CI=1.07-36.6). The other children could serve as reminders of their peer groups to attend antenatal services and hence providing the necessary peer support to their fellow adolescents. (See table 4.4)

4.5.2 Number of people in the house (Family size)

There was no statistically significant difference in utilization of antenatal services according to size of household where antenatal mothers were living. A comparison was made between households with 3 members or less number of individuals (31%; n=73) and those with more than 3 members (69%; n=162) and the results showed no differences in level of utilization (OR=0.9, p=0.76, 95% Confidence intervals 0.47-1.73 (see table 4.4).

4.5.3 Socioeconomic status

Socioeconomic status (SES) was estimated by principal component analysis (PCA) based on assessment of household characteristics like type of house and main material used to make house walls and access to utilities like source of drinking water or water for domestic use. Principal component analysis (PCA) obtained wealth and socioeconomic indices have previously been shown to adequately classify participants in broad socioeconomic categories (Vyas & Kumaranayake 2006:460).

Adolescent mothers in Muheza were assigned into 3 categories of socio-economic index (low, medium and high). Adolescent mothers who belonged to the high socio-economic group were underutilising antenatal services (OR=0.21, P=0.009, 95% CI= 0.06-0.67, P<0.05) as compared to those from low SES. The high SES group could have an option of attending other private clinics in case of pregnancy-related

complications making them poor compliant to ANC clinic schedule unlike their counterparts who relied only to the public ANC services. (See table 4.4)

Table 4.4Logistic regression analysis of socio-demographic factors affecting ANC utilisation in Muheza

Za Univariate Multivariate							
		95%CI			95%CI		
1011		307001	- OIX		307001		
1*							
_	0.702	0.52-2.34					
1.1	0.732	0.02-2.04					
1*							
I -	0.747	0 44-1 70					
0.03	0.747	0.44-1.73					
1*							
I -	U 388	0.40-1.40					
0.73	0.500	0.40-1.40					
1*							
I -	0 915	0.50-2.13					
0.50	0.223	0.21-1.44					
1*							
	0 003	∩ 18 ₋ 1 1 <i>1</i>					
0.43	0.033	0.10-1.14					
1*							
I -	0.357	0.38-1.40					
0.94	0.901	0.09-9.57					
1*			4*				
I -	0.02	1 25 14 64		0.042	1.07-36.6		
4.2	0.02	1.23-14.04	0.23	0.042	1.07-30.0		
1*							
I -	0 633	0.24.2.25					
0.76	0.032	0.24-2.33					
1*			4*				
I -	0.507	0.42.1.64	I =	0.062	0.34-2.45		
					0.05-9.74		
0.62	0.002	0.00-7.0	0.00	0.777	0.05-9.74		
1*							
	0.76	0 47-1 73					
0.9	0.76	0.47-1.73					
1*			1*				
	0 032	0 23-0 94		0.256	0.20-1.53		
0.47	0.032	0.25-0.54	0.50	0.230	0.20-1.55		
1*			1*				
	0.78	∩ <u>45</u> -1 81		0.517	0.3-1.85		
					0.06-0.67		
0.51	0.000	0.13-0.14	0.21	0.008	0.00-0.01		
1*							
	0.56	0.45-1.53					
0.59	0.04	0.00-0.23					
1*			1*				
	0 17	Ი 17₋1 37		0.010	0.17-4.84		
					0.05-1.91		
	Univa OR	OR P 1* 0.792 1* 0.89 0.747 1* 0.75 0.388 1* 0.075 0.388 1* 0.045 0.915 0.56 0.229 1* 0.45 0.093 1* 0.74 0.357 0.961 1* 4.2 0.02 1* 0.76 0.632 1* 0.032 0.32 0.862 1* 0.47 0.032 0.76 1* 0.91 0.76 1* 0.008 1* 0.008 1* 0.008 1* 0.008 1* 0.008 1* 0.008 1* 0.008 1* 0.008 1* 0.48 0.17	OR P 95%CI 1* 1.1 0.792 0.52-2.34 1* 0.89 0.747 0.44-1.79 1* 0.75 0.388 0.40-1.40 1* 1.04 0.915 0.50-2.13 0.56 0.229 0.21-1.44 1* 0.45 0.093 0.18-1.14 1* 0.74 0.357 0.38-1.40 0.94 0.961 0.09-9.37 1* 4.2 0.02 1.25-14.64 1* 0.76 0.632 0.24-2.35 1* 0.83 0.597 0.42-1.64 3.9 0.032 1.12-13.75 0.82 0.862 0.08-7.6 1* 0.9 0.76 0.47-1.73 1* 0.91 0.78 0.45-1.81 0.31 0.008 0.13-0.74 1* 0.83 0.56 0.45-1.53 0.59 0.64 0.06-5.29 1* 0.48 0.17 0.17-1.3	OR P 95%CI OR 1* 1.1 0.792 0.52-2.34 1* 1.8 0.89 0.747 0.44-1.79 1* 1.75 0.388 0.40-1.40 1* 1.04 0.915 0.50-2.13 0.56 0.229 0.21-1.44 1* 0.45 0.093 0.18-1.14 1* 1* 0.74 0.357 0.38-1.40 0.94 0.961 0.09-9.37 1* 4.2 0.02 1.25-14.64 6.25 1* 0.76 0.632 0.24-2.35 1* 0.92 2.0 0.68 1* 0.83 0.597 0.42-1.64 0.92 2.0 0.68 1* 0.9 0.76 0.47-1.73 1* 0.56 1* 0.9 0.76 0.47-1.73 0.56 1* 0.00 0.00 0.13-0.74 0.21 1* 0.31 0.008 0.13-0.74 0.21 1* 0.48 0.17	OR P 95%CI OR P 1* 1.1 0.792 0.52-2.34 1* 1.89 0.747 0.44-1.79 1* 1.075 0.388 0.40-1.40 1* 1.04 0.915 0.50-2.13 0.56 0.56 0.229 0.21-1.44 1* 1* 0.45 0.093 0.18-1.14 1* 0.74 0.357 0.38-1.40 0.94 0.961 0.09-9.37 1* 4.2 0.02 1.25-14.64 6.25 0.042 1* 0.76 0.632 0.24-2.35 1* 0.92 0.862 1* 0.83 0.597 0.42-1.64 0.92 0.862 3.9 0.032 1.12-13.75 0.68 0.777 1* 0.99 0.76 0.47-1.73 1* 0.56 0.256 1* 0.91 0.78 0.45-1.81 0.74 0.517 0.21 0.009 1*		

1USD = 1500 TZS (Tanzanian Shillings) SES= Socioeconomic status 1

1*= reference

4.5.4 Provider of antenatal services

Adolescent mothers who were attended by public health nurses (PHN) made fewer visits than those attended by nurse midwives, and this association was statistically significant both in univariate and multivariate analysis after controlling for other covariates (OR= 0.2, P=0.024, 95% Cl= 0.05-0.8). The reason for this could be due to the time spent with mothers during the first or subsequent follow up antenatal visits. Public health nurses have other duties and responsibilities like administrative and teaching in the RCH setting and therefore spend little time with adolescent mothers during antenatal contact. As a consequence, adolescent mothers built up stronger provider-client relationships with nurse midwives than with the PHN and adhered to the schedule as per their instructions. (See table 4.5).

Table 4.5 Logistic regression analysis of other factors affecting ANC utilisation in Muheza

Variable	Univa	riate		Multiv	ariate	
	OR	Р	95% CI	OR	Р	95%CI
Provider						
Nurse midwife	1*			1*		
MCH aide	0.49	0.075	0.22-1.07	1.2	0.734	0.41-3.52
Public health nurse	0.21	0.005	0.07-0.62	0.2	0.024	0.05-0.8
Clinician						
More than 1 provider	0.38	0.181	0.09-1.57	0.7	0.750	0.09-5.62
Family planning						
Male condom	1*			1*		
Female condom						
Oral pills	33.6	0.004	3.11-362	35.9	0.008	2.52-510.5
Injectables	18.6	0.013	1.8 -187	12.5	0.053	0.97-160.3
Others	42	0.032	1.4 -1268	31.5	0.067	0.78-1267.1
Never used contraception	15.3	0.008	2 -114	8.4	0.050	0.99-70.6
Escort to ANC (Family)						
Parent	1*					
Husband	0.37	0.13	0.1- 1.35			
Others	0.86	0.79	0.29-2.6			
More than 1 member	4.31	0.31	0.25-72.7			
None	2.75	0.005	1.35-5.6			
Distance						
Less than 1 km	1*			1*		
1-5 km	2.67	0.016	1.19-5.94	3.73	0.027	1.16-11.98
6-10km	1.34	0.598	<i>0.4</i> 5-3.93	2.16	0.316	0.48-9.67
More than 10km	2.04	0.556	0.19-21.8	9.28	0.134	0.50-171.2
Action taken(missed						
service)						
Misses altogether	1*					
Shift to another clinic						
Out of pocket payment	2.19	0.41	0.34-14.1			
Obtained on follow up	0.31	0.00	0.15-0.6			
Satisfaction score						
Low	1*					
High	0.75	0.646	0.23-2.51			

^{1* =} reference group

4.5.5 Methods of family planning

Adolescent mothers who had used any method of family planning like oral pills or injectables were adequately utilising antenatal services as compared to those who relied on their male partners using male condoms for contraception. This association was highly significant both in univariate and multivariate analysis. Even adolescent mothers who had never used contraception were attending ANC services more frequently than those who depended on male condom for contraception. The use of contraception is a reflection of better knowledge about sexuality and general attitude towards reproductive health services and the reliance on male condom or non-use was associated with little knowledge about and practice of family planning services. (See table 4.5)

4.5.6 Distance from antenatal clinic

Adolescent mothers who were residing within 1-5km from ANC services made more recommended number of visits to the clinic than those residing less than 1 km. This association was statistically significant both in univariate and multivariate analysis after controlling for other co-variates (OR=3.7, P=0.027, 95% CI= 1.16-11.98). (See table 4.5)

Table 4.6 Availability of equipment

	n	%
Ensure availability of equipment that are essential for ANC services like BP		
machine and weighing scale	12	5.2
Regular supplies of diagnostic test kits for syphilis, HIV, urine dipstick and		
haemocue for haemoglobin level estimation	30	13.0
Items that are essential for safe delivery like cotton wool and sterile gloves		
should be available in the dispensary or health centres	148	64.3
Maintenance of buildings, waiting facilities like benches and examination		
beds	40	17.4
Total	230	100

The opinion of adolescents regarding antenatal equipment and facilities varied but they mostly focused on items that are needed for the delivery process like cotton wool and sterile gloves. These items were missing in some of the health centres.

Table 4.7 Quality of antenatal services

	n	%
Prolong the time duration of running antenatal services during the		
allocated days	32	14.3
Health service workers with positive attitude towards adolescent mothers		
should be rewarded	18	8.0
Ensure availability of all required vaccines and drugs for prophylaxis		
against anaemia and malaria	122	54.5
Increase the number of health centres/dispensaries that provide antenatal		
services	27	12.1
Introduction of mobile antenatal services for remote villages or an		
ambulance for the acutely sick mothers	25	11.2
Total	224	100

The level of satisfaction with the quality of antenatal services was very high (94%;See section 4.4.8) and in addition to that adolescent mothers recommended the health facilities to ensure the availability of all essential drugs and vaccines, extension of clinic hours and even the introduction of mobile clinics for remote villages.

Table 4.8 Improvement of antenatal services

	n	%
Increase the number of service providers	45	19.6
Ensure availability of drugs and insecticide treated bed-nets	147	63.9
Improvement of labour ward facilities and attendants	20	8.7
Ensure basic screening tests are conducted regularly	18	7.8
Total	230	100

The opinions on how to improve antenatal services was closely related to their satisfaction with the services. The majority of adolescents emphasised on the consistent supply of drugs and insecticide treated bed nets (ITN) provided in these clinics.

Table 4.9 Health education

	n	%
Health education on danger signs associated with high risk pregnancies	27	11.8
Individual counselling sessions before undergoing routine ANC screening		
tests	37	16.2
Repeated health education sessions should be conducted for adolescent		
mothers because they are more at risk group	60	26.3
Refresher courses for labour ward attendants	32	14.0
Emphasis should be put on family planning education in the postnatal		
period	72	31.6
Total	228	100

There were mixed opinions on how to address the issue of health education among adolescent mothers. The minority related it to the knowledge of danger signs and the risky pregnancies specified in the antenatal cards while others felt that refresher courses should be conducted for labour ward attendants. A substantial proportion of adolescents requested the need for family planning education in the postnatal period. This highlights the need to invest more time and resources on improvement of knowledge about sexuality and family planning before conception in this vulnerable segment of the population.

4.6 CONCLUSION

This chapter discussed the data analysis and interpretation with the use of frequency tables and descriptive statistics. Inferential statistics was done using logistic regression method in univariate and multivariate analysis adjusting for different co-variates to identify significant determinants of antenatal services utilisation. Although several limitations of the study were found, the results generated from this study will be used to make recommendations on how to improve the provision of antenatal services to adolescent mothers in Tanzania.

CHAPTER 5

FINDINGS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter discusses the findings and limitations of the study, and make recommendations for practice, education and research.

5.2 OBJECTIVES OF THE STUDY

The objectives of this study were to

- describe the utilisation of prenatal services by pregnant adolescents in Muheza district, Tanzania.
- identify possible barriers that may prevent pregnant adolescents from utilising the antenatal services.
- developstrategies that will promote antenatal usage by pregnant adolescents in Tanzania.

5.3 SUMMARY OF FINDINGS

The first objective of the study was to describe the utilisation of prenatal services by pregnant adolescents in Muheza district, Tanzania. The results showed that there is a high percentage of underutilisation among adolescent mothers where a high percentage (76.6%;n=180) visit the ANC clinic less than four times. Only 23% (n=54) of the surveyed mothers completed the minimum four ANC visits recommended by WHO i.e. focused antenatal care approach despite a relatively higher proportion of adolescents who confirmed pregnancy early and started attending antenatal clinic before the 4th month of pregnancy.

The second objective of the study was to identify possible barriers that may prevent pregnant adolescents from utilising the antenatal services. The following factors were found to be possible barriers to antenatal attendance; a low level of education of the pregnant adolescents, low levels of both individual and household income per month and inadequate knowledge about sexuality and poor attitude towards reproductive health services as exemplified by low prevalence of contraceptive use. Marital status could also affect utilisation of ANC negatively as most of the adolescents were single and hence lacking the necessary social and financial support to access health care

services. The effect of health insurance schemes could not be assessed as all adolescents were reported to be covered by community health fund (CHF) that was introduced in Muheza District as one of the pilot districts before its roll out in other districts of Mainland Tanzania.

Most of the demographic and socio-economic variables were found not to be statistically significant when using logistic regression for inferential statistics but from descriptive analysis it seems this factors had an impact on the adolescent utilisation of antenatal services.

The finding that majority of adolescents confirmed pregnancy early and started antenatal clinic is encouraging but their inabilities to complete the required number of visits need to be investigated in Muheza District. Adolescents are considered to be high risk group and therefore they were expected to attend ANC more frequently than their older counterparts.

The low contraceptive prevalence rate among adolescents was in keeping with the high proportion of unplanned pregnancies in Muheza District. It is reported in the AIDS Week in Review (June 2010) that even if family planning services and information and contraceptives are available, adolescent girls may lack skills and negotiation and decision making power to use the services. Girls' lack of power is taken advantage of and girls are forced into sexual relations making them extremely vulnerable to HIV and other sexually transmitted illnesses. For example in Karagwe District 85% of all secondary and primary school girls who fell pregnant in three years preceding the survey tested HIV-positive (AIDS Week in Review June 2010).

The third objective of the study was to develop strategies that will promote antenatal usage by pregnant adolescents in Tanzania. The suggested strategies are displayed in table 5.1.

Table 5.1: Strategies for improving the utilisation of antenatal services by adolescent mothers in Muheza district, Tanzania

rac	PREDISPOSING CHARACTERISTICS								
	Limitation	What should be done	Responsible person	Actions/Frequency					
	Young age of pregnancy	Reviewing of laws affecting adolescent health. (The Law of Marriage Act of 1971)	Government of Tanzania	Abandon current laws allowing marriage at the age of 15 years and increase the legal age of marriage in Tanzania to 18 years Introduction of strict laws and penalties for men involved in sexual relationships with teen or school girls					
		Educate young girls to avoid intergenerational sex.	Health professionals & education authorities	Introduction of sexuality education as early as in primary school.					
		Review the policy and guidelines to reduce the number of school dropouts	Government of Tanzania	The existing policies that allow school aged girls to resume classes after delivery should be upheld The construction of more secondary schools in each administrative ward so as to keep adolescents in school and reduce their engagement in risky sexual behaviours, early marriages and early child bearing.					
			ENABLING	FACTORS					
	_imitation	What should be done	Responsible person	Actions/Frequency					
•	Lack of information on antenatal attendance	Increase knowledge of adolescents about sexual and reproductive health information.	Health professionals Primary school teachers	Use of social marketing and public media to reduce the gap in knowledge about sexual and reproductive health information including antenatal attendance					
•	Lack of accessibility	Introduction of school-based health camps and community health camps in remote settings to provide antenatal services Introducing "Youth Friendly" health services	Government of Tanzania Private school owners Government of Tanzania and Non-governmental organisations	Both public and private school authorities should introduce monthly antenatal visits in areas with limited access to antenatal services The government should target existing structures like health centre and dispensaries to have separate units that can cater for adolescent antenatal and reproductive health needs					
		Timing of clinics	Ministry of Health and local health authorities	In areas where the construction of separate units for adolescents is not feasible the timing of clinic can be arranged in a way that the same room used for outpatient services in the morning is used for adolescent clinic in the afternoon					

Reduction of social stigma related to antenatal attendance for adolescent girls	Ministry of Health and Social Welfare, Faith-Based Organisations	Sponsoring of Radio and Television programmes that discourage discrimination of adolescent girls and encourage their antenatal care attendance
Improve social interactions between parents and adolescent and discussion about sexual and reproductive health	Community and Faith- Based organisations	Mass media to organise public campaigns and sponsoring programmes that encourage open discussion between parents and children on sexual and reproductive health needs and family support for antenatal attendance
Improve psychosocial support to adolescent mothers	Community based organisations	Family members should be advised to complement the activities of antenatal care service providers through counselling adolescent women to adhere to the visit schedule and required procedures
To support income generating activities for adolescents who are not in schools	Government of Tanzania	Micro-financing institutions to provide loans to adolescent mothers to start small and medium enterprises (SME) to promote financial independency
Health insurance for adolescent mothers	Government of Tanzania and District health authorities	The government should introduce a health insurance package that can cater for all adolescents women to access sexual and reproductive health services
Source of care	Public and private hospital owners	Ensure availability of female service providers who will help in winning the trust of pregnant girls since for many of them this may be the first contact with the public health system Introduction of school nurses in primary schools which is the best area to target adolescents with sexual and reproductive health information and skills
Reduce waiting time	Public and private school owners	To establish separate units within public and private hospital facilities that can quickly attend to adolescent antenatal requirements and allowing them to go back to school
Availability of health personnel and facilities	Public and private hospital owners	Ensure availability of adequate facilities and service providers who are competent during clinic hours and motivated to deal with adolescents
	Improve social interactions between parents and adolescent and discussion about sexual and reproductive health Improve psychosocial support to adolescent mothers To support income generating activities for adolescents who are not in schools Health insurance for adolescent mothers Source of care Reduce waiting time Availability of health personnel and	antenatal attendance for adolescent girls Improve social interactions between parents and adolescent and discussion about sexual and reproductive health Improve psychosocial support to adolescent mothers Community and Faith-Based organisations Community based organisations Community based organisations Community based organisations Government of Tanzania and District health authorities Source of care Public and private hospital owners Reduce waiting time Public and private school owners Availability of health personnel and Public and private

	Improve the quality of provider-client relationship	Government of Tanzania	To discourage judgmental attitudes of service providers who will also need to demonstrate appropriate attitudes and behaviours to reassure the adolescents in addressing their needs Both audio and visual privacy should be maintained during the interaction between provider and adolescent woman
		NEE	
Limitation	What should be done	Responsible person	Actions/Frequency
Unavailabilit	Improved availability of all the	Government of	Monthly or quarterly review of inventories for all the required supplies like drugs,
y of supplies	essential supplies needed for antenatal services	Tanzania	vaccines and insecticide treated bednets
Availability of equipment	Improved availability of all required equipment like blood pressure machine, weighing scales, thermometers and reagents for diagnostic tests	Government of Tanzania	Bi-annual or quarterly inspection of public and private hospital and dispensaries to ensure that all the required equipment is available and have proper maintenance schedule and operated according to the standard procedures
Contraceptive counselling	Ensure availability of contraceptive services including emergency contraception	Government of Tanzania	Adolescent girls should be allowed to access emergency contraceptive services. It is also an opportunity that should be utilised by service providers to emphasize safe sex practices and risk reduction counselling
Training of service providers	Refresher courses for service providers and working tools in antenatal care clinics	Government of Tanzania	To conduct short and long term training programmes for service providers To ensure adequate resource materials like posters and leaflets are available to service providers in order for them to respond to questions posed by the adolescents Resource materials need to cover topics related to growth and development, sexuality education, myths and misconceptions about family planning, sexual abuse and treatment of sexually transmitted infections.

5.4 STUDY LIMITATIONS

There are some limitations of the study. The information on socio-demographic variables could not be counterchecked for its validity and completely relied on self reports of the respondents. On the other hand antenatal information was checked by looking at the antenatal cards to verify the information given by adolescent mothers. The use of non-probability sampling technique i.e. convenience sampling might have affected the selection of participants for the study but this could not be avoided considering the short time for data collection and lack of a reliable sampling frame in Muheza District. The conduct of the study in the reproductive and child health clinic might have influenced adolescent mothers to respond in a way that would have impressed the research assistants; especially on satisfaction with the services but this could not be avoided because there was no alternative place to conduct such a study.

The strength of this study lies in the use of the Andersen Health Seeking Behavior Model that has previously been widely used in studying factors related to utilisation of different health care services and pretesting of the questionnaire before its use to reduce ambiguities.

5.5 RECOMMENDATIONS

The findings provided useful information on the ANC utilisation by adolescent mothers in Muheza District. According to the findings, the researcher makes the following recommendations for ANC practice, education and research.

ANC Practice

The antenatal service providers and parents should play a complimentary role of emphasising ANC attendance to adolescent mothers and encourage them to complete the required number of visits and content of each visit.

- Health education sessions through posters and peer educators during ANC should provide information on the risks of unprotected sex which apart from unwanted pregnancy can also expose them to sexually transmitted infections including HIV.
- Increase adolescent access to comprehensive sexual and reproductive health services through extension of working hours and introducing mobile clinics during specified days to remote locations with high prevalence of adolescent mothers.
- Antenatal education

Information on contraception and family planning should be incorporated in primary school curriculum to empower adolescents in the area of sexuality at a relatively earlier stage than the current practice whereby it is taught from secondary school level.

• Public health campaigns on the importance of focused antenatal care approach through radio and TV programmes and posters.

Further research

Focused group discussions and interviewing key informants i.e. adolescents mothers and ANC providers to find out the reasons behind underutilisation of ANC despite early confirmation and attendance to the clinic.

- Research on how micro financing institutions can provide loans to adolescents mothers who wants to start small and medium enterprises to promote women empowerment and financial independence.
- An exploratory study using qualitative methods should be carried out to investigate if there are any misconceptions regarding the use of contraceptive by adolescents so as to promote usage in this vulnerable group.

5.6 CONCLUSION

This study has found that adolescent mothers in Muheza District were underutilising antenatal services. Although they confirmed their pregnant status early and started to attend antenatal services only a few completed the four required number of visits recommended by the WHO using Focused Antenatal Care Approach. The low level of education, low income both individual and household and a high percentage of unplanned pregnancies resulting from low contraceptive prevalence were identified as contributory factors. The adolescent mothers managed to express their opinions on how the provision of antenatal services can be done to improve utilisation. They focused on the need to improve the quality of services and consistent supply of all the essential drugs, vaccines and delivery items. They also expressed the need for family planning education in the postnatal period that would prevent more unplanned pregnancies. Finally, the researcher has given recommendations for antenatal practice, education and future research.

LIST OF SOURCES

Abosse, Z, Woldie, M & Ololo, S. 2010. Factors Influencing Antenatal Care Service Utilization in Hadiya Zone. *Ethiopian Journal of Health Sciences*20(2): 75-82.

AIDS Week in Review. June 2010

Ali, A. 2010.Use of antenatal care services in Kassala, Eastern Sudan. *BMC Pregnancy and Childbirth*10:67

Andersen and Newman Framework of Health Services Utilization. umanitoba.ca/faculties/medicine/units/community_health_sciences/departmental_units/mchp/protocol/media/Andersen_and_Newman_Framework.pdf.(Accessed on 14 December 2012).

Andersen, R. 1995. Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Behaviour*36:1-10.

Anderson, N, Smiley, D, Flick, L & Lewis, C. 2000. Missouri Rural Adolescent Pregnancy Project (MORAPP). *Public Health Nursing* 17(5):355-362.

Arthur, A, Unwin, S & Mitchell, T. 2007. Teenage mothers experiences of maternity services: a qualitative study. *British Journal of Midwifery*15(11):672-677.

Babbie, E & Mouton, J. 2001. *The Practice of Social Research*. Cape Town: Oxford University Press, Southern Africa.

Barnet, B, Arroyo, C, Devoe, M & Duggan, AK. 2004. Reduced school dropout rates among adolescent mothers receiving school-based prenatal care. *Archives of Paediatrics and Adolescent Medicine* 158(3):262-268.

Burns, N & Grove, S.K. 2005. *The Practice of Nursing Research. Conduct, Critique and Utilization.* St. Louis: Elsevier.

Cambridge Advanced Learners Dictionary. 2008. Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, Sao Paulo, Delhi: Cambridge University Press.

Chaibva, CN, Roos, JH & Ehlers, VJ. 2009. Adolescent mothers non-utilisation of antenatal care services in Bulawayo, Zimbabwe. *Curationis*32(3):14-21.

Chandhiok, N, Dhillon, B, Kambo, I & Saxena, N. 2006. Determinants of antenatal care utilization in rural areas of India: A cross-sectional study from 28 districts (An ICMR task force study). *The Journal of Obstetrics and Gynecology of India*56(1):47-52.

Ciceklioglu, M, Soyer, M & Ocek, Z. 2005. Factors associated with the utilization and content of the prenatal care in a western urban district of Turkey. *International Journal for Quality in Healthcare* 17(6):533-539.

Dawson, N, Hosie, A, Meadows, S, Selman, P & Speak, S. 2005. The Education of Pregnant Young Women and Young Mothers in England. University of Newcastle/University of Bristol.

https://www.education.gov.uk/publications/eOrderingDownload/RW40.pdf (Accessed on 26 Jan 2013)

DiMario, S. 2005. What is the effectiveness of antenatal care? (Supplement). Copenhagen, WHO Regional Office for Europe (Health Evidence Network Report).

Ehlers, V, Maja, T, Sellers, E & Gololo, M. 2000. Adolescent mothers' utilisation of reproductive health services in the Gauteng Province of South Africa. *Curationis*23(3): 43-51.

Ehlers, VJ. 2003. Adolescent mothers' knowledge and perceptions of contraceptives in Tshwane, South Africa. *Curationis*8(1):13-25.

Ehlers, VJ. 2010. Adolescent mothers' non-utilisation of contraceptives in Zimbabwe *African Journal of Nursing and Midwifery*12(2):14-26.

Erulkar, A, Onoka, C& Phiri, A. 2005. What is Youth-Friendly? Adolescents Preferences for Reproductive Health Services in Kenya and Zimbabwe. *African Journal of Reproductive Health*9(3):51-58.

FANC – Focused Antenatal Care: Providing integrated individualized care during pregnancy.

2007. http://www.reproline.jhu.edu/english/6read/6issues/6jtn/v4/tn111antenatal.htm. (Accessed on 04 April 2010).

FEAST (Fluid Expansion as Supportive Therapy). http://www.feast-trial.org/trialsites/muheza. (Accessed on 19 May 2011).

Flynn, L, Budd, M & Modelski, J. 2008. Enhancing Resource Utilization Among Pregnant Adolescents. *Public Health Nursing* 25(2):140-148.

Gloyd, S, Chai, S & Mercer, MA. 2001. Antenatal syphilis in sub-Saharan Africa: Missed opportunities for mortality reduction. *Health Policy and Planning*16(1):29-34.

Handler, A, Rosenberg, D, Raube, K & Lyons, S. 2003. Satisfaction and Use of Prenatal Care: Their Relationship Among African-American Women in a Large Managed Care Organization. *BIRTH*30(1): 23-30.

Haque, MN. 2009. Individual's Characteristics Affecting Maternal Health Services Utilization: Married Adolescents and Their Use of Maternal Health Services in Bangladesh. *The Internet Journal of Health* 8(2).DOI: 10.5580/1d27

Harper, C, Callegari, L, Raine, T, Blum, M& Darney, R. 2004. Adolescent clinic visits for contraception: support from mothers, male partners and friends. *Perspectives on Sexual and Reproductive Health* 36(1):20-26.

Hospitali Teule Muheza. 2007. http://www.teule.or.tz/Research. (Accessed on 10 March 2012).

Hueston, W, Geesey, M & Diaz, V. 2008. Prenatal care initiation among pregnant teens in the United States: an analysis over 25years. *Journal of Adolescent Health*42(3): 243-248.

Ibeh, C. 2008. Is poor maternal mortality index in Nigeria a problem of care utilization? A case study of Anambra State. *African Journal of Reproductive Health* 12(2):132-140.

Ivanov, L. 2000. Use of a Western theoretical model to investigate the relationships among characteristics of pregnant women, utilization and satisfaction with prenatal care services in St. Petersburg, Russia. *Public Health Nursing* 17:111-120.

Kamal, S. 2009. Factors affecting utilization of skilled maternity care services among married adolescents in Bangladesh. *Asian Population Studies*5(2):153-170.

LoBiondo-Wood, G& Haber, J, (Ed.) 2002. *Nursing Research. Methods, Critical Appraisal, and Utilization.* St Louis: Mosby.

Luo, Z, Wilkins, R & Kramer, M. 2004. Disparities in Pregnancy Outcomes According to Marital and Cohabitation Status. *Obstetrics and Gynecology* 103(6):1300-1307.

Map of Muheza District. http://jpfirstlab.com/Reports/BOCAFPaperNo1.pdf. (Accessed on 19 May 2011).

Maps of Tanzania. http://mapsget.com/africa/tanzania/maps-of-tanzania. (Accessed on 19 May 2011).

Navaneethan, K & Dharmalingam, A. 2002. Utilization of maternal health care services in Southern India. *Social Science and Medicine*55(10):1849-1869.

NBS – National Bureau of Statistics (NBS) [Tanzania].2010. Population projection. Dar Es Salaam, Tanzania.

NBS - National Bureau of Statistics (NBS) [Tanzania]. 2013. 2012 POPULATION AND HOUSING CENSUS.Population Distribution by Administrative Areas.Dar es Salaam, Tanzania

Pallikadavath, S, Foss, M & Stones, R. 2004. Antenatal Care: provision and inequality in rural north India. *Social Science and Medicine*59(6):1147-1158.

Paredes, I, Hidalgo, L, Chedraui, P, Palma, J & Eugenio, J. 2005. Factors associated with inadequate prenatal care in Ecuadorian women. *International Journal of Gynecology and Obstetrics* 88:168-172.

Partington, S, Steber, D, Blair, K & Cisler, R. 2009. Second birth to teenage mothers: risk factors for low birth weight and preterm birth. *Perspectives on Sexual and Reproductive Health* 41(2):101-109.

Philemon, M. 2007. Factors Contributing to High Adolescent Pregnancy Rate in Kinondoni Municipality.

http://uir.unisa.ac.za/bitstream/handle/10500/1814/dissertation.pdf?sequence=1. (Accessed on 19 May 2011).

Polit, DF, & Beck, CT. (Eds.) 2004. *Nursing Research. Principles and Methods*. Philadelphia: Lippincott Williams & Wilkins.

Polit, DF, & Beck, CT. 2006. The Content Validity Index: Are You Sure You Know What's Being Reported? Critique and Recommendations. *Research in Nursing and Health*29:489-497.

Polit, DF, & Beck, CT. 2008. *Nursing research: Generating and assessing evidence for nursing practice.* New York: JB Lippincott.

Polit, DF, & Beck, CT. 2012. *Nursing research: generating and assessing evidence for nursing practice.* Philadelphia: Wolters Kluwer Health/Lippincott Williams and Wilkins.

Reynolds, H, Wong, EL, & Tucker, H. 2006. Adolescents' use of Maternal and Child Health Services in Developing Countries. *International Family Planning Perspectives* 32(1):6-16.

Save the Children. State of the World's Mothers. 2004. http://www.savethechildren.org/publications/mothers/2004/SOWM_2004_final.pdf. (Accessed on 20 August 2010).

Smith, D & Roberts, R. 2009. Young parents perceptions of barriers to antenatal and postnatal care. *British Journal of Midwifery*17(10):620-627.

Speizer, IS, Hotchkiss, DR, Magnani, RJ, Hubbard, B& Nelson, K. 2000. Do service providers in Tanzania unnecessarily restrict clients' access to contraceptive methods? *International Family Planning Perspectives*26(1):13-20.

Sultana, M. 2005. Culture of silence. A brief on reproductive health of adolescents and youth in Pakistan. Islamabad, Pakistan, Population Council.

Taffa, N & Obare, F. 2004. Pregnancy and child health outcomes among adolescents in Ethiopia. *Ethiopian Journal of Health Development*18(2):90-95.

Tanzania Demographic and Health Survey. 2005. http://www.measuredhs.com/pubs/pdf/FR173/09chapter09.pdf. (Accessed on 19 May 2011).

TDHS –Tanzania Demographic and Health Survey. 2010. http://www.nbs.go.tz/takwimu/references/2010TDHS.pdf (Accessed on 26 Jan 2013).

The Law of the Child Act of United Republic of Tanzania. 2009.

Treffers, P, Olukoya, A, Ferguson, B& Liljestrand, J. 2001. Care for adolescents pregnancy and childbirth. *International Journal of Gynecology and Obstetrics*75(2): 111-121.

Trinh, L, Dibley, MJ & Byles, J. 2006. Antenatal Care Adequacy in Three Provinces of Vietnam: Long An, Ben Tre, And Quang Ngai. *Public HealthReports*121(4):468-475.

Trinh, L & Rubin, G. 2006.Late entry to antenatal care in New South Wales, Australia. *Reproductive Health*3(8):1-8.

Trinh, L, Dibley, MJ & Byles, J. 2007. Determinants of Antenatal Care Utilization in Three Rural Areas of Vietnam. *Public Health Nursing*24:300-310.

United Nations, Tanzania. Delivering as One, Prevent adolescent pregnancies and keep girls in school! 2010.

http://www.nurturingmindsinafrica.org/sitebuildercontent/sitebuilderfiles/abadolescentsfinal.pdf. (Accessed on 19 May 2011).

van Eijk, AM, Bles, HM, Odhiambo, F, Ayisi, JG, Blokland, IE, Rosen, DH, Adazu, K, Slutsker, L & Lindblade, KA. 2006. Use of antenatal services and delivery care among women in rural western Kenya: a community based survey. *Reproductive Health*3 (2):1-9.

Vyas, S, & Kumaranayake, L. 2006. How to do (or not to do) Constructing socioeconomic status indices: how to use principal components analysis. *Health Policy and Planning* 21(6):459-468.

Warren, P. 2005. First-time mothers: social support and confidence in infant care. *Journal of Advanced Nursing*50(5): 479-488.

Westoff, C. 2003. Trends in Marriage and Early Childbearing in Developing Countries. Calverton: ORC Macro.

WHO – World Health Organization. The World Health Report 2005: Make every mother Andchild count. http://www.whqlibdoc.who.int/whr/2005/9241562900_chap3.pdf. (Accessed on 18 August 2010).

World Health Organization.1994. Mother-Baby Package: Implementing safe motherhood in countries. Practical Guide. Maternal Health and Safe Motherhood Programme, Division of Family Health, Geneva: WorldHealth Organization.

World Health Organization (WHO)/United Nations Children's Fund (UNICEF). 2003. Antenatal Care in Developing Countries: Promises, Achievements and Missed Opportunities: An Analysis of Trends, Levels and Differentials (1990-2001). Geneva:WHO.

World Health Statistics 2012. Global Health Observatory Data Repository. www.who.int/gho/publications/world_health_statistics/2012/en/. (Accessed on 10 December 2012).

Yang, T, Wen, S.W, Walker, M.C, Beduz, M.A & Kim, P.C. 2007. Womens Satisfaction With the Current State of Prenatal Care for Pregnancies Complicated by Fetal Anomalies: A Survey of Five Academic Perinatal Units in Ontario. *Journal of Obstetrics and Gynaecology of Canada* 29(4):308-314.

ANNEXURE A

ADOLESCENTS' UTILISATION OF ANTENATAL SERVICES IN MUHEZA, TANZANIA

Number of questionnaire:

1	2	3

All information herewith provided will be treated confidentially. It is not necessary to indicate your name in this questionnaire.

INSTRUCTIONS

- 1 Please answer all questions by providing an "X" in the box corresponding to the chosen alternative or by writing your opinion in the space provided.
- 2 Please answer all questions as honestly, frankly and objectively as possible.
- 3 Answer according to your own personal opinion and experience.
- 4 Please return the questionnaire by 2012

Answer the questions by placing an "X" in the box corresponding to the alternative which is applicable to you or write down your response in the space provided.

SECTION A: DEMOGRAPHIC DATA

1. How old are you?

Age		ANSWER
1.1	10 years or younger	1
1.2	11 - 12 years	2
1.3	13 - 14 years	3
1.4	15 - 16 years	4
1.5	17 - 18 years	5
1.6	19 years and older	6

For official use

4

2. Residence?

		ANSWER
2.1	Urban	1
2.2	Peri-urban Peri-urban	2

5

3. Indicate your religion.

Religion		Answer
3.1	Muslim	1
3.2	Roman Catholic	2
3.3	Lutheran	3
3.4	Anglican	4
3.5	Seventh Day Adventist	5
3.6	Pentecostal Assemblies of God	6
3.7	Africa Inland Church	7
3.8	Jehovah Witness	8
3.9	Other (specify)	9

6

4. Indicate your marital status.

For official use

		ANSWER
4.1	Single	1
4.2	Married	2
4.3	Divorced	3
4.4	Co-habiting	4
4.5	Other (specify)	5

7

5. What is your highest level of <u>completed</u> education?

		ANSWER
5.1	Primary	1
5.2	Secondary	2
5.3	University/College	3
5.4	No formal education	4

8

6. What is the highest level of <u>completed</u> education of your husband/partner?

		ANSWER
6.1	Primary	1
6.2	Secondary	2
6.3	University/College	3
6.4	No formal education	4
6.5	I do not have a husband/partner	5

9

7. How many children under 16 years of age are living with you in the house?

		ANSWER
7.1	None	1
7.2	One	2
7.3	Two	3
7.4	Three	4
7.5	Four	5
7.6	Five	6
7.7	Six and more	7

10

8. My personal monthly income is (Tanzanian Shillings)

		ANSWER
8.1	Less than 50,000	1
8.2	50,000 – 100,000	2
8.3	100,000 – 200,000	3
8.4	200,000 - 300,000	4
8.5	300,000 - 400,000	5
8.6	400,000 - 500,000	6
8.7	More than 500,000	7

1	1

9. The monthly income of the household is (Tanzanian Shillings)

For official use

		ANSWER
9.1	Less than 100,000	1
9.2	100,000 – 200,000	2
9.3	200,000 – 400,000	3
9.4	400,000 - 600,000	4
9.5	600,000 - 800,000	5
9.6	800,000 - 1,000,000	6
9.7	More than 1,000,000	7

|--|

10. How many persons are living with you in the house?

		ANSWER
10.1	None	1
10.2	One	2
10.3	Two	3
10.4	Three	4
10.5	Four	5
10.6	Five	6
10.7	Six and more	7

13

11. How many rooms do you have in your house?

		ANSWER
11.1	Non	1
11.2	One	2
11.3	Two	3
11.4	Three	4
11.5	Four	5
11.6	Five	6
11.7	Six and more	7

14

12. The wall material of my house is made of

		ANSWER
12.1	Grass house	1
12.2	Grass house and clay bricks	2
12.3	Clay bricks	3
12.4	Mud bricks	4
12.5	Wooden house	5
12.6	Concrete bricks	6
12.7	Others (specify)	7

15

13. The source of water is ...

		ANSWER
13.1	River	1
13.2	Spring (unprotected)	2
13.3	Spring (protected)	3
13.4	Well (uncovered)	4
13.5	Well (covered)	5
13.6	Tap water (public)	6
13.7	Tap water (domestic)	7

16

SECTION B: ANTENATAL INFORMATION

14. Please indicate how many pregnancies you have which have gone beyond 28 weeks.

For official use

Number of pregnancies beyond 28 weeks and beyond	ANSWER
14.1 One	1
14.2 Two	2
14.3 Three	3
14.4 Four	4
14.5 Five and more	5

17

15. Your intention to get pregnant with your last pregnancy.

		ANSWER
15.1	My last pregnancy was planned.	1
15.2	My last pregnancy was unplanned.	2

18

16. Your history of obstetric problems.

		Yes	No	*N/A	
16.1	Previous pregnancies	1	2	3	19
16.2	Previous deliveries	1	2	3	20
16.3	Abortions	1	2	3	21
16.4	Curettages	1	2	3	22
16.5	Low birth weight (LBW)	1	2	3	23
16.6	Preterm deliveries	1	2	3	24

^{*}N/A = Not applicable

17. Specify the type of contraception used before your pregnancy.

		ANSWER
17.1	Male condom	1
17.2	Female condom	2
17.3	Oral contraceptive pills	3
17.4	Injectables	4
17.5	Others (specify)	5
17.6	I have not used contraception before getting	6
pregn	ant.	

25

18. When did you confirm pregnancy?

		ANSWER
18.1	Less than 2 months	1
18.2	2-4 months	2
17.3	More than 5 months	3

26

19. At what gestational age did you start attending antenatal clinic for the first time? (Show antenatal card if available)

For official use

		ANSWER
19.1	Less than 2 months	1
19.2	2-4 months	2
19.3	5-7 months	3
19.4	7-9 months	4

27

20. How many times did you attend antenatal clinic services? (Show antenatal card if available)

		ANSWER
20.1	Less than 4 times	1
20.2	4-5 times	2
20.3	More than 5 times	3

28

21. Who attended to you during antenatal visits? (Source of care)

	Time attended to you daring antended troiter (each	
		ANSWER
21.1	Nurse midwife	1
21.2	MCH aide	2
21.3	Public Health Nurse	3
21.4	Clinician	4
21.5	More than one provider	5

29

22. Who accompanied you to the clinic?

		ANSWER
22.1	Parent (mother/father)	1
22.2	Husband/partner	2
22.3	Others (specify)	3
22.4	More than one family member	4
22.5	None	5

30

23. Who supported you financially throughout your pregnancy?

		Yes	No	31
23.1	Parent (mother/father)	1	2	32
23.2	Husband/partner	1	2	33
23.3	Others (specify)	1	2	34
23.4	None	1	2	35

24. Do you have insurance cover to cater for your health?

		ANSWER
24.1	Yes (Ask to show membership card)	1
24.2	No	2

25. How far is the antenatal clinic from your place of residence?

For official use

		ANSWER
25.1	Less than 1 km	1
25.2	1-5 km	2
25.3	6-10 km	3
25.4	More than 10 km	4

37

36

26. What did you do to get missed services?

		ANSWER
26.1	Missed altogether	1
26.2	Shift to another clinic/hospital	2
26.3	Forced to buy from my own pocket	3
26.4	They were obtained in the same clinic during	4
follow		

38

Please indicate to what extent you agree with the statements below.

Please use the following scale to tick appropriate answer

Strongly agree	5
Agree	4
Neutral (neither agree or disagree)	3
Disagree	2
Strongly disagree	1

27. Satisfaction with service delivery

27.1 The quality of antenatal care I received at the clinic was	1	2	3	4	5	39
good						
27.2 The attitude of the service providers were good	1	2	3	4	5	40
27.3 The nurses were friendly	1	2	3	4	5	41
27.4 I waited a short while before being helped	1	2	3	4	5	42
27.5 The drugs/vaccines were always available	1	2	3	4	5	43
27.6 Social support was available	1	2	3	4	5	44
27.7 All the procedures and examinations done were fully	1	2	3	4	5	45
explained						
27.8 The danger signs and complications during pregnancy	1	2	3	4	5	46
was						
explained to me						
27.9 Essential items needed for delivery were explained to me	1	2	3	4	5	47

28. Were you explained the anticipated mode of delivery (individualised birth plan)?

		ANSWER
28.1	Yes	1
28.2	No	2
28.3	Don't know	3

48

29. Any suggestions to improve antenatal service provision to adolescent mothers?

THANK YOU FOR YOUR PARTICIPATION

ANNEXURE B

DODOSO KUHUSU MATUMIZI YA KLINIKI KWA KINAMAMA WAJAWAZITO WALIO NA UMRI CHINI YA MIAKA 19 KATIKA WILAYA YA MUHEZA, TANZANIA

Nambari v	/a Dodoso.	
Nambari v	∕a Dodoso.	

Maelezo yote utakayotoa ni siri na hautakiwi kuandika jina lako katika dodoso hili.

Maelekezo

- Tafadhali jibu maswali yote kwa kuweka alama ya "X" kwenye chumba kilicho mbele yajibu sahihi au kwa kuandika maoni yako kwenye nafasi iliyoachwa wazi
- Tafadhali jibu maswali yote kwa ufasaha na umakini kadri iwezekanavyo
- Jibu maswali kulingana na mawazo yako na uzoefu binafsi
- Tafadhali rudisha dodoso hili kabla ya tarehe.....2012

SEHEMU A: MAELEZO BINAFSI YA MSHIRIKI

1. Una umri gani? Una miaka mingapi?

Umri	Jibu
1.1 Chini ya miaka 10	1
1.2 11-12	2
1.3 13-14	3
1.4 15-16	4
1.5 17-18	5
1.6 Zaidi ya miaka 19	6

2. Mahali unapoishi?

	jibu
2.1 Mjini	1
2.2 Pembezoni mwa mji	2

3. Dini yako

Dini	Jibu
3.1 Muislamu	1
3.2 Mkatoliki	2
3.3 Mlutheri	3
3.4 Anglikana	4
3.5 Msabato	5
3.6 PAG (kanisa la wokovu)	6
3.7 Africa inland church	7
3.8 Mashahidi wa Yehova	8
3.9 Mengineyo	9

4. Je umeolewa? Umetalikiwa? Unaishi na mwenza?

	Jibu
4.1 Sijaolewa	1
4.2 Nimeolewa	2
4.3 Nimetalikiwa	3
4.4 Naishi na mwenza bila ndoa	4
4.5 Mengineyo	5

5. Je ni kiwango gani cha elimu ulichofikia?

5.1 Msingi	1
5.2 Sekondari	2
5.3 Chuo kikuu/ufundi	3
5.4 Sijahudhuria shule	4

6. Je ni kiwango gani cha elimu alichofikia mume wako/ mzazi mwenzio?

	Jibu
6.1 Msingi	1
6.2 Sekondari	2
6.3 Chuo kikuu/ufundi	3
6.4 Hajahudhuria shule	4
6.5 Sina mume/ mzazi mwenza	5

7. Idadi ya watoto wenye umri chini ya miaka 16 unaoishi nao

	Jibu
7.1 Hakuna	1
7.2 Mmoja	2
7.3 Wawili	3
7.4 Watatu	4
7.5 Wanne	5
7.6 Watano	6
7.7 Sita au zaidi	7

8. Kipato chako kwa mwezi ni:

Tshs	Jibu
8.1 Chini ya 50,000	1
8.2 50,000-100,000	2
8.3 100,000-200,000	3
8.4 200,000-300,000	4
8.5 300,000-400,000	5
8.6 400,000-500,000	6
8.7 zaidi ya 500,000	7

9.Kipato cha familia yangu kwa mwezi ni:

Tshs	Jibu
9.1 Chini ya laki 1	1
9.2 100,000-200,000	2
9.3 200,000-400,000	3
9.4 400,000-600,000	4
9.5 600,000-800,000	5
9.6 800,000-1,000,000	6
9.7 zaidi ya millioni 1	7

10. Idadi ya watu unaoishi nao kwenye familia ni:

	jibu
10.1 Peke yangu	1
10.2 Mmoja	2
10.3 Wawili	3
10.4 Watatu	4
10.5 Wanne	5
10.6 Watano	6
10.7 Sita na zaidi	7

11. Idadi ya vyumba katika nyumba unayoishi ni:

Jibu
1
2
3
4
5
6
7

12. Nyumba ninayoishi imejengwa kwa kutumia:

	jibu
12.1 Nyasi	1
12.2 Nyasi na matofali ya udongo	2
12.3 Matofali ya udongo	3
12.4 Matofali ya kuchoma	4
12.5 Nyumba ya mbao	5
12.6 Matofali ya saruji	6
12.7 Mengineyo	7

13. Chanzo cha maji kwa matumizi yangu ya nyumbani ni:

	Jibu
13.1 Mto	1
13.2 Chemchem (isiyojengewa kingo)	2
13.3 Chemchem (imezungushiwa	3
kingo)	
13.4 Kisima (kisichofunikwa)	4
13.5 Kisima (chenye mfuniko)	5
13.6 Maji ya bomba (matumizi ya	6
jumuia)	
13.7 Maji ya bomba (matumizi yangu	7
binafsi)	

SEHEMU B: MAELEZO KUHUSU MATUMIZI YA KLINIKI YA KINAMAMA WAJAWAZITO

14. Je ni idadi gani ya mimba imewahi kufikisha umri wa miezi 7 na kuendelea?

	Jibu
14.1 Moja	1
14.2 Mbili	2
14.3 Tatu	3
14.4 Nne	4
14.5 Tano na zaidi	5

15. Je ujauzito uliopita ulipanga au haukuwa katika mpangilio wako wa uzazi?

	Jibu
15.1 Nilipanga	1
15.2 Sikupanga	2

16. Je umewahi kupata matatizo yanayoambatana na ujauzito/uzazi katika mimba zilizopita?

	ndio	hapana	haihusiani	
16.1 Mimba zilizopita	1	2	3	
16.2 Uzazi wa shida	1	2	3	
16.3 Mimba zilizoharibika,	1	2	3	
16.4 Kusafishwa kizazi	1	2	3	
16.5Uzito pungufu wa mtoto chini ya kg2.5	1	2	3	
16.6 Kuzaa kabla ya wakati	1	2	3	

17. Je ni njia gani ya uzazi wa mpango umewahi kutumia kabla ya kushika ujauzito?

	Jibu
17.1 Mpira wa kiume	1
17.2 Mpira wa kike	2
17.3 Vidonge vya kukinga uzazi	3
17.4 Sindano za kukinga uzazi	4
17.5 Njia nyinginezo	5
17.6 Sijawahi kutumia njia za uzazi wa	6
mpango	

18. Je ni wakati gani uligundua/ulihakiki kuwa ni mjamzito? (umri wa mimba)

	Jibu
18.1 Chini ya miezi miwili	1
18.2 Kati ya miezi 2-4	2
18.3 Zaidi ya miezi mitano	3

19. Je ni wakati gani ulianza kuhudhuria kliniki ya kina mama wajawazito? (umri wa mimba)

	Jibu
19.1 Chini ya miezi miwili	1
19.2 Kati ya miezi 2-4	2
19.3 Kati ya miezi 5-7	3
19.4 Kati ya miezi 7-9	4

20. Je ni mara ngapi ulihudhuria kliniki ya wajawazito? (Onyesha kadi ya mahudhurio ya kliniki kama unayo)

	Jibu
20.1 Chini ya mara 4	1
20.2 Kati ya mara 4-5	2
20.3 Zaidi ya mara 5	3

21. Je ulihudumiwa na nani ulipohudhuria kliniki?

	Jibu
21.1 Muuguzi mkunga	1
21.2 Mhudumu kliniki ya wazazi/watoto	2
21.3 Muuguzi wa afya ya jamii	3
21.4 Daktari	4
21.5 Wahudumu wa kada mbalimbali	5

22. Je ni nani aliyekuwa anakusindikiza kliniki?

	Jibu
22.1 Mzazi	1
22.2 Mume wangu/rafiki wa kiume	2
22.3 Wengineo (marafiki n.k.)	3
22.4 Zaidi ya mtu mmoja	4
22.5 Sikusindikizwa kliniki	5

23. Je ni nani alikupa msaada wa kifedha wakati wa ujauzito?

	Jibu
23.1 Mzazi	1
23.2 Mume wangu/rafiki wa kiume	2
23.3 Wengineo (marafiki,shangazi n.k.)	3
23.4 Sikupata msaada wa kifedha	4

24. Je unayo bima ya afya?

	Jibu
24.1 Ninayo (onyesha kadi ya bima)	1
24.2 Sina	2

25. Je ni umbali toka unapoishi mpaka kituo cha afya?

	Jibu
25.1 Chini ya km 1	1
25.2 Kati ya km 1-5	2
25.3 Kati ya km 6-10	3
25.4 Zaidi ya km 10	4

26. Je ni hatua gani ulichukua pindi ulipokosa baadhi ya huduma zitolewazo kliniki?

	Jibu
26.1 Sikuchukua hatua yoyote	1
26.2 Nilihamia kliniki nyingine	2
26.3 Nilitumia fedha kununua	3
26.4 Nilizipata siku tofauti katika kliniki	4
husika	

Tafadhali ainisha ni kwa kiwango gani unakubaliana na sentensi zifuatazo:

Niliridhishwa kwa kiwango kikubwa	5
Niliridhishwa kiasi	4
Wastani	3
Sikuridhishwa kiasi	2
Sikuridhishwa kwa kiwango kikubwa	1

27. Ni kwa kiwango gani uliridhishwa na huduma ulizozipata katika kliniki ya wajawazito?

wajawazito:						
	1	2	3	4	5	
27.1 Huduma zilizotolewa ni za kiwango kizuri	1	2	3	4	5	
27.2 Watoa huduma walikuwa na mtazamo mzuri na	1	2	3	4	5	
wasikivu						
27.3 Wauguzi walikuwa wakarimu	1	2	3	4	5	
27.4 Nilisubiri kipindi kifupi kabla ya kupata huduma	1	2	3	4	5	
27.5 Dawa na chanjo vilipatikana wakati wote	1	2	3	4	5	
27.6 Wazazi na marafiki walinisaidia kipindi chote cha	1	2	3	4	5	
ujauzito						
27.7 Nilipata maelezo ya kina ya vipimo nilivyofanyiwa	1	2	3	4	5	
27.8 Nilipata maelezo kuhusu viashiria hatari wakati wa	1	2	3	4	5	
ujauzito						
27.9 Nilipata maelekezo ya vifaa vinavyohitajika pindi	1	2	3	4	5	
uchungu utakapoanza						

28. Je ulipata ushauri/maelekezo kuhusu njia na mahali salama kwa uzazi?

	Jibu
28.1 Ndio	1
28.2 Hapana	2
28.3 Sijui	3

	29. Je una maoni gani kuhusu namna ya kuboresha utoaji huduma za kliniki kwa kina mama wajawazito hususan wenye umri usiozidi miaka 19:																																			
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ASANTE KWA USHIRIKI WAKO

ANNEXURE C

Ratings on a 29-item Scale by Four Experts: Scale-Content Validity Index (S-CVI)

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in agreement	Item CVI
1	Χ	Χ	Χ	Χ	4	1.00
2	Х	Х	Х	Х	4	1.00
3	-	Х	Х	Х	3	0.75
4	Х	Х	Χ	Χ	4	1.00
5	Х	Χ	Χ	Χ	4	1.00
6	Х	-	Χ	-	2	0.50
7	-	Х	-	X	2	0.50
8	X	Χ	Χ		4	1.00
9	Χ	Χ	Χ	X	4	1.00
10	Χ	-	Χ	Χ	3	0.75
11	Х	Χ	-	Χ	3	0.75
12	Χ	Χ	X	Χ	4	1.00
13	Х	Χ	X	X	4	1.00
14	Χ	Χ	X	X	4	1.00
15	Х	Χ	Χ	Χ	4	1.00
16	Х	Χ	Χ	Χ	4	1.00
17	Χ	Χ	X	Χ	4	1.00
18	Χ	Х	X	Χ	4	1.00
19	Х	Χ	Χ	Χ	4	1.00
20	X	Χ	X	Χ	4	1.00
21	Χ	Χ	X	Χ	4	1.00
22	-	Χ	Χ	Χ	3	0.75
23	X	Χ	-	Χ	3	0.75
24	Х	Χ	X	Χ	4	1.00
25	Χ	Χ	Χ	Χ	4	1.00
26	-	Χ	Χ	-	2	0.50
27	Χ	Χ	Χ	Χ	4	1.00
28	Х	Χ	Х	Х	4	1.00
29	Χ	Χ	Χ	Χ	4	1.00
	0.862	0.93	0.896	0.93	S-CVI/Av	0.905

ANNEXURE D

Cronbach Alpha statistical test

Alpha satisfaction frequency resd room1 nopeople fplan distance booking incomefam bplan tertile action, item

Test scale = mean(unstandardized items)

average item-test Item		n-rest Sign	inter-i	tem on correlation	covarianc	e alpha
satisfacti~	234	+	0.0834	0.0260	.0563339	0.3943
frequency	234	+	0.1833	0.0785	.0544664	0.3891
resd	235	+	0.3410	0.2469	.0489439	0.3622
room1	235	-	0.3127	0.2049	.0496718	0.3669
nopeople	235	+	0.4389	0.0634	.0501605	0.4320
fplan	235	+	0.6689	0.2642	.0273568	0.3215
distance	232	+	0.6376	0.5203	.0311839	0.2683
booking	235	+	0.2277	0.0941	.0524782	0.3826
incomefam	235	-	0.3460	0.1498	.0476571	0.3683
bplann	233	+	0.0994	0.0532	.055946	0.3922
tertile	230	+	0.3312	0.1432	.0483781	0.3705
action	234	-	0.4326	0.1305	.0449782	0.3789
Test scale			0-	472953 0.39	16 	

ANNEXURE E

THE UNITED REPUBLIC OF TANZANIA





National Institute for Medical Research

P.O. Box 9653 Dar es Salaam

Tel: 255 22 2121400/390 Fax: 255 22 2121380/2121360 E-mail: headquarters@nimr.or.tz NIMR/HQ/R.8a/Vol. IX/1229

Ministry of Health and Social Welfare

P.O. Box 9083 Dar es Salaam

Tel: 255 22 2120262-7 Fax: 255 22 2110986

28th October 2011

Dr Omar N Lweno Ifakara Health Institute Bagamoyo Research and Training Centre P.O.BOX 74 Bagamoyo COAST

CLEARANCE CERTIFICATE FOR CONDUCTING MEDICAL RESEARCH IN TANZANIA

This is to certify that the research entitled: Adolescents utilization of antenatal services in Muheza district, Tanga, (Lweno O N et al), has been granted ethics clearance to be conducted in Tanzania. The Principal Investigator of the study must ensure that the following conditions are fulfilled:

- 1. Progress report is submitted to the Ministry of Health and the National Institute for Medical Research, Regional and District Medical Officers after every six months.
- Permission to publish the results is obtained from National Institute for Medical Research.
- 3. Copies of final publications are made available to the Ministry of Health & Social Welfare and the National Institute for Medical Research.
- 4. Any researcher, who contravenes or fails to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine. NIMR Act No. 23 of 1979, PART III
- 5. Approval is for one year: 28th October 2011 to 27th October 2012.

Name: Dr Mwelecele N Malecela

Signature

CHAIRPERSON MEDICAL RESEARCH COORDINATING COMMITTEE

CC: RMO DMO Name: Dr Deo M Mtasiwa

CHIEF MEDICAL OFFICER MINISTRY OF HEALTH, SOCIAL

WELFARE

ANNEXURE F



UNIVERSITY OF SOUTH AFRICA Health Studies Higher Degrees Committee (HSHDC) College of Human Sciences ETHICAL CLEARANCE CERTIFICATE

Date of meeting	: 30 June	2011			Project N	lo:	3592-7	753-4
Project Title:	Adolescents Tanzania.	utilisation	of anter	natal s	ervices	in M	uheza	district
Researcher:	Omar Ndano	Lweno						
Degree:	MPH (genera	nl)		Code:	DIS4986	6		
Supervisor: Qualification: Joint Supervisor	Prof JH I DLITT et : -							
DECISION OF	COMMITTEE							
Approved	1	Cond	itionally					
Corguite Prof E Potgiete	er							

Prof MC Bézuidenhout

RESEARCH COORDINATOR

ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

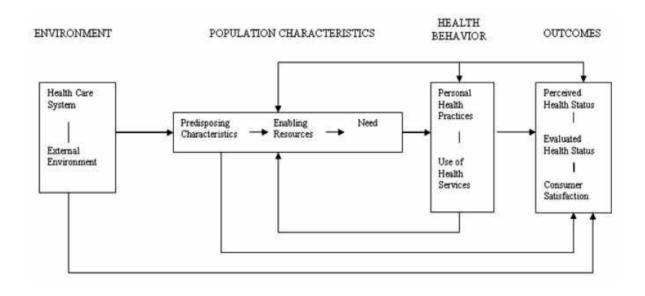
ANNEXURE G

Andersen and Newman Framework of Health Services Utilization

The purpose of this framework is to discover conditions that either facilitate or impede utilization. The goal being, to develop a behavioral model that provides measures of access to medical care. The framework was first developed in the 1960s and has since gone through four phases. Developed in the 1990s, the framework below represents the fourth phase.

An individual's access to and use of health services is considered to be a function of three characteristics:

- Predisposing Factors: The socio-cultural characteristics of individuals that exist prior to their illness.
 - Social Structure: Education, occupation, ethnicity, social networks, social interactions, and culture
 - Health Beliefs: Attitudes, values, and knowledge that people have concerning and towards the health care system
 - · Demographic: Age and Gender
- 2) Enabling Factors: The logistical aspects of obtaining care.
 - Personal/Family: The means and know how to access health services, income, health insurance, a regular source of care, travel, extent and quality of social relationships
 - · Community: Available health personnel and facilities, and waiting time
 - Possible additions: Genetic factors and psychological characteristics
- 3) Need Factors: The most immediate cause of health service use, from functional and health problems that generate the need for health care services. "Perceived need will better help to understand care-seeking and adherence to a medical regimen, while evaluated need will be more closely related to the kind and amount of treatment that will be provided after a patient has presented to a medical care provider." (Andersen, 1995)
 - Perceived: "How people view their own general health and functional state, as well as how they experience
 symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of
 sufficient importance and magnitude to seek professional help." (Andersen, 1995)
 - Evaluated: "Represents professional judgment about people's health status and their need for medical care." (Andersen, 1995)



References

Defining Articles:

- Aday LA, Andersen RM. A framework for the study of access to medical care. Health Serv Res 1974;9(3):208-220.
- Aday LA, Andersen RM. Equity to access to medical care: a conceptual and empirical overview. Med Care 1981;19(supplement):4-27.
- Andersen RM, Newman JF. Societal and individual determinants of medical care utilization in the United States. Milbank Memorial Fund Quarterly—Health and Society 1973;51(1):95-124.
- Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? J Health Soc Behav 1995;36(March):1-10. [Abstract]

MCHP Studies Using Framework:

- Lix L, Finlayson G, Yogendran M, Bond R, Bodnarchuk J & Soodeen R. "Primary Prevention: An Examination of Data Capabilities in Manitoba." January, 2005. [Full Report] [Report Summary]
- Tomiak M, Berthelot J, Guimond E & Mustard C. Factors associated with nursing-home entry for elders in Manitoba, Canada. *Journal of Gerontology: Medical Sciences* 2000; 55A(5): M279-M287. [Abstract]

ANNEXURE H Editor's Letter

THE UNITED REPUBLIC OF TANZANIA MINISTRY OF HEALTH AND SOCIAL WELFARE

CEDHA

Centre for Educational Development in Health Arusha



P.O Box 1162, Arusha Tanzania

Tel:

Fax:

Date:

+255-27-2548281 +255-27-2544088

+ 255-27-2050085

E-mail:cedhatz@cedha.ac.tz

17th May 2013

Our Ref. No

Prof Janetta H. Roos Department of Health Studies P.O.Box 392 UNISA 0003

Tel: (012) 429-6447 Fax:(012) 429-6688

RE: EDITING OMAR LWENO'S MPH THESIS

I am writing to certify that I have read the thesis titled "Adolescents Utilisation of Antenatal Services in Muheza District, Tanzania" which Dr Omar Lweno intends to submit for his MPH degree at your University. I have made some editing and advised on some issues especially those pertaining to typographics, disambiguation and some factual matters, but without affecting the context and author's ideas, and without interfering into the style and format which I assume adheres to the standards required by the University.

I now have the pleasure to declare that the thesis is ready for submission in its present form, and wish the candidate all the best in the defense.

Beatus K. Leon, MD, MPH, MSc (M.Ed)

Department Head of Health Personnel Education

CEDHA

ANNEXURE I

STATISTICAL REVIEW OF DR. OMAR LWENO'S MPH THESIS; "ADOLESCENTS' UTILISATION OF ANTENATAL SERVICES IN MUHEZA DISTRICT, TANZANIA"



Please reply to: IHI, Daries Salaam office

Prof Janetta H. Roos

Department of Hoalth Studies P.O.60x 392 UNISA 0003 Tel: (012) 429-6447 Fax:(012) 429-6688

Date: June 12, 2013

RE: STATISTICAL REVIEW OF DR. OMAR LWENO'S MPH THESIS; "ADDLESCENTS UTILISATION OF ANTENATAL SERVICES IN MUHEZA DISTRICT, TANZANIA"

I hereby confirm that I was involved in the statistical analysis, results presentation and reporting for the above thesis and eventually read the current draft. Pertinent statistical issues were all addressed.

Assiming that thesis format requirements, reporting styles and other aspects for your University have all been adhered to, I am now pleased to declare that this thesis in the current form is read for submission.

I wish the candidate the best of luck.

EXAVERY Amon,

aexavery@ihi.or.tz

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Dailre Salaan PO Box 78373 Tel: 0.522 771 714 Face 0.222 771 714 PS vara PO Box 53 Tel. 0 232 525 184 Fao: 0 239 625 332

Fagamoyo PO Box 74 Tebrio 202 440 055 Faxa 0 202 440 0**64**

Rufe PO Box 80 Hvdffri Tei: 0 202 M 0007 Fas: 0 232 040 742 Miwers PO Box 1048 Tel: 0 237 331 487 Fax: 0 737 333 487 ∧ gdina PO Bes 1077 Tefc 10282 003 655