ASSESSMENT ON THE APPLICATION OF SEXUAL AND REPRODUCTIVE HEALTH EDUCATION AMONG ADOLESCENTS IN MVOMERO DISTRICT

JANINE MUGANYIZI

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PROJECT MANAGEMENT AND EVALUATION OF SOKOINE UNIVERSITY OF AGRICULTURE. MOROGORO, TANZANIA.

2021

ABSTRACT

Sexual and reproductive health among the adolescents is still challenging, since the country has high rate of pregnancies in sub-Saharan Africa countries. Thus, sexual transmitted infections (STIs) including HIV/AIDS pose a great risk. Meanwhile, the adolescent's population is growing fast but the SRHE provided to adolescents through different sources is not well document. This study sought to establish the application of sexual and reproductive health education among adolescents in Mvomero District. The specific study objectives were to, determine the access of sexual and reproductive health education among adolescents, identify factors that influence adolescents using SRH services and to assess the perception of SRHE and SRHS among adolescents. Purposive and multistage samplings were employed to obtain 151 adolescents in selected study areas. Descriptive, quantitative (Binary Logistic Regression) and t-test were used to analyse data. The findings revealed that more than 90 percent of the adolescents receive SRHE through different sources. Through school education adolescents aware of different modes of SRHS. Binary logistic regression show that age and education on health facilities have statistically significant ($p< 0.05$) positive influence on the use of SRHS while being a male and lack of formal education negatively influence the use of SRHS. This implies that, young and male adolescents are at great risk of exposure to STIs and unexpected pregnancies.. In view of the research findings, several policy recommendations are suggested. The government must increase facilities and increase the number of specialized health workers in rural areas, especially for adolescents. Furthermore, the government should encourage private health actors and NGOs to implement sexual and reproductive health programs to enable Tanzania generate better future adolescents.

DECLARATION

I, Janine Muganyizi, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work, done within the period of registration and that it has neither been submitted nor is being concurrently submitted to any other institution.

_____ _____

Janine Muganyizi Date

(MA. Candidate)

The above declaration is confirmed by;

_____ _____

Dr. Hashim Mohamed Date

(Supervisor)

COPYRIGHT

ACKNOWLEDGEMENTS

I confer my special thanks to my supervisors, Dr Hashim Mohamed for his invaluable continuous and tireless guidance, criticisms and valuable comments during my research work, receive my gratitude. I am also extending my heartfelt gratitude to the Department of Development Studies their staff, through the able of their leadership to support and facilitated my specialized courses semester and research work at Sokoine University of Agriculture.

My acknowledgements would not be complete without mentioning all adolescents who participated during the survey. However, it is difficult to acknowledge everyone; I wish to give my appreciations to everybody who in one way or another contributed to the success of this work.

Finally, I wish to acknowledge my parents, brother, sisters and friends, for the emotional and material support, and the patience they bestowed on me during my entire study period of which contributed to the success of this work. May God bless you all.

DEDICATION

This work is dedicated to God, under whose care I did my studies safely and successfully, to my parents Mr. Emmanuel P Muganyizi and Scolastica E Massanja as well as all my friends who lit the torch of my academic career. May God bless them.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABBREVIATIONS AND ACRONYMS

AGE	Age of Adolescents
AIDS	Acquired immunodeficiency syndrome
APC	Assessment of Professional Competence
ERM	Enterprise Risk Management
FGD	Focus Group Discussions
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
KIIs	Informants Interviews
NGO	Non-Governmental Organisation
ODK	Open Data Kit
SRH	Sexual and Reproductive Health
SRHE	Sexual and Reproductive Health Education
SRHS	Sexual and Reproductive Health Services
STIs	Sexually Transmitted Infections
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
URT	United Republic of Tanzania
WHO	World Health Organization

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

The World Health Organization (WHO) understands sexual and reproductive health (SRH) as a state of physical and psycho-social well-being related to sexuality and reproductive aspects (WHO, 2015). To ensure that all people enjoy a healthy sexual and reproductive life, a set of sexual and reproductive rights has been established and recognized internationally since 1994 in the International Conference on Population and Development in Cairo (WHO, 2015). To achieve a healthy sexual and reproductive life, all individuals need to have access to accurate information about SRH including information on how and why it is important to have safe sex, and how and where to acquire effective, affordable and acceptable contraception methods of their choice (WHO, 2015).

World health organization defines an adolescent as a person in the group of 10-19 years (Rosen, 2004). Adolescents are the period of transition from childhood to adulthood, which an individual reaches sexual maturity (Kyllel *et al*., 2018). This period is characterized by spurts of physical, mental, emotional and social development (WHO, 1986), with experimentation and engagement of a wide range of behaviours and sexual experimentation (Schwarz, 2010 and Ansha *et al.*, 2017).

Adolescent sexual and reproductive health has emerged as an area of key concern globally. In many parts of the world, sexual and reproductive health needs of adolescents are either poorly understood or not fully appreciated. Evidence is growing that, this neglect can seriously jeopardize the health and future well-being of young people (WHO, 2011).

Adolescents comprise 20 percent of the world's total population accounting for 1.2 billion (UNICEF, 2019), among these 70 percent live in developing nations (Ayalew *et al*., 2014; Sivagunathan *et al.,* 2015). The population of adolescents is expected to continue rising over the next 35 years in Sub Saharan Africa (Karibu *et al*., 2013; World Bank, 2015). In Tanzania, adolescents comprise almost one quarter (25 percent), which is 12.8 million of the total population (WHO, 2019).

Adolescents undergo quite different growth stages as compared to their parents' environment, they are growing up in the world where there is greater access to formal education, technology and internet literacy (Hindin and Fatus, 2009), Adolescents live and have to make decision related to their sexual and reproductive health. This makes them most vulnerable to a range of reproductive health problems, such as early pregnancies and childbearing; unsafe abortion and sexually transmitted infections (STIs) including HIV/AIDS (Ingwersen, 2001).

According to the World Health Organization, about one half of all HIV infections worldwide, up to 100 million occur among people aged below 25 years (including adolescents). Adolescents become infected with a curable sexually transmitted diseases, best estimates indicate that about one out of twenty adolescents in the world contract sexually transmitted diseases each year (Kirby and Corma, 1994; Balachew *et al*., 2003; WHO, 2019). In developing countries there are about 12.8 million births among adolescents aged 15- 19 years and a large proportion of these pregnancies are unplanned (Neelofur-Khan 2007; UNICEF, 2019).

In Tanzania, sexual and reproductive health among the adolescents are a challenging endeavour, because the country has a high rate of pregnancies among adolescents in sub-

Saharan Africa countries (Loaiza and Liang, 2013). Adolescents fertility rate is currently 128 pregnancies per 1000 adolescents and sexual transmitted infections (STIs) including HIV/AIDS poses a great risk because 40 percent of new infections occur to adolescents (URT, 2018). Furthermore, it is estimated that 5 percent of the population aged 15 years and above live with HIV/AIDS (Nakta *et al*., 2019; Tull, 2019). In this regard, Tanzania has been able to provide sexual and reproductive health education and services to adolescents through school education, reproductive health programs (Health promotions) and the Mass media (Television, Radio, Newspaper and Internet) (WHO, 2019; UNFPA, 2016; URT, 2015; URT, 2018a; URT, 2018b). Despite these efforts, only 8.6 percent of adolescents have access to sexual and reproductive health services (SRHS) as opposed to the national average of 27 percent (AFP, 2015) and the rest of adolescents continue to face obstacles from receiving the services (WHO, 2018; Williams, 2015).

Scholars (i.e., Mbema *et al*., 2012; Manoti, 2015; Mrema, 2015; WHO, 2019) reported that adolescents in Tanzania experience difficulties in accessing services on sexual and reproductive health for several reasons. These include different social, economic, and traditional harmful practices, limited knowledge of contraceptive use, poor family status among adolescents and gender inequalities, other factors include, negative attitudes among health services providers, confidentiality and poor family support.

Morogoro is among the three-leading regions with high rate of teenage child bearing; accordingly, 39 percent of adolescents in Morogoro are at a risk of child bearing each year (UNFPA, 2018) and high risks of HIV/AIDS and STI's (WHO, 2018). Mvomero is one of the districts in Morogoro region, which entertain socio-cultural practices and traditional norms of subjecting young adolescents into celebration ceremonies when they reach maturity (Mageka and Mahonge, 2013) thus exposing adolescents into sexual activities

with little knowledge of sexual and reproductive health education (Ngalawa and Donati, 2013).

1.2 Problem Statement

Reproductive health education among Adolescents is one of the priority areas among the youth in Tanzania. As UNICEF (2011) observes, adolescents have a drive, creativity and vision of contributing to important developments initiatives if they are empowered by knowledge on sexual and reproductive health. As Tesso (2012) notes further that, peer education, community mobilization and adult child could be major strategies of changing understanding among the adolescents on sexual and reproductive health. Despite the efforts of the government and development actors in enabling the youth access reproduce education, reproductive health problems among the adolescents are still frequent. According to UNFPA (2017) report, adolescents' uptake of sexual and reproductive health services in Tanzania remains a challenge. Insufficiency of services, lack of knowledge about different methods of contraception and fear of stigma are some of the reasons leading to low uptake of contraception among adolescents.

According to UNFPA (2017), lacks of discussions about sex and sexuality at home and schools due to cultural sensitivities limits young people's access to sex education. Only thirty percent of service delivery points in the country meet the national standards for the provision of adolescent and youth-friendly reproductive health services, and limited resources are allocated to service provision centres. Therefore, new and innovate solutions in addressing these challenges are critically needed.

According to the Tanzania National Health Policy of 2017, many efforts have been made by the Government in collaboration with other stakeholders to ensure improvement of

reproductive health and adolescents' health services, whereby policy statement shows that the government will enhance reproductive, maternal and new born emergences also straighten services for infertility, family planning, pregnancy and sexual transmitted diseases.

Available studies (i.e., Peter, 2013 and Lutende, 2016) focus on accessibility and awareness of SRH services among adolescents but little has been done in ensuring that, the right services are delivered timely and are accessible to all classes of adolescents considering their economic and social status. In literature, not much interest has been paid on Sexual and Reproductive Health Education (SRHE) and Sexual and Reproductive Health Services (SRHS) in Mvomero. Despite all these studies on adolescents and sexual and reproductive health services, still little has been reported on the factors influencing the use of sexual and reproductive health services among adolescents.

Accordingly, too many young people face barriers of reproductive health information and care. Even those who are able to find accurate information about their health and rights may be unable to access the services needed to protect their health. Therefore, the study aims at assessing the application of adolescent reproductive health education among adolescents.

1.3 Justification

Sexual and reproductive health education among adolescents is important; however, their SRH needs are often underserved in many societies. An estimated 1.7 million adolescents die prematurely due to accidents, gender-based violence and pregnancy related complications and/or other preventable diseases without achieving their set goals

(Dessalegn, 2012). Therefore, there is a need of assessing the application of sexual reproductive health education among adolescents in Mvomero District.

The study is in line with National Adolescent Health and Development Strategy 2018-2022 that aims at ensuring that there is continuous, active and meaningful engagement of adolescents. The study is also in line with Sustainable Development Goal (SDG) 3, which ensures universal access to sexual and reproductive health-care services, including family planning, information and education and the integration of reproductive health into national strategies and programs. The study will be helpful to the government, policy makers, academia and development partners.

1.4 Objectives

1.4.1 General objective

To assess the application of sexual and reproductive health education among adolescents in Mvomero District.

1.4.2 Specific objectives

i. To determine the accessibility of sexual and reproductive health education among adolescents.
ii. To identify factors influencing adolescents' usage of SRH services.
iii. To determine the adolescents' perception towards SRHE and SRHS

1.4.3 Research hypotheses

i. There is no statistical significance association between adolescents and accessibility of sexual and reproductive health education.

ii. There is no statistical significance between the influencing factors and the use of sexual and reproductive health services among adolescents.

iii. Adolescents perceived equally towards SRHE and SRHS

1.5 Organization of the Study

This study is organized into five chapters. The first chapter provides general background to the study, focusing on the problem statement, study objectives and research question. The second chapter gives a critical review of literature relevant to the study; the third chapter presents a detailed description of the study area and methodology employed. The fourth chapter presents result and discussion. And the last chapter provides conclusions and recommendations drawn from the study findings.

CHAPTER TWO

2.0 LITERATURE REVIEW

This chapter presents the literature which informed the study. The chapter opens with definition of terms, followed with a presentation on Provision of sexual and reproductive health information to adolescents, barriers facing adolescents from accessing sexual and reproductive health services and contribution of sexual and reproductive health on adolescents' well-being. Other aspects include Theoretical Framework and Empirical Methods and lastly the conceptual framework that guided the study.

2.1 Definition of Concepts and Terms

2.1.1 Adolescents

The World Health Organization (WHO) defines adolescents as people at an age group of ten to nineteen years. Adolescence is considered as a time of transition from childhood to adulthood where various biological, psychological and social transitions take place. Physical transition is reflected in the appearance, voice and sexual activeness whereas psychological transition is reflected in an individual's thinking ability followed by social transition where individual starts thinking about their rights (Steinberg 1990 and Steinberg 2014). Miller (2002) considers adolescents from cultural and biological view, with culture adolescents having a dynamic system of shared activities, meanings (Greenfield *et al*., 2003; Swanson *et al*., 2003), and biology in the process of development (Greenfield, 2002; Lerner, 1992). Furthermore, adolescence varies with social and cultural differences and is often determined by the adoption of adult roles and responsibilities including employment and financial independence as well as the formation of life partnership (Patton *et al*., 2016).

2.1.2 Sexual and reproductive health (SRH)

Sexual and reproductive health is defined as something that "Deals with the enhancement of life and personal relations, not merely counselling and care related to reproduction and sexually transmitted diseases. It refers to the integration of somatic, emotional, intellectual and social aspects of sexual being in ways that are positively enriching and enhancing personality, communication and love" (UNFPA, 2014).

Glasier et al., (2006) considers sexual health as a state of physical, emotional, mental and social wellbeing in relation to sexuality; it is not merely the absence of disease, dysfunction, or infirmity. Sexual health needs a positive and respectful approach to sexuality and sexual relationships, and the possibility of having pleasurable and safe sexual experiences that are free from coercion, discrimination and violence. Therefore, sexual and reproductive health seems to be the essential core of good health and human development (Benn, 2004).

2.1.3 Sexual and reproductive health education (SRHE)

Sexual and Reproductive Health Education refers to education experiences that develops the capacity of adolescents to understand their sexuality in the context of biological, physiological, social culture and reproductive dimensions and acquire skills in managing responsible decisions and actions with regards to SRH behaviour. The education aims at achieving a range of behaviour and health outcomes, including reducing sexual activities (postponing age at first intercourse and promoting abstinence), reducing the number of sexual partners, increasing contraceptive use, lowering the rate of early, unwanted pregnancies which result to abortion, lowering the rate of child marriages, lowering the rate of infections from HIV and other sexually transmitted diseases (WHO, 2008).

2.1.4 Sexual and reproductive health services (SRHS)

The NHS dictionary defines sexual and reproductive health service as the service which contains a broad range of different services including contraception, screening for cervical abnormalities, colposcopy, abortion, menopause care, menstrual dysfunction, sexual transmitted infection management and psychosexual medicine.

2.1.5 Sexually transmitted infection (STIs)

Sexually transmitted diseases (STDs) or sexually transmitted infections (STIs) are infections that are passed from one person to another through sexual contact. The contact is usually vaginal, oral, and/or anal sex. However, sometimes they can spread through other intimate physical contacts. This is because some of the STDs such as herpes and Human Papilloma Virus (HPV) are spread by skin-to-skin contact.

2.2 Provision of sexual and reproductive health information to adolescents

The United Nations Population Fund has been advocating for an efficient delivery of a holistic, youth-friendly health-care core packages that include universal access to accurate sexual and reproductive health information (UNFPA, 2007). Sex education programs should provide accurate, comprehensive information while building skills for negotiating sexual behaviours (Bearinger *et al*., 2007). Sexual and reproductive health came to light in Tanzania after motivation from different strategies and policies; strategic framework of 1998-2002 for the prevention and control of STIs and HIV/AIDS indicate that the youth who are in school must get HIV education in primary and secondary schools (URT, 1998). In addition, according to WHO (2006), educating adolescents about sexual health and/or HIV/AIDS does not encourage them to increase sexual activity. It is best to start such education before the onset of sexual activity.

2.3 Barriers Facing Adolescents from Accessing Sexual and Reproductive Health Services

Adolescents have a wide experience, which varied economically, socially and cultural environments as they grow up. Some social and cultural practices have a direct impact on the reproductive health status of adolescents, and consequently on their adult life (NRY, 1997; Orben *et al*., 2020). Socio-cultural barriers generally take the form of restrictive social norms associated with youth sexuality that prevents young people from accessing sexual and reproductive information and services for fear of stigma or social pressure. Embarrassment and fear of social stigma prevent many young people from seeking for information about SRH and from accessing the services. In addition, social pressure and cultural norms around early child-bearing and contraceptive use imposed by partners, family and religious communities prohibit many young people from seeking for information about SRH (Ralph and Brindis, 2010; Mukondwa and Gonah, 2016; WHO, 2019). Furthermore, affordability may prevent adolescents from seeking sexual and reproductive health services because they may be unable to afford them and may not feel comfortable asking for money from friends or family members in meeting such expenses (Hock-long *et al*., 2003; Mukondwa and Gonah, 2016; WHO, 2019). In addition, location of SRH providers, which is far from where the youth live, works or attend school, and limited access to transportation can prevent young people from accessing SRH service providers (Moya and Dudu, 2017; Jeckoniah, 2018; WHO, 2019). Adolescents who lack complete and correct sexual and reproductive health information may be unaware of their own need for SRHS, uncertain about the safety and reliability of SRH services and contraceptive methods, and consequently, unwilling to use these contraceptive methods (Ramez *et al*., 2008; Mohamed *et al*., 2020).

2.4 Contribution of Sexual and Reproductive Health on Adolescents' Well-being

According to the World Health Organization (WHO, 2012), sexual and reproductive health are fundamental aspects of overall health affecting physical, mental and social wellbeing. This involves the ability to have safe sex and satisfy sexual life and reproduce without limitation. Despite the continued effort by WHO to improve sexual and reproductive health to all the people in the world, more needs to be done in providing sexual and reproductive health education in schools. In Sub-Saharan Africa, the initiation of sexual activity has increased steadily between the age of 15 and 19 years, with about three-quarters of women and close to two-thirds of men engaging in sexual intercourse before the age of 20 years (UN AIDS, 2016). In Tanzania, adolescents use their second decade of life in a transitional period where they are exposed to many risks and become vulnerable to problems that can have a long-term impact on their lives.

A study by Walker (2012) on early marriage trend in Africa, harmful, effects and interventions shows that there is a problem of early marriages in some places of Africa such as Ethiopia, Niger, Mali and in Northern Nigeria where education levels are low. This suggests that Non-Governmental Organization (NGO)'s need to provide some basic training programs targeting parents on reproductive health education. A study by Rangi and Mwageni (2012) on the role of sexual reproductive health education in adolescents' sexual behaviours in Morogoro Municipality revealed that adolescent students' awareness of sexual and reproductive health matters was average and that students' awareness on SRH had positive influence on students management of risky sexual behaviours, with students with high level of awareness engaging less in risky sexual behaviours.

2.5 Theoretical Framework and Empirical Methods

Theory of Triadic Influence

Petraitis *et al*. (1995) provide a framework, which explains the effect of laws and regulation on people health behaviours and public health. The Theory of Triadic Influence (TTI) acknowledges the complexity of health behaviours, while at the same time providing a framework for a more comprehensive and better understanding of the studied behaviour. The TTI (Figure 1) provides a model for the hierarchy of associated factors.

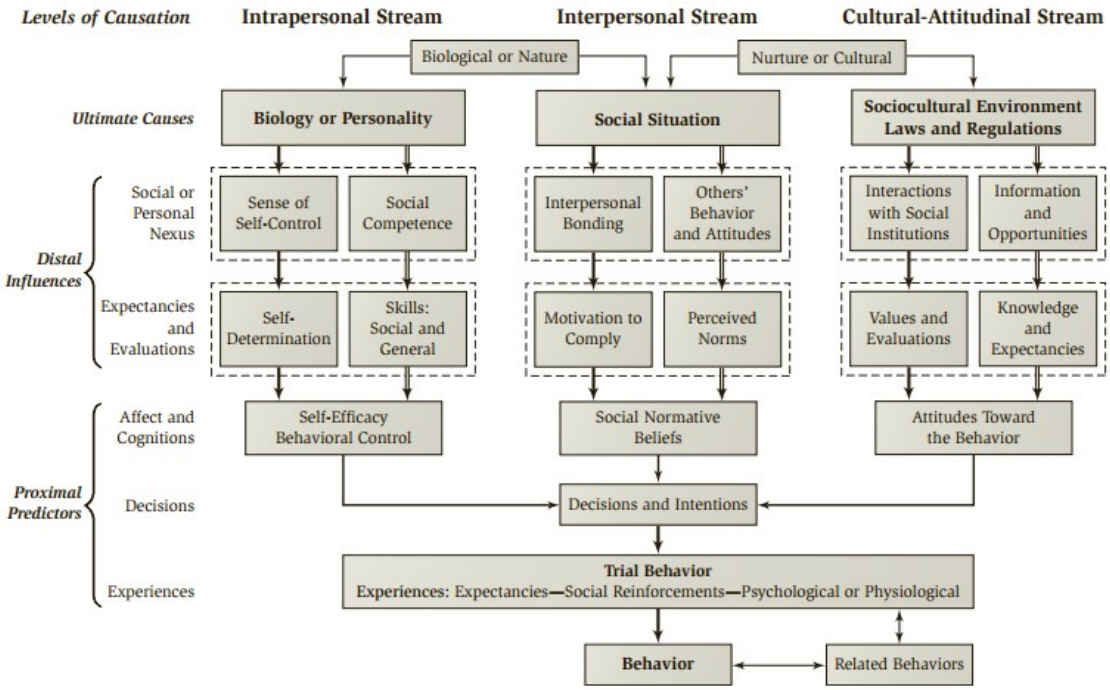

Figure 1: Triadic Influence theory

Theories and variables can be arranged by different levels of causation: ultimate, distal and proximal and are divided into three streams of influence corresponding to persons, situations and the environment. The ultimate is furthest removed from behaviour, largely beyond the easy control of any individual and is relatively stable. The effects of ultimate are the most pervasive, and if they are changed they are likely to have the effects with the greatest and longest-lasting influence on a broad array of behaviours (Flay *et al*., 2009).

Taking a step further towards behaviour, there are the distal influences divided into two levels. The first level is the social-personal nexus, meaning for example rebelliousness, religious participation or bonding to parents or other role models (Flay *et al.,* 2009). These variables reflect the quality and quantity of contact between the individuals and their sociocultural environments, social situations or personality. For example, young people might be influenced by their peers or partners to engage in risky sexual behaviours (Flay *et al*., 2009).

Proximal influences are the general values, behaviour specific evaluations, general knowledge and specific beliefs that arise out of the contact between individuals and their surroundings (Flay *et al*., 2009). Adolescents own perceptions and attitudes, social normative beliefs and their attitude towards accessing a health care facility is found at the proximal level of influences (Flay *et al*., 2009).

The model was first applied in order to understand tobacco use among adolescents, and has later been applied to several research studies on understanding youth outcomes and behaviour, such as violence and sexual abuse, mental health, positive youth development, dietary behaviours and sexual behaviours (Flay and Petraitis, 1994; Petersen *et al.,* 2005; Flay *et al*., 2009; Velderman *et al*., 2015). The model has also been proven to be useful for mapping and designing an intervention to promote positive behaviour and resilience among the youth (Segawa *et al.,* 2005).

2.6 Conceptual Framework

The conceptual framework is an essential guideline for identifying important variables and for collecting data effectively and efficiently. As suggested by Scarborough and Kydd (1992), such a framework should help to indicate the most useful area in which to focus

the limited research resources and ensure that data collected are relevant to meet the objectives of the research. In order to establish the application of sexual and reproductive health education among adolescents, different studies were reviewed to select an appropriate conceptual framework which would fit the topic. Some of the other studies done focused on access to medical care and improving care and others were on policy. Finally, the Anderson Model of Care Utilization was adopted as a conceptual framework for this study.

According to Anderson (1995), “access is the actual use of personal health services and everything that facilitates or impedes their use.” The model discusses the effect of individual health seeking and its relation to the environment and population characteristics. In this study, the population observed is that of adolescents (Figure 2)

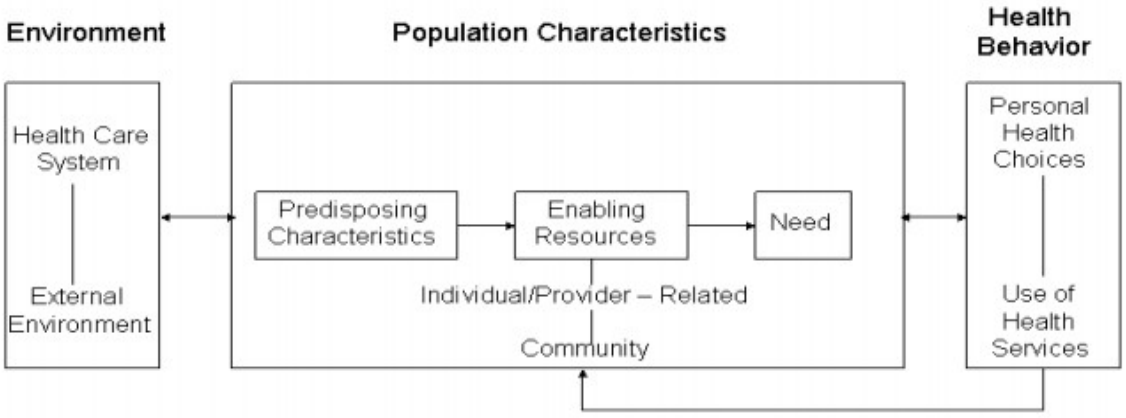

Figure 2: The Anderson model of healthcare utilization

Source: Anderson (1995)

CHAPTER THREE

3.0 METHODOLOGY

3.1 Description of the Study Area

The study was conducted in Mvomero District only in four wards (Mhonda, Mtibwa, Diongoya,Sugaji) in Morogoro region. The Study population were adolescents aged from 14-19 years from four wards of Mvomero District and key informants from health centres. Morogoro region is chosen for the study since the available data show that the rate of teenage pregnancy (15-19 years) is around 39 percent indicating that the problem is still persistence in Morogoro (UNFPA, 2018), Furthermore, Mvomero is one of the districts in Morogoro region that entertains socio-cultural practices and traditional norms of subjecting young adolescents into cultural ceremonies upon reaching the age of maturity (Mageka and Mahonge, 2013).

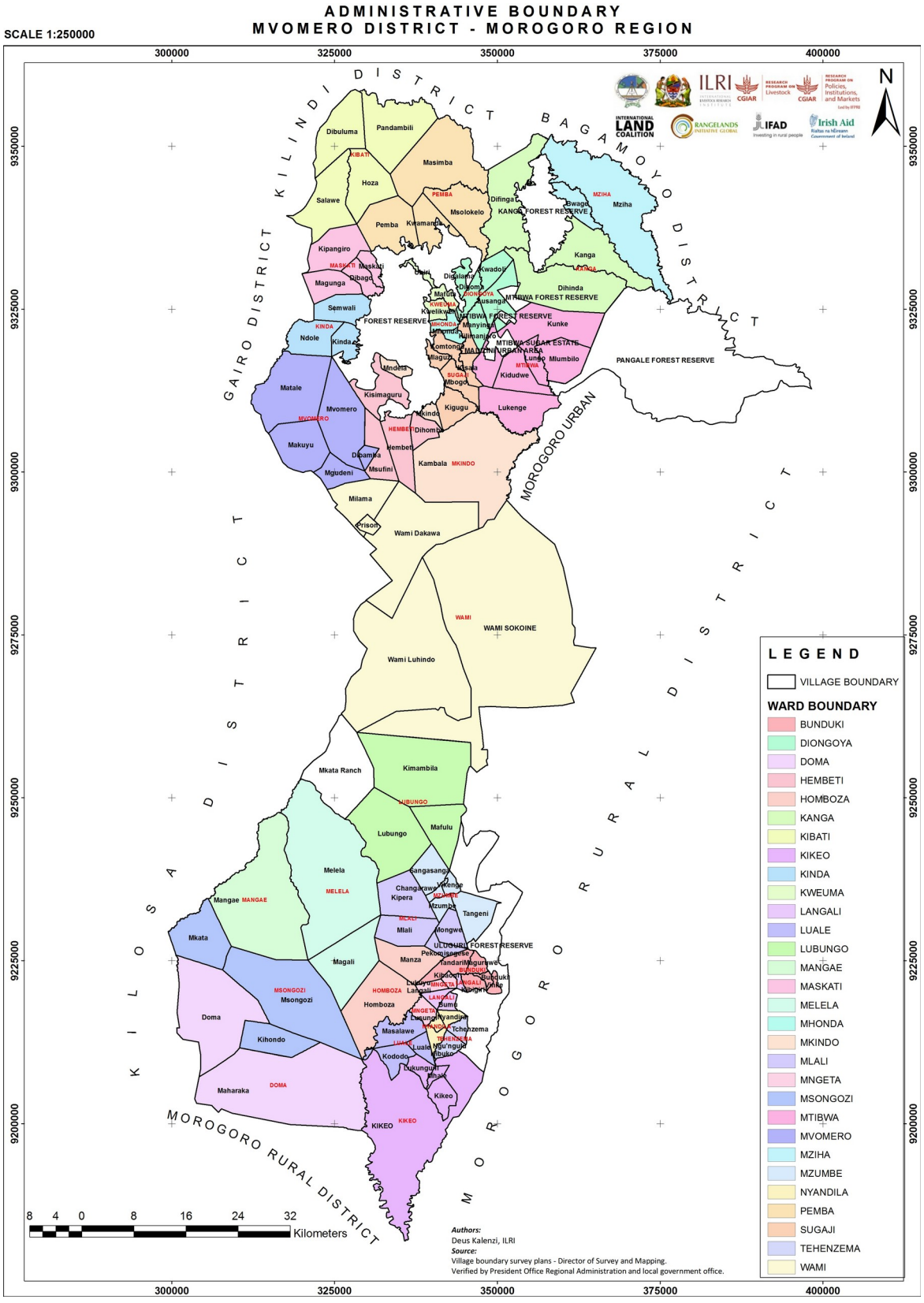

Figure 3: Map of Mvomero District in Morogoro region showing study areas (Mhonda, Mtibwa, Diongoya and Sungaji)

3.1.1 Location and general feature

Mvomero District is one of districts in Morogoro region in Tanzania. The district is located between latitudes 05° 80' and 07° 40' S and between longitudes 37°20' and 38° 05' E. The district has an area of 7 325 Sq kms The district has a temperature range of from 18°C to 30°C with annual rainfall of 600 mm to 1 000 mm. The area experiences bi-modal rainfall pattern where long rains are from March to May and short rains from October to November. The dry seasons are from June to September and from December to February.

3.1.2 Administrative set up

In the mainland Tanzania, a district is politically headed by the District Commissioner (DC) while the head or chief executive officer at that level is the District Executive Director (DED). The District Secretarial is changed with the role of implementation of district policy and the overall management of development activities. Mvomero District Council is divided into 4 divisions which are Mlali, Mgeta, Mvomero and Turiani, 30 wards with 130 villages and 686 hamlets.

3.2 Research Design

The research design for this study was cross-sectional. In this design, data were collected at a single point in time from a sample to represent a large population. The design is suitable in a descriptive study and for the determination of the relationship between variables. It is also economical in terms of time and financial resources (Babbie, 1993). A mixed method approach involving both quantitative and qualitative research approaches was employed.

3.2.1 Data sources and instruments of data collection

The Primary data were generated through survey questionnaires and key informants' interviews (KIIs) which were used to collect qualitative and quantitative data respectively using open data kit (ODK). The questionnaire included both open and close-ended questions; a key informant interview guide had open ended questions. Secondary data were obtained from published and unpublished sources, and health centres in the selected Wards within Mvomero District. Health centres were chosen due to their closeness to the researcher and ease of accessing data and hence reduced costs of the study.

3.2.2 Sampling procedure and sample size

A survey was conducted whereby a multistage sampling method comprising four stages was used. In the first stage, Morogoro region was selected purposively because it is one of the regions with high rate of teenage pregnancy. The second stage was purposively selection of Mvomero District, which is one of the districts that still practice traditional norms when adolescents reach maturity age. The third stage was random selection of four wards from Mvomero District (Mhonda, Mtibwa, Diongoya and Sungaji). The fourth stage involved random selection of adolescents in each ward amounting to 151 respondents, which was the sample size of the study. Four key informants were selected from two health centres (Mtibwa Health Centre and Bwangala Hospital). As noted by Bailey (1998), a minimum of 30 respondents is enough to conclude a statistical inference for a study.

3.2.3 Breakdown of wards and adolescents selected in the study areas

Adolescents were selected randomly from four different wards, (Table 1) Mhonda ward with two villages (Mhonda and Kichangani) had 30 adolescents, Mtibwa ward with three villages Madizini, Kunke and Kidudwe had 35 adolescents, Diongoya ward with two

villages Manyinga and Lusanga had 30 adolescents and Sungaji ward with three villages Kilimanjaro, Kimtonga and Kisala had 56 adolescents.

Table 1: Breakdown of ward with selected number of adolescents

Mvomero district (Wards)	Number of adolescents
Mhonda	30
Mtibwa	35
Diongoya	30
Sungaji	56
Total	**151**

3.2.4 Model specification and Data analysis techniques

To achieve the objectives of the study, several statistical techniques and methods were employed. Data from the primary sources were verified, coded and analysed using IBM SPSS statistics computer software and STATA. Both qualitative and quantitative descriptive statistics were employed. The methods are described in the sections below.

3.2.4.1 Kendal coefficient of concordance

In the absence of appropriate measures of intra-group similarity in the case of multivariate analyses, the concept of concordance can be applied. As presented in Elzinga, Wang, Lin and Kumar (2011), the concept of concordance appears in at least three contexts: in voting and decision making, which is the first and basic application, in group attitude assessment, and in statistics. The findings presented in this study address the third of the aforementioned applications using the most known index of concordance.

$$W = \frac{12S}{m^2\,(n^3 - n) - mT} \qquad S = \sum_{k=1}^{n} (R_k - R_m)^2$$

W= Kendall’s coefficient of concordance, m= quantitative or semi quantitative variables, n= objects of interest, S = sum-of-squares statistic over the row sums R_k= Row ranks, R_m = mean of the R_k.

W = 1 There is perfect concordance among the raters concerning the economic activities in the study area.

W=0 There is no agreement among the raters concerning the economic activities in the study area.

Empirical studies on Kendal coefficient of concordance

Amanda *et al.* (2013) used Kendall's coefficient of concordance to assess agreement among observers of very high-resolution imagery. Marcinkiewicz (2017) did a study aims at verification of the quality of pension system clustering based on two dimensions, the extent of involvement of the state in the pension system and the level of voluntariness. Kendall’s W concordance coefficient was employed to measure intra-group similarity. The results indicate that the concept of pension regime typology based on the extent of involvement of the state and the market as well as the role of voluntary schemes in a pension system is consistent with the empirically distinguished groups of pension systems. Elsewhere, Zhu *et al.* (2020) used Kendall's coefficient of concordance to explore the alterations of brain local functional connectivity in acute and remitting relapsing-remitting multiple sclerosis (RRMS), and its clinical relevance. The results show that both acute and remitting RRMS patients has a disease-related brain dysfunction, interestingly and relative to remitting RRMS, the acute RRMS patients mobilized more brain regions involving visual information processing in an attempt to maintain functional stability.

Geiss and O'Leary (1981) used Kendal coefficient of concordance and ascertained fruitful directions for marital therapy, 250 members of marriage and family therapist rate 29 problems which distress couples at level five; the results show that clinical relevance to a number of potential directions for research. Communication and alcoholism were most strongly endorsed as priority areas for future marital therapy research.

A study by Powers and Harris (1991) investigated eight teacher's education faculty members of perspective agreement on knowledge base. Kendal coefficient of concordance with correction discontinuity was used to provide a standard method of assigning knowledge base entities. The study results indicate that teacher's education faculty were largely in disagreement regarding knowledge development.

A study by Jayalath (2019) on an Assessment of Professional Competence (APC) investigated the overall competence against a set of criteria. Kendal coefficient of concordance was employed to measure this perception for 18 candidates. The results revealed that there is a high consensus among the panel members and there is no significant deviation on their judgement.

3.2.4.2 Binary logistic regression

The logit regression model was used to analyse the third objective regarding the factors influencing adolescents using sexual reproductive health services. The Logit regression model was used in modelling the relationship between a binary response variable and one or more predictor variables (which may be either discrete or continuous). As in multiple regressions, it is interested in finding an appropriate combination of predictor variables to help in explaining the binary outcome.

Logistic regression does not assume a linear relationship between the dependent variable and independent variables, but requires that the independent variables be linearly related to the logit of the dependent variable (Gujarati, 1992). According to Pundo and Fraser (2006), the model allows for the interpretation of the logit weights for the variables in the same way as in linear regression. Therefore, Binary logistic regression was employed to give the odds of factors influencing adolescents to use sexual and reproductive health services.

Theoretical Logit model is specified as follows:

$$P_i = F(Z_i) = F(\propto + \beta_i x_i) = \frac{1}{1 + e^{-zi}} = \frac{1}{1 + e^{-(\alpha + \beta_i x_i)}}$$

In the above equation, e which represents the natural logarithms, is the probability that the respondent would make a certain choice (i.e. the choice to practice the ICM technology or not), given, that a set of independent variables and are the coefficients of the independent variables. The Logit model follows a Cumulative Logistic Probability Function and this is denoted by F (Zi).

To estimate the specified model:

$$(1 + e^{-z_i})P_i = 1 \quad \text{..... (1)}$$

$$e^{Z_i} = \frac{1}{P_i} - 1 = \frac{1 - P_i}{P_i} \quad \text{..... (2)}$$

Since $e^{-Z_i} = \frac{1}{e^{Z_i}}$ ..... (3)

Hence $e^{Z_i} = \frac{P_i}{1 - P_i}$ .....(4)

Taking the natural logarithm of both sides, we have:

$$Z_i = \log_e \frac{P_i}{1-P_i} \quad \text{.....(5)}$$

(Pindyck and Rubinfeld, 2000)

$$\log \frac{P_i}{1-P_i} = CU = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{i3} + \beta_4 X_{i4} + \beta_5 X_{i5} + \beta_6 X_{i6} + \beta_7 X_{i7} + \beta_8 X_{i8} + \varepsilon_i$$

The empirical model is expressed as

$$CU = \beta_0 + \beta_1 Sx + \beta_2 Ag + \beta_3 edu + \beta_4 scl + \beta_5 Hf + \beta_6 Pr + \beta_7 Fe + \beta_8 Md + \beta_9 Hp + \varepsilon_i$$

Where: CU denotes the likelihood of an adolescents to use contraceptive, β_0 is the intercept term, $\beta_1 - \beta_9$ denotes the regression coefficients of the independent variables and ε_i is the error term.

3.2.4.2.1 Empirical studies on Binary Logistic regression

Studies that employed binary logistic regression in general are well documented in research. Daudi *et al.* (2001) conducted a study in Malaysia to investigate the factors associated with the level of adoption of enterprise risk management (ERM) among the public companies; The findings reveal a positive correlation between the quality of board directors on the level of ERM. Furthermore, Adwere-Boamah and Hufstedler (2015) employed a binary logistic regression on predicting social trust with five demographic variables (Education level, race, sex, general happiness and the importance of personality on assisting people in trouble); the results reveal all predictors were significant. A study by Mustafa *et al.* (2017) sheds light on associated factors for reproductive health services utilization among adolescents and binary logistic regression employed to reveal the associated factors.

Other studies that employed binary logistic regression are Fenta and Workie (2014), Sio and Ismail (2019), Lih and bin Ismail (2019), Bozkurt and Gulksen (2019), Carlos *et al.* (2010), Albuqureque *et al.* (2012), Soyuer and Senol (2011), Dezfouulian *et al*. (2012), Hasan *et al.* (2015), Maudinah and Mutasowifin (2021), Kyilleh *et al*. (2018) and Ogunkola and Archer-Bradshow (2013).

Justification of Binary logistic regression model

The binary logistic regression model is useful in analysing data where the researcher is interested in finding the likelihood of a certain event occurring. In other words, using data from relevant explanatory variables, multinomial logistic regression is used to predict the probability of occurrence, not necessarily getting a numerical value for a dependent variable (Gujarati, 1992). This research analyses the likelihood of associated factors for sexual and reproductive health use among adolescents.

3.2.4.2.2 t-test

Independent sample t test is the method that examined the difference between two unrelated (Independent or unpaired) variables or any other measurements (Samuels and Gilchrist, 2014). The method was employed to shed light on the attitude of adolescents who used and do not use contraceptive.

3.2.4.2.3 Empirical studies on t-test

Kadigi (2013) conducted a study in Iringa Municipality and Tanga city on factors influencing the choice of milk outlets among smallholder dairy farmers, t- test was employed to find if there was statistical difference between gross margin of formal and informal milk value chain. Research results found that the formal and informal milk value chain is not equally rewarded.

Frazier *et al*. (2012) used a t-test statistical method with the aim of finding gender difference in self-symptoms among patients of acute coronary syndrome, the study results revealed that, depressive symptoms during acute coronary syndrome is different between males and females. Females were found to have significantly great overall depressive symptoms. In addition, Alvi *et al*. (2017) investigated the patterns of smokers in Karachi, a t-test was used to leak patterns among smokers, the study results found a difference between smoking and the smocking tenure but the number of packets consumed was much more equal.

Makwana and Education (2016) conducted a study in Gujarat India to compare clay bricks and Fly-ash bricks. Independent sample t-test was employed to show the difference between these two types of bricks, the study results finally found that 86.62 percent of brick criteria are accepted at $p < 0.05$. Therefore, fly- ash bricks were found to be better compared to clay bricks.

Rast and Touran (2012) conducted an empirical study in Airline industry to investigate gender difference on employees' job satisfaction; Independent sample t-test was employed to leak the employee's jobs satisfaction, the research results revealed that there is a difference on job satisfaction between males and females.

Kusriniarti *et al.* (2013) conducted a study in Yogyakarta, Indonesia to investigate and identify usability of self service in library specifically in the procedure of loans process, independent sample t-test was employed and the results revealed that there is a significant difference between the initial and an improved condition and study concluded that the improved measure give better results than the previous.

3.2.4.2.4 Likert type

Likert-type items are single questions that use some aspects of the original Likert response alternatives (Clason and Dormody, 1994). In this study, the following five-point symmetrical scale was used to capture data: 5=Strongly Disagree, 4=Disagree, 3=Neutral, 2=Agree and 1=Strongly Agree. The following scoring was also used: Strongly Disagree (SA) 1<SA<1.5, Agree (A) 1.5<A<2.5, Neutral (N) 2.5<N<3.5, Disagree (D) 3.5<D<4 and Strongly Disagree (SD) 4.5<SD<5.0. The mentioned scales give an equidistance of 0.5 .

3.2.5 Variables description

The study conjectured that the adolescent's usability of contraceptive will be influenced by number of social economic factors, used in this study as the explanatory variables. The basis assumption was consideration found in the literature. Variables used in binary logistic regression model are shown in Table 2.

Table 2: Variable in Binary logistic Regression Model

Variable	**Description**	**Type**	**Values**
Dependent variable			**Number of options**
CU	SRHS use	Dummy	0=No,1=yes
Explanatory variables			
Sex	Sex of adolescent	Dummy	0=Female,1=Male
Age	Age of adolescent	Continuous	Number of years
Edu	Education level	Categorical	1= No formal education, 2 = Primary education,3= Secondary education,4= Colleague education
SCL	School	Dummy	0=No,1=yes
HF	Health facility	Dummy	0=No,1=yes

PR	Parents	Dummy	0=No,1=yes
FE	Fellows	Dummy	0=No,1=yes
MD	Social media	Dummy	0=No,1=yes
HP	Health promotion	Dummy	0=No,1=yes

3.2.6 A consideration of explanatory variables of binary logistic regression

3.2.6.1 Sex of adolescents (SEX)

This is a dummy variable that takes a value of one if the adolescent is male and zero if otherwise. The variable is expected to have a positive relationship with contraceptive usability among adolescents. Scholars (i.e., Mustafa *et al*., 2017; Nwachukwu and Odimegwu, 2011) revealed a positive relationship between being a males and the use of sexual and reproductive health service, this was also reported by Reis *et al.* (2011) that sex and reproductive health education must be provided to adolescents of all genders.

3.2.6.2 Age of adolescents (AGE)

The adolescent age is a continuous variable and is measured in the number of years of an adolescent. At this period, adolescents are emerging with sexual desires, behaviours and relationships (WHO, 1986). These are a normal part of development and, when supported by healthy decision-making and access to information and services, they can form the basis of lifelong sexual health and overall well-being. An adolescent age is expected to have a positive relationship with the contraceptive usage. Moreover, age is also considered as the factor influencing sexual and reproductive health services as reported by Maharjan *et al.* (2019) in Dang District in Nepal.

3.2.6.3 Education level of adolescents

Education level of an adolescent is a categorical variable measured in the number of years in school; education level is expected to have a positive influence of contraceptive usage

among adolescents because education encompasses the skills needed in human life to combine knowledge in meaningful way that allows the expression of different ideas, making decision and solving problems (Shtarkshall, 2007). An educate adolescent will have a better understanding concerning STIs and unexpected pregnancy and this will influence his/her use of contraceptive (see also, Morris and Rushwan, 2015).

3.2.6.4 Sexual and reproductive health education provider (Health facility)

Sexual and reproductive health education is provided through different facilities and institutions, schools, parents, health facilities, fellows adolescents, social and mass media and health promotion. The education channels differ in the influence of contraceptive usage, reproductive health education providers especially health facilities were also reported by other scholars (Stephenson *et al*., 2008; URT, 2015; UNFPA, 2016; URT, 2018a; URT, 2018b; WHO, 2019).

3.2.6.4.1 School education

School is one of the channels that adolescents receive sexual and reproductive health education through health clubs; in health clubs, adolescents are able to discuss different topics concerning STIs, this influence adolescents to be in the zone of using contraceptive and this is the consideration factor that school is hypothesized to have positive influence on contraceptive usage the fact, which is also reported by WHO (2019); that it must be considered because in school, the government also provides sexual and reproductive health education.

3.2.6.4.2 Parents

Parents became the primary source of sexual and reproductive health education to adolescents since adolescents initiate coitus (Shtarkshall, 2007). As Eisenberg *et al*.,

(2004) elaborate, the campaign of encouraging parents to talk with their teenagers about sexuality should provide parents with medically accurate information on the effectiveness, safety and usage of condoms and pills and this give clear picture that education from parents has positive influence of contraceptive usage among adolescents.

3.2.6.4.3 Fellows

Adolescents used to talk to each other for fun and for advice when it comes sexual and reproductive health education. When adolescents engage themselves in sexual intercourse, they use to share stories with their friends and this is avenue where they get education of using pills or condoms; and this is becomes another influence of contraceptive use (Maddin *et al*., 2013). Moreover education from fellow friends is hypothesised to have positive influence with the usage of contraceptives among adolescents.

3.2.6.4.4 Mass media

Social and mass media is the true provider of information within the community, and is the visual ground where adolescents can remotely meet and share different information where sexual and reproductive health is also included because mass and social media play a significant role in forming and influencing people's attitudes and behaviours (Saunders and Goddard, 2012). Mass media is considered to have influence on the use of contraceptive among adolescents. Also, Behrman *et al*. (2002) argue that, social media has great influence on the use of contraceptive.

3.2.6.4.5 Health promotion

Government and Non-Governmental Organisations(NGOs) collaborate to reach the community and deliver the messages on sexual and reproductive health (URT, 2015;

UNFPA, 2016; WHO, 2019). These adolescents are able to understand the different ways of preventing themselves from STIs and unexpected pregnancies and the effect of different sexual transmitted diseases especially HIV. And this became the great influence of adolescent's usage of contraceptive**.** Health promotion through Ngo's and government is expected to influence positively the use and application of sexual and reproductive education.

3.2.6.4.6 Model postulate

According to Gujarati, (1992), the coefficient on this variable measures the expected change in the logit for a unit change in each independent variable, all other independent variables being equal. The sign of this coefficient shows the direction of influence of the variable on the logit. It follows that a positive value indicates an increase in the likelihood that an adolescent will change to the alternative option from the baseline group. On the other hand, a negative value shows that it is less likely that adolescents will consider the alternative (Gujarati, 1992; Pundo and Fraser, 2006). Therefore in this study, a positive value implies an increase in the likelihood of contraceptive usage. On the other hand, a negative sign means that a unit increase in the explanatory variable will lead to a decrease in the probability of contraceptive usage.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

This chapter describes the characteristics of sampled households based on age, sex, marital status, education level of adolescents in relation to adolescents use of facility and associated factors that influence the usage of contraceptives.

4.1 Socio-economic Characteristics of Respondents

Research results revealed that more female (53 percent) than male (47 percent) participated in this study (Table 3). The majority of adolescents who participated in were aged 18-19 among whom 40.8 percent were males and 41.3 percent were female. The age distribution of this study was in line with the distribution used by Moyo and Rusinga (2017) and WHO (2018). Furthermore, most of the adolescents who participated in sexual reproductive health education have never been married. Similar results were reported by Birhan *et al.* (2018) who revealed that 90.1 percent of the adolescents were single. The results also reveal the existence of early marriage in that 12.5 percent of female adolescents were early age married. The study results are in line with the results reported in a study by other scholars (Helamo *et al*., 2017; Moyo and Rusinga, 2017; Birhan *et al*., 2018) indicating that adolescents in Mvomero District are still victims of early bearing of children and increased risks of premature birth and STIs (URTa, 2018). The results revealed further that 66.2 percent of male adolescents had secondary education while the corresponding proportion for female adolescents was56.3 percent . Similar results are reported in a study by Odo *et al.* (2018) who revealed that most of the adolescents who seek for SRHE and SRHS have only secondary education.

Table 3: Socio-economic characteristics of respondents

Variables	Sex	
	Male (n=71)	Female (n=80)
Age groups		
14-15	20(28.2)	22(27.5) †
16-17	22(31)	25(31.3)
18-19	29(40.8)	33(41.3)
Marital status		
Single	68(95.8)	70(87.5)
Married	3(4.2)	10(12.5)
Education level		
No formal education	3(4.2)	6(7.5)
Primary education	19(26.8)	29(36.3)
Secondary education	47(66.2)	45(56.3)
College education	2(2.8)	0(0)

† Values in brackets are percentages

4.2 Accessibility of SRHE Among Adolescents

4.2.1 Adolescents receiving SRHE

The results indicate that 90.1 percent of the adolescents in Mvomero District were able to receive SRHE through School education, Health centres, parents, fellow adolescents and the mass media (Television, Radio, Magazine, Newspaper and Internet). High accessibility of SRHE in Mvomero District provided an opportunity for adolescents to have high knowledge on reproductive health service choices (UNFPA, 2002). These results are in contrast with the results reported in a study by Kyilleh *et al*. (2018) who reported that adolescents have low knowledge on reproductive health because of poor access to SRHE. The results indicate that school education was the leading source for adolescents to receive SRHE. A Similar observation was made by Khanal (2016) who revealed that schools became the primary source where adolescents received SRHE. Moreover, all age groups and sex also cited school as their main source of SRHE. Interestingly, married adolescents mention health facility as their main source by 33.3 percent followed by health promotion

and health school education. This implies that the majority of married female adolescents used to visit health facilities and attend health promotion programs so that they can easily access SRHE and SRHS. Finally on visitation, health facility specialists reported that adolescents aged 18-19 more than other age groups receive SRHE through health facility.

> *Adolescents aged 18-19 used to come to the health facility to get different sexual and reproductive health education and services, and treatment for STD's, which are provided for free to all adolescents* (Key Informant SRHE and SRHS expert, 2020).

Table 4: Proportionality of receiving SRHE from different sources

Variable	Category	SRHE channel					
		Health centre	**School**	**Parents**	**Fellow colleague**	**Mass media**	**Health promotion**
Age group	14-15	1.6	46.9	18.8	7.8	6.3	18.8
	16-17	15.2	41.8	19	5.1	5.1	13.9
	18-19	25.9	25.3	13.5	7.2	8.8	19.4
Sex	Male	19.3	34	13.3	4.7	10	18.7
	Female	17.2	33.7	18.4	8.6	4.9	17.2
Marital status	Single	16.1	36.9	15.3	7.7	7.3	16.8
	Married	33.3	12.8	20.5	0	7.7	25.6
Education level	No formal education	30	0	35	5	0	30
	Primary education	18.8	30.7	15.8	6.9	9.9	17.8
	Secondary education	16.1	38.7	38.7	7	6.5	17.2
	College education	33.3	0	33.3	16.7	16.7	0

4.2.3 Understanding of contraceptive, family planning and STIs

Research results revealed that adolescents in the selected study area at Mvomero District have little knowledge on lactation amenorrhea and hormonal implants methods where only 5.1 percent equivalent to 33.8 percent of all selected family planning methods and contraceptive indicated to have understanding of lactation amenorrhea. Furthermore, the

research results reveal that 14.8 percent of the respondents cited condoms and STIs, showing that adolescents have knowledge on STIs and Condoms. The results are in line with the results reported in a study by Govender *et al*. (2019) and Aninanya *et al*. (2015).

Table 5: Response on understanding of contraceptive and STIs

Awareness's	Family planning methods and Contraceptives	Responses		Percent of cases
		n	Percent	
	Birth pills	118	11.8	78.1
	Injection	91	9.1	60.3
	Hormonal implants	86	8.6	57.0
	Withdraw	106	10.6	70.2
	Lactation amenorrhea	51	5.1	33.8
	Fertility awareness	114	11.4	75.5
	Family planning	141	14.1	93.4
	Condoms	148	14.8	98.0
	STIs	148	14.8	98.0
Total		**1003**	**100.0**	**664.2**

4.3 Analysis on Factors Influencing Contraceptive Use Among Adolescents

Table 6 shows the results of the logit model on the factors influencing adolescents' use of sexual reproductive health services. The likelihood ratio chi square of 137.30 and p-value of 0.000 reveal that the model fitted significantly, and that all independent variables were able to explain the dependent variable.

Table 6: Factors Influencing adolescents using sexual and reproductive health services

Variable	Coefficients	Std. Error	Z	p>[z]
Sex				
Male	-2.993424	0.8887187	-3.37	0.001*
Female	-1.504133	1.265312	-1.68	0.111
Age	1.70594	0.3614579	4.75	0.000*
Education Level				
Formal Education	-1.569843	1.48864	-1.05	2.292
No formal education	-3.817344	1.590176	2.40	0.016*
Health facility education	3.183059	0.9090693	3.50	0.000*
School education	-1.08859	0.7524478	-1.45	0.148
Parents education	-1.041868	0.8294385	-1.26	0.209

Fellows colleague	2.121093	1.106591	1.92	0.055
Mass media	1.057247	1.12129	0.94	0.346
Health promotion	0.182407	0.7153176	0.26	0.799
Cons	-22.88428	5.142222	-4.45	0.000

4.3.1 Age

The binary logistic regression results showed that age has positive influence on adolescents use of sexual reproductive health services. One-year increase of the age of the adolescent increases the odds of using sexual reproductive health services by 1.706 among adolescents at significant level of 0.000. These results mean that as adolescents age increases it also increases the probability of their use of different modes of SRHS so that they can be free from STI's and unexpected pregnancies, which is also supported with sex maturity. The study results are in contrast with the findings reported in a study by Birhan *et al.* (2018) who revealed lack of significant correlation between the use of SRHS and the age of adolescents. In other words, an increase of adolescents age does not influence the use of SRHS, also the study results support the evidence of Haq *et al.* (2017) who also revealed that an increase of the age influences the use of SRHS. The results imply that young adolescents are at high risk of getting early pregnancies and STIs

4.3.2 Sex

Sex has negative influence on adolescents' use of sexual reproductive health services, being a male influence negatively the use of sexual reproductive health services by 2.993 odds and is significant at ($p < 0.05$). These results mean that being a male adolescent will lower the probability of using SRHS. The research findings are consistent with the findings reported in a study by Mustafa *et al.* (2017) on the Utilization of Reproductive Health Services indicating that males are not more likely to use Reproductive Health

Services as opposed to females. The study results indicate further that male adolescents are in great risk of exposure and STIs infections.

4.3.3 Adolescents education level

The study results revealed that lack of formal education has significant negative influence on the use of SRHS among adolescents by 3.82 odds. This implies that lack of formal education decreased the probability of using SRHS among adolescents. The results are in line with the results reported in a study by Ghimire (2016) who revealed that education among adolescents had a multiplier effect on adolescents' sexual and reproductive health. Also, the study result support the evidence reported by Birhan *et al*. (2018) that adolescents with low level of education are not influenced towards using SRHS. The results indicate that education has a positive impact on access and utilization of SRHS; and that adolescents with no formal education are at high risk of exposure to STIs and unplanned pregnancies.

4.3.4 Mass media

Mass Media is also an important factor not only in providing information but also in influencing usage of SRHS among adolescents. However, there is inadequate coverage of media and much of the information adolescents receive is targeted to the general population. The study results revealed truther that in Mvomero District, the Mass media does not significantly influence adolescents' usage of SRHS ($p>0.05$). The results mean more access and availability of Mass media means a decrease of the use of SRHS among male and female adolescents. The study results are in contrast with the results in a study by Ghimire (2016) indicating that appropriate and adequate coverage of media increases awareness on sexual and reproductive health among adolescents resulting in an increase of seeking for services. Furthermore, the research results do not support the observation of

Bankole (1994) indicating that Mass media can be a powerful tool of creating awareness and stimulate peoples' desire for more information of Sexual and Reproductive Health which will influence the use of SRHS. This signify that adolescents in Mvomero District do not take it seriously what is broadcasted through the Mass media concerning SRH and this put them at high risk and being vulnerable to HIV, early and unplanned pregnancies.

4.3.5 Health facility education

A health facility provides information and services that enable adolescents to make decisions about their sexual and reproductive health. The results revealed that SRHE through health facility had significant positive influence on the usage of SRHS among adolescents by 3.183 odds of usage of SRHS at $p = 0.000$ among adolescents. The results mean that the more the adolescents visit a health facility for more information concerning sexual and reproductive health education and services the higher the probability of adolescents using SRHS. Research results support the evidence by Stephenson *et al*. (2008) in the Eastern Cape, South Africa arguing that Health facility staffing levels have significant influences on SRHS method choice. These results indicate that adolescents who visit Health facility to seek for SRHE are not at high risk of getting problem associated with SRH.

4.3.6 Other factors influencing the use of SRHS among adolescents

Two Focus group discussions (FGD) of adolescents and four keys informants (Sexual and reproductive health expert) interviews were used to explore other factors that influence the use of sexual and reproductive health facilities among adolescents.

4.3.6.1 Religion

Research results from FGD revealed that adolescents are limited to use sexual and reproductive health services especially contraceptives according to the discipline they receive from the religious teaching but they still engage themselves in sexual act. Both Islamic and Christian adolescents reported that their religious leaders forbid them from using SRHS because it is against God's will. One adolescent had this to say,

> *Religious leaders used to preach that contraceptive use is against the act of God, God brought us in this world so that we produce offspring and make this world full of us.* (FGD in Mtibwa Ward, 2020)

The research results support the evidence reported by Haq *et al.* (2017), Masuda and Kamal (2014) in Bangladesh that Muslim women have lower odds of contraceptive use compared with non-Muslim women and Mandiwa *et al.* (2018) in Malawi who found religion as influencing the use of contraceptive. The results indicate that adolescents who do not use SRHS for the religious reasons are still at the high risk of early and unplanned pregnancies and STIs infections.

4.3.6.2 Availability of sexual and reproductive health services

Availability of health centres, which provide sexual and reproductive health education and services within the study area was reported as a factor that influence the use of different SRHS among adolescents. The sexual and reproductive health education and services are provided when adolescents visit health centres to seek for other health services and during school programs for SRHE and SRHS which are conducted by reproductive health experts when they visit schools. The research results support the evidence of Khanal (2016) who report that availability of SRHS in the Nepal influence the use of SRHS among adolescents. This was reported by one key informants,

"*We are used to provide sexual and reproductive health education to adolescents during special visit each month where they get private time to explain their sexual health problems and get treatment. This has helped many adolescents who come to seek for different sexual and reproductive health consultations and services*" (Key informant SRHS expert from Bwagala Hospital, 2020).

4.3.6.3 Family support

Different families are reported to be resistant and against the way sexual and reproductive education is provided to adolescents. This is because parents believe that SRHE will give adolescents freedom to engage in sexual acts before marriage and will project a bad image to the community. This is claimed by one key informant who is a sexual and reproductive health expert. then study results support the observation by Ghimire (2016), who found that there was poor family support in Nepal, where parents are reluctant to speak with their children concerning sexual and reproductive health with the notion that their children are too young to understand the sexual staffs because they will be exposed in sexual behaviours while they are too young.

"Parents restrict their children to seek for sexual and reproductive health services and that forces us to provide service without parents being aware. For example, I help one female student with implants without her parent's knowledge. This helped her to avoid unplanned pregnancy and managed to finish high school and join university" (Key informant interview, Mtibwa Health centre, 2020)

4.3.6.4 Location to health centres

Location of the health centres where they provide sexual and reproductive health education and services is an obstacle for adolescents who live too far from the health centre because most of health centres that provide SRHE and SRHS are located in

Mvomero centres. Therefore, adolescents who live far from health centres have to wait for outreach program, which is conducted by health centres once after four months according to the number of the wards. This is still challenging for adolescents from using SRHS. The research results support the argument of Wulifan *et al*. (2017) that women living at least five kilometres from health facility are less likely to use contraceptive. The results also support the evidence by Pandey *et al*. (2019) who found that the distance to the nearest health facility was one of the major barriers of utilizing SRHS among adolescents in Nepal.

> *Health centres are only accessible to adolescents who live nearby the facility, Adolescents who live far away still claim for location of health facility because its cost their time and money to reach there* (Key informant interview, (Mtibwa Health centre. 2020)

4.3.6.5 Lack of privacy and confidentiality

Almost all of the adolescents noted that lack of confidentiality under service provision was a major reason for adolescents' unwillingness to use SRHS, because most of them are still shy. Privacy and confidentiality were related to both physical and location for the services provision as well as the attitude of the services providers. Adolescents neither perceived the location of the health facility nor its consultation premises as suitable for them. Both male and female adolescents seemed cautious when seeking for Sexual and Reproductive Health Services from reproductive health provider living in the same community fearing for confidentiality breach.

> *Some of these staffs have to be kept confidential between Reproductive Health provider and us. I like reproductive health provider not to share my visit to anyone. But they always share and discuss our staffs among them*. (FGD Sungaji Ward, 2020)

4.4 Attitude of Adolescents Regarding SHHS and SRHE

In this study the following Likert type was used: 5=Strongly Disagree; 4=Disagree; 3=Neutral; 2=Agree; and 1=Strongly Agree. The following scoring was also used: Strongly Disagree (SA) 1<SA<1.5; Agree (A)1.5<A<2.5; Neutral (N) 2.5<N<3.5; Disagree (D) 3.5<D<4.5; and Strongly Disagree (SD) 4.5<SD<5.0. The mentioned scales give an equidistance of 0.5.

What influence adolescents using sexual reproductive health services

Table 7: Difference in attitude of adolescents who use and not use contraceptive

Variable	Use Contraceptive (58)		Do not use contraceptive (93)		Total (151)		t	Sig.(2-tailed)
	M	STD	M	STD	M	STD		
Early pregnancy	1.78	.817	2.06	1.061	1.95	.982	-1.769	.079
STDs	2.02	.737	2.09	.761	2.06	.750	-.547	.586
Population	2.33	.925	2.68	1.065	2.54	1.025	-2.131	.035
Surgeries	2.76	1.204	2.76	1.146	2.76	1.165	-.025	.980
Health children	2.02	.827	2.03	.773	2.03	.791	-.113	.910
Mother's health	2.05	.887	2.11	.758	2.09	.808	-.397	.692
Abortion	2.71	1.200	2.54	1.138	2.60	1.161	.368	.385
Suitable	2.31	.995	2.74	1.042	2.58	1.042	-2.519	.013*
Affordable	1.95	.605	2.40	.739	2.23	.723	-4.073	.000*
Pills	3.09	1.081	3.34	.915	3.25	.986	-1.570	.118
Injection	3.40	.897	3.55	.866	3.49	.878	-1.033	.303
Condom	1.79	.811	2.15	.833	2.01	.841	-2.590	.011*

*** Significant at 0.05**

4.4.1 SRHE control population

Table 7 shows the research results on differences in attitude of adolescents who use contraceptive and those who do not use contraceptive, the mean total score in relation to attitude concerning SRHE can control population is 2.54 (STD = 1.025). Adolescents who

use contraceptive significantly show to have positive attitude (M = 2.33, STD = 0.925) than adolescents who do not use contraceptives (M = 2.68, STD = 1.065) because t = -2.131 and $p<0.05$). the study findings support the findings in a study by Miller and Rosenfield (1996) that between 1950 to 1992 the world population doubled from 2.5 billion to 5.5 billion with high growth rate of 3 percent per year in the least developed countries, which have poor accessibility of sexual and reproductive health services and family planning (Germain and Ordway, 1989). Furthermore, the results indicate that adolescents have good understanding of the advantages of SRHS in the community and comply with MDGs for stronger efforts of promoting women's rights, and greater investment in education and health, including reproductive health and family planning (UNFPA, 2005).

4.4.2 SRHE protect adolescents with early pregnancy and un expected pregnancy

The mean total score in relation to the attitude of adolescents that SRHE and SRHS can protect early pregnancy is 1.95 (STD = 0.982). The study results reveal that there is no difference on the attitude of adolescents who use contraceptive (M = 1.78, STD = 0.817) and those who do not use contraceptive (M =2.06 STD = 1.061) with t = -1.769 and $p>0.05$. Overall, they both have positive attitude concerning SRHE towards protecting early pregnancy among adolescents,. The study results support the results reported in a study by Mahrjan *et al*. (2019) and Stover and Winfrey (2017) who revealed that adolescents with little knowledge and limited sexual and reproductive services are the most vulnerable to unexpected pregnancies, which imply the community is well versed with sexual and reproductive education and services and thereby there is a possibility for the community to eradicate early pregnancy rate in Tanzania.

4.4.3 SRHE reduce STDs in the community

Mean total score in relation to attitude that use contraceptive and applying SRHE will reduce the rate of STDs transmission is 2.06 (STD = 0.750), the study results show that there is no difference on the attitude of adolescents who use contraceptives (M =2.02, STD = 0.737) and adolescents who do not use contraceptives (M = 2.09, STD = 0.761) with t = -0.547 and p>0.05. The results are in line with Askew and Berer (2003) who also find sexual and reproductive health programs and counselling will prevent this form of transmission of STD's. This implies the community will be free from sexual transmitted diseases.

4.4.4 SRHE helps to reduce unnecessary surgeries

Mean total score for the attitude that SRHE will help to reduce unnecessary surgeries is 2.76 (STD = 1.165), the overall results explain that there is no difference toward the attitude of adolescents who use contraceptives (M = 2.76, STD = 1.204) and adolescents who do not use contraceptives by t = -0.025 and p>0.05.

4.4.5 SRHE help families to have health children

Mean total score of the attitude concerning applying in SRHE will help different families to raise health children is 2.03 (STD = 0.791), the research results reveal that there is no difference on the attitude of adolescents who use contraceptive (M = 2.02, STD = 0.827) and adolescents who do not use contraceptives (M=2.03, STD = 0.773) with t = -0.113 and p>0.05. Findings imply both adolescents who use and those who do not use contraceptive they have positive attitude that sexual and reproductive health education and services will help the community to grow children with good health. Research results support the evidence of Guevara-Rius (2017) who find survives of children in developing countries is significant with child spacing which motivated with application of good family planning

and use of contraceptive. Findings imply the community have good knowledge for building future generation.

4.4.6 SRHE help to maintain mother's health

Mean total score of the attitude that applying SRHE at the family level will help mothers to be in good health is 2.09 (STD = 0.808), the study results reveal that there is no difference on the attitude of adolescents who use contraceptives (M = 2.05, STD = 0.887) and those who do not use contraceptives (M = 2.11, STD = 0.758) with t = 0.397 and p>0.05. Findings reveal the community have positive attitude and well understanding on application sexual and reproductive health education and services, the research results support the evidence of Ringheim and Foreman (2007) and Achyut *et al*. (2016) who claim the good application of family planning methods and use of contraceptive have the great positive impact on Postpartum.

4.4.7 SRHE reduce abortion to adolescents

Mean total score of the attitude that having and applying SRHE will reduce abortion rate to adolescents is 2.60 (STD = 1.161), the research findings show that there is difference on the attitude of adolescents who use contraceptives (M =2.71.STD = 1.200) and adolescents who do not use contraceptives (M = 2.54, STD = 1.138) by t = 0.368 and p>0.05.Adolescents who do not use contraceptive seems to have positive attitude compared to adolescents who use contraceptive, the research findings support the evidence of Stover and Winfrey (2017) that use of contraceptive will lower the abortion rate. Overall findings also reveal the positive attitude among adolescents which imply that, adolescents in the community have better response and well understanding on the use of contraceptives and we can reduce child and infant mortality rate in developing counties (Westhoff and Rosenfield, 1993).

4.4.8 Contraceptive is suitable for Adolescents

Mean total score of the attitude that using contraceptive for adolescents is necessary and suitable for them is 2.58 (STD = 1.042),the research findings reveal that there is the difference on the attitude between adolescents use contraceptive (M = 2.31, STD = 0.995) and adolescents who do not use contraceptives (M = 2.74,STD = 1.042) with t = -2.519 and $p<0.05$ and overall results indicate that adolescents who do not use contraceptives have negative attitude that using contraceptives is suitable for adolescents. Furthermore, adolescents attitude revealed positively in condoms and they fail to decide the good of pills and injection. The study results reveal adolescents who use contraceptive has positive attitude compare to adolescents who do not use contraceptive, the study results support the evidence of Achyut (2016), Coles *et al*. (2011), Sanchez-Paez and Ortega (2018), Upadhyay *et al*. (2014), and Boamah *et al.* (2014) that effective application of contraceptive will keep the community safe from un expected pregnancy and free from sexual and transmitted diseases, these findings elaborate the community have enough knowledge and we expect to have the generation that will reduce the infant mortality rate , abortion rate and better postpartum.

4.4.9 Contraceptives are affordable

The study results reveal that the mean total score concerning the attitude that all contraceptive are affordable is 2.23 (STD = 0.723). The study results reveal that the adolescents who use contraceptive (M=1.95, STD= 0.605) have a positive attitude that contraceptives are affordable. This is in contrast to adolescents who do not use contraceptives (M= 2.40, STD = 0.739) with t = 4.073 and $p<0.005$. Adolescents who use contraceptive have a positive attitude towards affordability of contraceptive as opposed to adolescents who do not use contraceptive. The results are in line with the =evidence of

GSDRC (2015) that sexual and reproductive health services and contraception are affordable so the adolescent will be able to afford and has the informed decision regarding their lives.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Descriptive statistics, binary logistic regression and Kendal coefficient of concordance were used to analyse the data collected from the study sites. These analytical methods were meant to establish awareness among adolescents on SRHE, facilities use, factors influencing the use of sexual and reproductive health services and the perception of adolescents regarding sexual reproductive health education and services.

5.1.1 Access of sexual and reproductive health education among adolescents

National health policy has a good plan towards adolescent's reproductive health, as it started mainstreaming SRH subject into the school curriculum and that one of its operational targeted objectives was to be achieved at the end of 2015 is to increase the number of health facilities providing adolescents friendly clinics from 10 to 80 percent all over the country. The study found that the majority of adolescents in the study areas receive sexual and reproductive health education through different sources,. School education appears to be the place where adolescents access SRHE and this give clear that there is a good achievement in providing SRHE. Also married adolescents reported to have received SRHE mostly through health promotion compare to other sources.

5.1.2 Factors that influencing adolescents using SRH services

The study results also found that age and having sexual and reproductive health education from health facilities had some influence with the use of sexual and reproductive health services. Adolescents who lack formal education are not influenced with the use of sexual and reproductive health services. Interestingly, male adolescents also revealed to have no

influence towards using SRHS, this imply young male adolescents with no formal education and lacking health facility education are in great risk of being exposed with STIs and unplanned pregnancies.

5.1.3 Perception of SRHE and SRHS among Adolescents

Both categories of adolescents those who use contraceptive and those who do not use contraceptives have positive perception towards SRHE and SRHS except on suitability and affordability of contraceptives where adolescents who use contraceptive were more perceive positive compare to those who do not use contraceptive and this clarify that adolescents have great knowledge on SRH.

5.2 Policy Recommendation

Tanzanian policy must learn from and adopt good practices from other countries such as South Africa to ensure adolescents health is in good condition also apply them up to district level especially in the most affected district like Mvomero by increasing and building more facilities as well as increasing the number of health workers in rural areas, specifically for adolescents. Also private health actors and NGOs should implement sexual and reproductive health programs and services over the country and should consider it as a matter of urgency No need to wait for policy and political protocol.

REFERENCES

Adwere-Boamah, J. and Hufstedler, S. (2015). Predicting Social Trust with Binary Logistic Regression. *Research in Higher Education Journal* 27: 1-6.

Ansha, M. G., Bosho, C. J. and Jaleta, F. T. (2017). Reproductive Health services utilization and associated factors among adolescents in Anchar District, East Ethiopia. *Journal of Family and Reproductive Health* 11(2): 110 – 118.

Ansha, M. G., Bosho, C. J. and Jaleta, F. T. (2017). Reproductive Health services utilization and associated factors among adolescents in Anchar District, East Ethiopia. *Journal of Family and Reproductive Health* 11(2): 110-118.

Askew, I. and Berer, M. (2003). The contribution of sexual and reproductive health services to the fight against HIV/AIDS: a review. *Reproductive Health Matters* 11(22): 51-73.

Auerbach, J. D., Parkhurst, J. O. and Cáceres, C. F. (2011). Global Public Health: An International Journal for Research, Policy and Practice Addressing social drivers of HIV / AIDS for the long-term response: Conceptual and methodological considerations. *An International Journal for Research, Policy and Practice* 6(3): 293–309.

Avni, A., Joar, S., Margaret, E. and Omar, J. (2015). Creating an Enabling Environment for Adolescent Sexual and Reproductive Health: A framework and Promising Approach. *Journal of Adolescent Health* 56(1): 7-14.

Ayalew, M., Mengistie, B. and Semahegn, A. (2014). Adolescent-parent communication on sexual and reproductive health issues among high school students in Dire

Dawa, Eastern Ethiopia: a cross sectional study. *Reproductive Health BioMed Central* 2014: 11 – 77.

Babbie, E. (1993). *The Practice of Social Research*. (7th Ed.), Wadsworth Publishing Company, Belmont. 330pp.

Bearinger, L. H., Sieving, R. E., Ferguson, J. and Sharma, V. (2007). Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention, and potential. *The Lancet* 369(9568): 1220-1231.

Behrman, J. R., Kohler, H. P. and Watkins, S. C. (2002). Social networks and changes in contraceptive use over time: Evidence from a longitudinal study in rural Kenya. *Demography* 39(4): 713-738.

Benn, H. (2004). Sexual and reproductive health and rights: a position paper. *Department for International Development, editor. UK, Glascoww: Department for International Development (DFID)*. pp.3.

Birhan, Z., Tushune, K. and Jebena, M. G. (2018). Sexual and reproductive health services use, perceptions, and barriers among young people in southwest Oromia, Ethiopia. *Ethiopian Journal of Health Sciences* 28(1): 37 – 48.

Birhan, Z., Tushune, K. and Jebena, M. G. (2018). Sexual and reproductive health services use, perceptions, and barriers among young people in southwest Oromia, Ethiopia. *Ethiopian Journal of Health Sciences* 28(1): 37-48.

Bozkurt, S., Uyar, A. and Gulkesen, K. H. (2011). Comparison of Bayesian network and binary logistic regression methods for prediction of prostate cancer. In: *2011 4th International Conference on Biomedical Engineering and Informatics (BMEI)* Vol. 3, pp. 1689-1691.

Carlos, C., Pires, M. M., Stoppe, N. C., Hachich, E. M., Sato, M. I., Gomes, T. A., Amaral, L. A. and Ottoboni, L. M. (2010). Escherichia coli phylogenetic group determination and its application in the identification of the major animal source of fecal contamination. *BMC microbiology* 10(1): 1-10.

Central Statistical Agency (CSA) [Ethiopia] and ORC Macro, (2012). *Ethiopia Demographic and Health Survey 2011*. Addis Ababa, Ethiopia and Calverton, Maryland, USA. 452pp.

Child, E. W. E. (2015). The global strategy for women's, children's and adolescents health. *New York, NY: Every Woman Every Child*. 108pp.

Daud, W. N. W., Haron, H. and Ibrahim, D. N. (2011). The role of quality board of directors in enterprise risk management (ERM) practices: Evidence from binary logistic regression. *International Journal of Business and Management* 6(12): 205-212.

de Albuquerque Sousa, A. C. P., Dias, R. C., Maciel, Á. C. C. and Guerra, R. O. (2012). Frailty syndrome and associated factors in community-dwelling elderly in Northeast Brazil. *Archives of Gerontology and Geriatrics* 54(2): e95-e101.

Dessalegn, W. T., Mesganaw, A. F. and Enquselassie, F. (2012). Parent-young people communication about sexual and reproductive health in E/Wollega zone, West Ethiopia; Implications for interventions. *Journal on Reproductive Health* 9(13): 1-63.

Dezfoulian, R., Mebert, K., Karami, M., Kaboli, M. and Ahmadzadeh, F. (2012). Habitat factors determining the distribution of the Caucasian Agama, Laudakia

caucasia, (Squamata: Agamidae) in the Sorkh-e-Hesar National park, Tehran province, Iran. *Journal of Natural History* 46(43-44): 2735-2747.

Eisenberg, M. E., Bearinger, L. H., Sieving, R. E., Swain, C. and Resnick, M. D. (2004). Parents' beliefs about condoms and oral contraceptives: Are they medically accurate? *Perspectives on Sexual and Reproductive Health* 36(2): 50-57.

Fenta, H. M. and Workie, D. L. (2014). Analysis of factors that affect road traffic accidents in Bahir Dar city, North Western Ethiopia. *Science Journal of Applied Mathematics and Statistics* 2(5): 91-96.

Flay, B. R. and Petraitis, J. (1994). A new theory of health behavior with implications for preventive interventions. *Advances in Medical Sociology* 4: 19-44.

Flay, B. R., Snyder, F. J. and Petraitis, J. (2009). The theory of triadic influence. 23pp.

Germain, A. and Ordway, J. (1989). *Population control and women s health: Balancing the scales.* International Women's Health Coalition in cooperation with the Overseas Development Council. 24pp.

Ghimire, R. (2016). *Factors Influencing Access to Sexual and Reproductive Health Services Among Adolescents in Nepal*. Royal Tropical Institute, Amsterdam. 61pp.

Glasier, A., Gülmezoglu, A. M., Schmid, G. P., Moreno, C. G. and Van Look, P. F. (2006). Sexual and reproductive health: a matter of life and death. *The Lancet* 368(9547): 1595-1607.

Greenfield, P. M. (2002). The mutual definition of culture and biology in development. *Between culture and biology: Perspectives on ontogenetic development*. 8pp.

Greenfield, P. M., Keller, H., Fuligni, A. and Maynard, A. (2003). Cultural pathways through universal development. *Annual Review of psychology* 54(1): 461-490.

Gujarati, D. (1992). *Essentials of Econometrics*. MacGraw–Hill, New York. 264pp.

Haq, I., Sakib, S. and Talukder, A. (2017). Sociodemographic factors on contraceptive use among ever-married women of reproductive age: evidence from three demographic and health surveys in Bangladesh. *Medical Sciences* 5(4): 1–31.

Hasan, M. M., Haque, M. E., Hossain, M. A. and Bari, W. (2015). Impact of Intimate Partners Violence against Women on Immunization Status of Children in Bangladesh. *Dhaka University Journal of Science* 63(1): 9-14.

Hindin, M. J. and Fatusi, A. O. (2009). Adolescent sexual and reproductive health in developing countries: an overview of trends and interventions. *International Perspectives on Sexual and Reproductive Health* 35(2): 58 – 62.

Hock-Long, L., Herceg-Baron, R., Cassidy, A. M. and Whittaker, P. G., 2003. Access to adolescent reproductive health services: Financial and structural barriers to care. *Perspectives on Sexual and Reproductive Health* 35(3): 144-147.

Ingwersen, R. (2001). *Adolescent Reproductive and Sexual Health in the Developing World.* Development studies network, Canberra, Australia. [https://bmchealthservres.biomedcentral.com › articles] site visited on 12/08/2020.

International Planned Parenthood Federation (IPPF). (2015). Sexual and reproductive health and rights – a crucial agenda for the post-2015 framework. 36pp.

Jeckoniah, J. N. (2018). Access to sexual and reproductive health and rights: youth experiences in Handeni district, Tanzania. *Journal of Psychology and Behavioral Science* Vol. 6, No. 1, pp. 43-51.

Kabiru, C., Izugbara, C. and Beguy, D. (2013). The health and wellbeing of young people in sub-Saharan Africa: an under-researched area? *BioMed Central International Health Human Rights* 13: 1–7.

Khalesi, Z. B., Simbar, M. and Azin, S. A. (2017). A qualitative study of sexual health education among Iranian engaged couples. *African Health Sciences* 17(2): 382–390.

Khanal, P. (2016). *Adolescents Knowledge and Perception of Sexual and Reproductive Health and Services-A Study from Nepal*. University of Eastern Finland, Kuopio. 78pp.

Khanal, P. (2016). Adolescents knowledge and perception of sexual and reproductive health and services-a study from Nepal. *Institute of Public Health and Clinical Nutrition Faculty of Health Sciences University of Eastern Finland, Kuopio February*, *1*, pp.78.

Kost, K., Maddow-Zimet, I. and Arpaia, A. (2017). Pregnancies, Births, and Abortions Among Adolescents and Young Women in the United States, 2013: National and State Trends by Age, Race, and Ethnicity. Guttmacher Institute, (August), 71pp.

Kyilleh, J. M., Tabong, P. T. N. and Konlaan, B. B. (2018). Adolescents' reproductive health knowledge, choices and factors affecting reproductive health choices: a qualitative study in the west Gonja District in northern region, Ghana. *BioMed Central International Health and Human Rights* 18(1): 1 – 12.

Lih, J. S. J. and bin Ismail, R. (2019). Binary Logistic Regression Analysis of Teacher Self-Efficacy Factors Influencing Literacy and Numeracy. *World Journal of Education* 9(1): 209-220.

Loaiza, E. and Liang, M. (2013). *Adolescent Pregnancy: A Review of the Evidence*. UNFPA. 60pp.

Lutende, A. M. (2016). Adolescent Awareness of Youth Friendly Reproductive Health Services in Public Health Facilities: Case of Ilala Municipality. 89pp.

Madden, T., Secura, G., Maddipati, R. and Peipert, J. (2013). Influence of friends' and family's contraceptive experience on contraceptive decisions. *Contraception* 88(3): 436-445.

Mageka, R. and Mahonge, C. (2013). Informal institutions and female students' school engagement: A case of Mvomero district ward schools. *International Journal of Education and Research* Vol. 1 No. 8.

Maharjan, B., Rishal, P. and Svanemyr, J. (2019). Factors influencing the use of reproductive health care services among married adolescent girls in Dang District, Nepal: a qualitative study. *BMC Pregnancy and Childbirth* 19(1): 1-9.

Mandiwa, C., Namondwe, B., Makwinja, A. and Zamawe, C. (2018). Factors associated with contraceptive use among young women in Malawi: analysis of the 2015–

16 Malawi demographic and health survey data. *Contraception and Reproductive Medicine* 3(1): 1 – 8.

Manoti, L. M. (2015). *Factors influencing access to sexual reproductive health services: a case of the University of Nairobi main campus undergraduate students institute of anthropology and African studies unit in Kenya*. Dissertation for Award of MSc Degree at University of Nairobi, Kenya. 104pp.

Masuda M. and Kamal, M. (2014). Determinants of contraceptive use in Bangladesh. Ibrahim. *Medicine Coll. Journal* 8: 34 – 40.

Maudinah, F.A. and Mutasowifin, A., 2021. Pengaruh Pengungkit Keuangan dan Profitabilitas Terhadap Perataan Laba Pada Indeks IDX Quality 30 Non Bank Periode 2015-2019. *Jurnal Ilmiah Manajemen Kesatuan* 9(2): 51-60.

Miles, M. B. and Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook,* Thousand Oaks, Calif., Sage. 354pp.

Miller, J. G. (2002). *Integrating Cultural, Psychological and Biological Perspectives in Understanding Child Development*. Cambridge University Press. pp. 136–156

Miller, K. and Rosenfield, A. (1996). Population and women's reproductive health: an international perspective. *Annual Review of Public Health* 17(1): 359-382.

Ministry of Health (2014). Tanzania, Health Sector Strategic Plan III Midterm Review and the Countdown Country Case Study. [https://www.countdown2030.org › tanzania-countdown...] site visited on 15/08/2020.

Mohamed, S., Nmadu, A. G. and Usman, N. O. (2020). Barriers to adolescents' access and utilisation of reproductive health services in a community in north-western

Nigeria: A qualitative exploratory study in primary care. *African Journal of Primary Health Care and Family Medicine* 12(1): 1-8.

Morris, J. L. and Rushwan, H. (2015). Adolescent sexual and reproductive health: The global challenges. *International Journal of Gynaecology and Obstetrics* 131: S40–S52.

Moyo, S. and Rusinga, O. (2017). Contraceptives: adolescents' knowledge, attitudes and practices. A case study of rural Mhondoro-Ngezi district, Zimbabwe. *African Journal of Reproductive Health* 21(1): 49-63.

Mrema, N. F. (2015). *A literature review on factors influencing access to sexual and reproductive health services among adolescent in Tanzania*. Dissertation for Award of MSc Degree at Royal Tropical Institute, Amsterdam. 48pp.

Mukondwa, K. and Gonah, L. (2016). Accessing adolescent sexual and reproductive health services among undocumented migrants in South Africa. *Medical Journal of Zambia, Vol*. 43(4): 247 – 251.

National Research Council, 1997. *Youth development and neighbourhood influences: Challenges and opportunities*. National Academies Press. 40pp.

Neuman, W. L. (2014). Social Research Methods: Qualitative and Quantitative Approaches, seventh edition. *Pearson New International Edition*, USA. 559pp.

Ngalawa, A. A. and Donati, G. L. (2013). Experimenting Indigenizing HIV/AIDS Education in Africa: Potentials, Challenges and the way forward. [pubmed.ncbi.nlm.nih.gov ›] site visited on 12/09/2020.

Nkata, H., Teixeira, R. and Barros, H. (2019). A scoping review on sexual and reproductive health behaviors among Tanzanian adolescents. *Public Health Reviews* 40(1): 1 – 4.

Nwachukwu, C. E. and Odimegwu, C. (2011). Regional patterns and correlates of HIV voluntary counselling and testing among youths in Nigeria. *African Journal of Reproductive Health* 15(2).

Odo, A. N., Samuel, E. S., Nwagu, E. N., Nnamani, P. O. and Atama, C. S. (2018). Sexual and reproductive health services for adolescents in Enugu state, Nigeria: a mixed methods approach. *BioMed Central Health Services Research* 18(1): 1 – 92.

Odo, A. N., Samuel, E. S., Nwagu, E. N., Nnamani, P. O. and Atama, C. S. (2018). Sexual and reproductive health services (SRHS) for adolescents in Enugu state, Nigeria: a mixed methods approach. *BMC Health Services Research* 18(1): 92-104.

Ogunkola, B. J. and Archer-Bradshaw, R. E. (2013). Teacher quality indicators as predictors of instructional assessment practices in science classrooms in secondary schools in Barbados. *Research in Science Education* 43(1): 3-31.

Onokerhoraye, A. G. and Dudu, J. E. (2017). Perception of adolescents on the attitudes of providers on their access and use of reproductive health services in Delta State, Nigeria. *Health* 9(01): 88-98.

Orben, A., Tomova, L. and Blakemore, S. J. (2020). The effects of social deprivation on adolescent development and mental health. *The Lancet Child and Adolescent Health* 4(8): 634-640.

Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A. and Afifi, R. (2016). "*Our Future: A Lancet Commission on Adolescent Health and Wellbeing." The Lancet* 387(10036): 2423-2478.

Peter, H. (2013). Assessment of Knowledge on Reproductive Health among Adolescents Attending Secondary Schools in Moshi Municipality of Kilimanjaro, Tanzania. 104pp.

Petersen, I., Bhana, A. and McKay, M. (2005). Sexual violence and youth in South Africa: The need for community-based prevention interventions. *Child Abuse and Neglect* 29(11): 1233-1248.

Petraitis, J., Flay, B.R. and Miller, T.Q., 1995. Reviewing theories of adolescent substance use: organizing pieces in the puzzle. *Psychological bulletin*, *117*(1), p.67.

Pundo, M. O. and Fraser, G. C. G. (2006). Multinomial logit analysis of household cooking fuel choice in rural Kenya: The case of Kisumu district. *Agrekon* 45(1): 24 – 37.

Ralph, L. J. and Brindis, C. D. (2010). Access to reproductive healthcare for adolescents: establishing healthy behaviours at a critical juncture in the life course. *Current Opinion in Obstetrics and Gynaecology* 22(5): 369-374.

Rangi, W. and Mwageni, E. (2012). *The* Role of Sexual Reproductive Health Education in Adolescents: Sexual Behaviours in Secondary Schools in Morogoro Municipality, Tanzania. *Journal of the Open University of Tanzania, Rights – the Key to Gender Equality and Women's Empowerment* 12(1).

Reis, M., Ramiro, L., de Matos, M. G. and Diniz, J. A. (2011). The effects of sex education in promoting sexual and reproductive health in Portuguese university students. *Procardia-Social and Behavioural Sciences* 29: 477-485.

Remez, L., Prada, E., Singh, S., Bixby, L. R. and Bankole, A. (2008). Ensuring a Healthier Tomorrow in Central America. *New York: Guttmacher Institute* 34(4): 158–168.

Rosen, J. E. (2004). *Adolescent health and development*: A resource guide for World Bank operations staff and government counterparts.78pp.

Samuels, P. and Gilchrist, M. (2014). Independent Samples t-test. pp2-4.

Santhya, K. G. and Jejeebhoy, S. J. (2015). Sexual and reproductive health and rights of adolescent girls: Evidence from low-and middle-income countries. *Global Public Health* 10(2): 189-221.

Saunders, B. J. and Goddard, C. (2012). The role of mass media in facilitating community education and child abuse prevention strategies The role of mass media in facilitating community education and child abuse prevention strategies. [https://aifs.gov.au › cfca › publications › role-mass-me...] site visited on 12/09/2021.

Scarborough, V. and Kydd, J. (1992). Analysis of Agricultural Markets: A Manual of Natural Resource Institute Marketing Series No. 5. *Cathan, UK.* 166pp.

Schwarz, S. W. (2010). *Adolescent Reproductive and Sexual Health*: Facts for policymakers. 78pp.

Segawa, E., Ngwe, J. E., Li, Y., Flay, B. R. and Coinvestigators, A. A. (2005). Evaluation of the effects of the Aban Aya Youth Project in reducing violence among

African American adolescent males using latent class growth mixture modeling techniques. *Evaluation Review* 29(2): 128-148.

Shtarkshall, R. A., Santelli, J. S. and Hirsch, J. S. (2007). Sex education and sexual socialization: Roles for educators and parents. *Perspectives on Sexual and Reproductive Health* 39(2): 116-119.

Sio, J. and Ismail, R. (2019). Binary logistic regression analysis of instructional leadership factors affecting English language literacy in primary schools. *3L: Language, Linguistics, Literature*®, 25(2).

Sivagurunathan, C., Umadevi, R., Rama, R. and Gopalakrishnan, S. (2015). Adolescent health: Present status and its related programmes in India. *Are We in the Right Direction?* 9(3): 1-9.

Soyuer, F. and Şenol, V., 2011. Functional outcome and depression in the elderly with or without fatigue. *Archives of Gerontology and Geriatrics*, *53*(2), pp.e164-e167.

Steinberg, L. (2014). *Age of opportunity: Lessons from the new science of adolescence*. Houghton Mifflin Harcourt. [https://psycnet.apa.org] site visited on 15/05/2021.

Steinberg, L., 1990. Authoritative parenting and adolescent adjustment across varied ecological niches. 34pp.

Stephenson, R., Beke, A. and Tshibangu, D. (2008). *Community and Health Facility Influences on Contraceptive Method Choice in the Eastern Cape*. International Family Planning Perspectives, South Africa. pp. 62 – 70.

Stover, J. and Winfrey, W. (2017). The effects of family planning and other factors on fertility, abortion, miscarriage, and stillbirths in the Spectrum model. *BMC Public Health* 17(4): 43-50.

Swanson, D. P., Spencer, M. B., Harpalani, V., Dupree, D., Noll, E., Ginzburg, S. and Seaton, G. (2003). Psychosocial development in racially and ethnically diverse youth: Conceptual and methodological challenges in the 21st century. *Development and Psychopathology* 15(3): 743-771.

Tesso, W., Fantahun, A., Enquselassie, F. (2012). Parent-young people communication about sexual and reproductive health in E/Wollega Zone. West Ethiopia: implication for interventions. *BMC Reproductive Health* 9: 13.

Tull, K. (2019). Evidence on family planning use in young people of Tanzania. 16pp.

UN AIDS (2016). Report on the Global AIDS Epidemic. Geneva, Switzerland. 137pp.

UNFPA (2002). *Charting direction for a second generation of programming.* United Nations Population Fund, New york. 46pp.

UNFPA (2014). State of World Population 2014 Report. 136pp.

UNFPA (2016). *Fact sheet Innovation: Working smarter.* United Nations Population Fund, Dar es Salaam. 3pp.

UNFPA (2018). *Fact Sheet Teenage Pregnancy.* United Nations Population Fund, Dar es Salaam. 3pp.

UNFPA Tanzania (2017) Ensuring rights and choice for all: UNFPA. 58pp.

UNFPA(2005). *Fact sheet Innovation: Population and Reproductive Health*: Key to the Achievement of the MDGs. United Nations Population Fund. 3pp.

UNFPA. (2007). "Facts about Safe Motherhood" [https://publications.parliament.uk › ucmaternalhealth] site visited on 18/06/2021.

UNICEF (2012). Progress for children, united nation publication.rep. NewYork, USA: UNISEF. 72pp.

UNICEF (2019). Monitoring the situation of children and women [www.unicef.org] site visited on 08/03/2021.

United Nations (UN) (2017). A better sexual and reproductive health education could save adolescent lives. [https://www.un.org › youthenvoy › 2017/05 › better-se...] site visited on 08/03/2021.

United Republic of Tanzania. (2012). A report on Regional Demographic Information; Mvomero District Region.

URT (2004). Secondary education development plan. [www.moe.tz/pdf/SEDP FINAL.pdf] site visited on 02/09/2020.

URT (2010). The United Republic of Tanzania. Ministry of health and social welfare. the national family planning coasted implementation program. 43pp.

URT (2013). National Bureau of Statistics population census 2012. 237pp.

URT (2018a). Ministry of Health, Community Development, Gender, Elderly and Children. National Adolescent Health and Development Strategy 2018 – 2022. Dar Es Salaam, Tanzania. 68pp.

URT (2018b). The United Republic of Tanzania Ministry of Health, Community development, gender, elderly and children. national accelerated action plan on HIV Testing Services 2019 – 2020. National aids control programme. 55pp.

URT (United Republic of Tanzania), (1998). Strategic Framework for Thethird Medium Term Plan for Prevention and control of HIV/AIDS/STDS 1998-2992. Ministry of Health, Tanzania Dar-es-salaam.1-12 pp.

Velderman, M. K., Dusseldorp, E. M. L., Nieuwenhuijzen, M. V., Junger, M., Paulussen, T. G. and Reijneveld, S. A. (2015). Cultural, social and intrapersonal factors associated with clusters of co-occurring health-related behaviours among adolescents. *European Journal of Public Health* 25(1): 31-37.

Venkatraman C. (2015). Where are we with Adolescent Sexual and Reproductive Health and Right? *Journal of Adolescents Health* 56: 1-6.

Walker, J. (2012). Early Marriage in Africa – Trends, Harmful Effects and Interventions Zones of early marriages in Africa, 2012.. pp231–240.

Wamoyi, J., Wight, D., andRemes, P. (2015). The structural influence of family and parenting on young people's sexual and reproductive health in rural northern Tanzania. Culture, Health and Sexuality. Taylor and Francis. *Cult Health Sex* . 17(6): 718-732.

WHO (2014). *World health statistics*. report. 180pp.

WHO technical consultation, Geneva, 4-5 November 2010. Geneva: World Health Organization. 17pp.

WHO, (2008). Promorting adolescents sexual and reproductive health through schools in low income countries; an information brief .Geneva. 1-24pp.

WHO, (2012). Gutmacher Institute: Facts on induced abortion worldwide. 2007. 2pp.

WHO. (2011c). *The sexual and reproductive health of young adolescents in developing countries: reviewing the evidence, identifying research gaps, and moving the agenda: report of a WHO technical consultation, Geneva, 4-5 November 2010.* 17pp.

Williams, E. (2015). Increasing Access to Youth Sexual and Reproductive Health Services in Tanzania: Recommendations to Higher Learning Institutions MPH Capstone. 33pp.

Woog, V., Singh, S., Browne, A. and Philbin, J. (2015). *Adolescent women‟s need for and use of sexual and reproductive health services in developing countries:* Guttmacher Institute, New York. 63pp.

World Bank (2015). *Data: Sub-Saharan Africa Developing Only*. World Bank, Washington DC. 171pp.

World Health Organization (1986). *Young people's health-a challenge for society: report of a WHO Study Group on Young People and" Health for All by the Year 2000"[meeting held in Geneva from 4 to 8 June 1984]*. World Health Organization, Geneva.

World Health Organization (2006). Promoting and safeguarding the sexual and reproductive health of adolescents. *Policy brief (World Health Organization. Dept. of Reproductive Health and Research).* 4pp.

World Health Organization (2018). *Recommendations on Adolescent Sexual and Reproductive Health and Rights.* World Health Organization, Geneva. 77pp.

World Health Organization (2019). Report of an adolescent health services barriers assessment in the United Republic of Tanzania. 108pp.

World Health Organization, (2011). Preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. Geneva: World Health Organization. 208pp.

World Health Organization, (2019). Handbook for conducting an adolescent health services barriers assessment (AHSBA) with a focus on disadvantaged adolescents: knowing which adolescents are being left behind on the path to universal health coverage, and why. World Health Organization. 123pp.

World Health Organization, 2011. *The sexual and reproductive health of young adolescents in developing countries: reviewing the evidence, identifying research gaps, and moving the agenda: report of a WHO technical consultation, Geneva, 4-5 November 2010* (No. WHO/RHR/11.11). World Health Organization.

Wulifan, J. K., Mazalale, J., Jahn, A., Hien, H., Ilboudo, P. C., Meda, N., Robyn, P. J., Hamadou, S., Haidara, O. and De Allegri, M. (2017). Factors associated with contraceptive use among women of reproductive age in rural districts of Burkina Faso. *Journal of Health Care for the Poor and Underserved* 28(1): 228 – 247.

APPENDICES

Appendix 1: Questionnaire for adolescents

Dear Respondent,

My name is MUGANYIZI, JANINE E, a Master student of Arts in Project Management and Evaluation at Sokoine University of Agriculture. I am currently doing a study on Assessment on application of sexual and reproductive health education among adolescents in Mvomero District. The findings of the proposed research will provide the way forward on access the application of sexual and reproductive health education among adolescents in Mvomero District. The information will be treated with confidentiality and will only be used for the purpose of the study and not otherwise. You have been chosen by chance to participate in this study and there is no wrong answer. Your participation is voluntary. In addition, you can decide not to answer any of the questions posed or even decide not to continue with the interview at any time.

Section A: Questionnaire identification

Date of interview……

Questionnaire No……. Ward……. village/Street ……

SECTION A: Social demographic profile

1	Ward	
2	Village	
3	Gender	1=Male 0=Female
4	Age of respondent	
5	Education of respondent	1=No formal education 2= Primary education 3=Secondary Education Tesiary education
6	Marital status	1=Single 2=Married 3=divorced 4=widower

SECTION B: Source of information, awareness, and knowledge of sexual and reproductive health education

7. Have you ever received education concern sexual and reproductive health? 1. Yes, 2. No

8. Where did you receive the education?

School	
Parents	
Fellow collogue	
Social Media	
Health promotion programs	
Other, please explain?	

9.Do you know that the use of birth pills as part of SRHE?1. Yes, 2. No

10.Do you know the using of injection as a part of SRHE? 1.Yes, 2. No

11. Do you know that hormonal implant as a part of SRHE?1. Yes, 2. No

12.Do you know that withdraw as a part of SRHE?1. Yes, 2. No

13. Do you know lactation amenorrhea as part of SRHE?1. Yes, 2. No

14. Do you know fertility awareness-based method as a part of SRHE? 1. Yes, 2. No.

15.Do you know family planning as a part of SRHE ?1. Yes, 2. No

16. Do you know uses of condom during sexual intercourse as a part of SRHE? 1.Yes, 2. No

17. Do u know how STDS as a part of SRHE? 1. Yes, 2. No

Advantages of using Contraceptive

18.Do you know that contraceptive is very effective against? 1. Yes, 2. No

19.Do you know it makes menstrual period more regular and lighter ?1. Yes, 2. No

20. Do you know that using contraceptive lower STIs among Adolescents? 1. Yes, 2. No

21. Do you know that uses of contraceptive reduce population ?1. Yes, 2. No

Disadvantages of using Contraceptives

22. Do you know some contraceptive does not protect adolescents against STIs? 1.Yes, 2. No

23. Do you know some require minor surgery to plant and remove them? 1. Yes, 2. No

24.do you know using some of contraceptive can cause side effect such as irregular menstruation period, hair loss and weight gain? 1. Yes, 2. No

25. Do you know some of contraceptive cause pelvic cancer?.1. Yes, 2. No

26.Do you know some of them can't be used by other women due to some sort of medical problems ?1. Yes 2. No

Use of facility based SRHS

27.Have you ever visit any facility, doctor, or any kind of health services on contraceptive, pregnancy, abortion and STDs? 1. Yes 2. No

28. How many times have you visit or get SRHS in last 12 months ……

29. Are the services accessible 1. Yes, 2. No

30.Rate the services that accessible to health services 1. Normal, 2. Friendly, 3. Professional 4. Harsh 5. I don't know

31. Do you use any kind of SRHS? 1. Yes 2. No

32. If yes which mode of SRHS do you use?1. Use of condoms, 2. Using of birth pills, 3. Using of injection 4. Hormonal implants ,5. Withdraw, 6. Lactation amenorrhea method 7. Fertility awareness-based method 8. Other mention ……

33. Did u ever visit any health facilities for SRHE and SRHS? 1. Yes 2. No

34. Which kind of facility have you ever got SRHS? 1. Government Hospital 2. Private hospital3. Government health center 4. Private health center 5. Dispensary

fect

35. What makes you use or not use SRHS ?1. SRH knowledge 2. Age 3. Access to SRHS 4. Religion issues 5. Availability of SRHS 6. Family support 7. Distance to the services 8. Confidence 9. Privacy at delivery point.

	Perception of SRHE	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strong disagree**
		1	2	3	4	5
1	SRHE help Adolescents escape from early pregnancy					
2	SRHE help Adolescents to be free from STDs					
3	SRHE Help adolescents and community to control population					
4	SRHE help community to be free from unnecessary surgeries					
5	SRHE help families to have health children					
6	SRHE help mother to have better health before and after pregnancy					
7	SRHE help to reduce abortion to Adolescents					
8	Use of contraceptive is appropriate for Adolescents					
9	Contraceptives are Affordable					
10	Uses of pills is Suitable for Adolescents					
11	Use of injection is suitable for Adolescents					
12	Use of condoms is suitable for Adolescents					

13	Withdraw is suitable for Adolescents					

THANK YOU FOR YOUR COOPERATION

Appendix 2: Interview guide for service providers

1. What reproductive health services do you provide to adolescents?
2. What are the conditions for adolescents to access sexual and reproductive health services in your facility?
3. What is your opinion on the use of the services by adolescents?
4. What is your attitude towards promotion of contraceptive use?
5. How often do the adolescents seek SRH services in your facility per month?
6. What reasons make adolescents attend your services?
7. What reasons limit adolescents from accessing public SRH services?
8. How can the SRH services be made more accessible to adolescents?

THANK YOU FOR YOUR COOPERATION