

**ASSESSING THE DEMAND FOR SEXUAL AND REPRODUCTIVE HEALTH
SERVICES AMONG FEMALE YOUTH: A CASE STUDY OF LILONGWE**

MASTER OF ARTS (ECONOMICS) THESIS

By

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DECLARATION

I the undersigned hereby declare that this thesis is my own original work which has not been submitted to any other institution for similar purposes. Where other people's work has been used acknowledgements have been made.

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CERTIFICATE OF APPROVAL

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DEDICATION

To my Dad and Mum, Kettie, Gracious and Faith you kept me motivated

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Above all I thank God for making it possible. It was a tough journey which seemed almost impossible but God saw me through.

ABSTRACT

Using primary data from secondary and tertiary education institutions demand for sexual and reproductive health services among female youth in Lilongwe was assessed. Simple Logit model and Multinomial Logit model were used to assess factors affecting current usage and probability of choosing a sexual and reproductive health method respectively. Contingent Valuation Method was used to elicit willingness to pay (WTP) which was estimated using Tobit model. The results indicated that current utilization of Sexual and Reproductive Health (SRH) methods was positively affected by age, income, awareness about SRH methods, tribe, prior exposure to SRH problem by respondents and their peers. On the other hand, youth club membership, religion, knowledge about SRH problem, cost and distance reduced usage. These factors also affected choice of the specific SRH method among female youth that were interviewed. The study results concluded that at least 81% of female youth were willing to pay for SRH methods. Socioeconomic factors such as age, income, savings, awareness about SRH methods and prior exposure to SRH methods positively increased WTP while religion, tribe, distance and price negatively affected WTP for SRH methods. It was also observed that source of SRH methods affected WTP as respondents who obtained SRH methods from public health facilities were less willing to pay unlike those who obtained from private health facilities. The decline in demand for condoms and pills as a result of an increase in income and savings means that these two methods are inferior compared to injectables and implants. The study concludes that majority (76%) of female youth are utilizing SRH methods which are not being offered in public healthcare facilities. Furthermore the study concluded that provision of sexual and reproductive health services for free does not increase demand rather there is need to improve efficiency in service delivery but also provide youth friendly services in public hospitals to increase demand.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
BLM	Banja La Mtsogolo
CHAM	Christian Health Association of Malawi
EHP	Essential Health Package
FPAM	Family Planning Association of Malawi
GoM	Government of Malawi
HIV	Human Immunodeficiency Virus
IEC	Information Education and Communication
MDG	Millennium Development Goals
MDHS	Malawi Demographic Health Survey
MNLM	Multinomial Logit Model
MoH	Ministry of Health
NGO	Non Governmental Organisation
NHA	National Health Accounts
NSO	National Statistical Office
NYCOM	National Youth Council of Malawi
SDGs	Sustainable Development Goals
SRH	Sexual and Reproductive Health
SLA(s)	Service Level Agreement(s)
STI(s)	Sexually Transmitted Infection(s)
UNFPA	United Nations Population Fund
UNICEF	United Nations Children Fund
WHO	World Health Organization
WTP	Willingness to Pay

CHAPTER 1

INTRODUCTION

1.1 Background

Developing countries including Malawi are faced with reproductive health challenges which include high prevalence of HIV/AIDS (13%), early marriages (50%) among women aged between 20 and 24 years, increasing cases of teenage pregnancies (34%), and maternal and child mortality estimated at 675/100000 births. Condom use among female youth (15-24 years) was found to be at 31% (UNICEF, 2013). These indicators show that the country is not doing well on reproductive health.

NSO (2010) reported that 98% of sexually active women including the female youth are aware of contraceptives with 87% of the female youth aged 14-24 years reported to have ever used contraceptive. The commonly used contraceptives identified were pills (9.1%), injectables (63.4%), male condoms (37.2%) and female condoms (2.0%). It is surprising to find that cases of unintended pregnancies are quite high among female youth although the %age of female youth using contraceptive was found to be high. The study which was done by FPAM (2002) profiled factors contributing to teenage pregnancies and these included poverty, sex at young age, ignorance about sexual and reproductive health and non-use of family planning methods. The recent studies showed that 26% of adolescent boys have had sex before the age of 15 compared to adolescent girls estimated at 12%. About 14.7% and 18.2% of girls and boys respectively have had unsafe sex before the age 15 years (GoM, 2012 and NSO, 2014). Consistent use of sexual and reproductive health services can help minimize cases of high prevalence of HIV/AIDS, teenage pregnancies and maternal and child mortality.

In Malawi about 487,000 pregnancies are unintended representing 54% of pregnancies. These unintended pregnancies are attributed to unmet reproductive health needs which are estimated at 43%. Meeting just half of this unmet need would prevent 213,000 unintended pregnancies annually, which would result in 34,000 fewer unsafe abortions and 800 fewer maternal deaths each year. If all unmet need for modern contraception were met, maternal mortality would decline by more than 20%, and unintended births and unsafe abortions would drop by 87% (Vlassoff and Tsoka, 2014).

United Nations Population Fund (UNFPA) defined sexual and reproductive health as a state of complete physical, mental and social well-being in all matters relating to the reproductive system. It implies that people are able to have a satisfying and safe sex life, the capability to reproduce, and the freedom to decide if, when, and how often to do so. In order to achieve good sexual and reproductive health, people need access to accurate information and the safe, effective, affordable and acceptable contraception method of their choice. They must be informed and empowered to protect themselves from sexually transmitted infections. And when they decide to have children, women must have access to services that can help them have a fit pregnancy, safe delivery and healthy baby. Any deviation from this situation has serious implications on their future because it affects their state of health, education, opportunities and transition to adulthood, with a cascading impact on their livelihood and future generations.

The International Conference on Population and Development (ICPD) (1994) emphasizes on supporting the needs, aspirations and development capacities of adolescents worldwide, and the elimination of practices that could curtail the normal development and empowerment of children. The ICPD agreed on two distinctive objectives: “(a) to address adolescent sexual and reproductive health issues, including unwanted pregnancy, unsafe abortion, and STIs, including HIV/AIDS, through the promotion of responsible and healthy reproductive and sexual behaviour and (b) to substantially reduce all adolescent pregnancies”. More specifically, it called for countries and the international community to protect and promote the right of adolescents to reproductive health education, information and care and greatly reduce the number of adolescent pregnancies.

UNFPA (2013) recognizes that access to good quality education is one of the most effective interventions to empower adolescents with the most basic skills to function and contribute to society.

This is of greater relevance for girls to obtain comprehensive sexual education; to know and recognize options; to be able to negotiate reproductive desires, including when and how many children to have; and to be able to demand access to good quality services for reproductive health. It is also estimated that family planning saves resources that would be spent on pregnancy and post pregnancy related care. It was estimated that the expenditure on reproductive health in 2013 was USD 12.5 million while expenditure on providing prenatal, delivery and routine new born care, covering all obstetric emergencies and treating post abortion complications was US\$46.1 million (Vlassoff and Tsoka, 2014).

Malawi adopted the National Population Policy in 1994 which is aimed at improving family planning and health care services, increased school enrolment and increased employment. The government of Malawi also subscribed to the United Nations Millennium Development Goals (MDGs) which are aimed at fostering socioeconomic transformation and sustainable use of resources. The second target of goal number five is to increase universal access to reproductive health. A number of indicators were proposed to measure universal access to reproductive health. However, those which are relevant to female youth are reduction in teenage pregnancies but also increased use of contraceptives. However, the situation is different from what is desired. Provision of reproductive health services will help in prevention of teenage pregnancies and sexually transmitted infection (STIs) among the young population of Malawi. Furthermore access to reproductive health services to young people promotes a health transition to adulthood (Botha, 2012).

The study defines female youth as all that are aged from 14 to 24 years (GoM, 2014). This group of respondents constitutes of adolescents who are developing to adulthood and are involved in different experimental activities about their sexuality. This stage is crucial for teenagers as they are likely to be involved in unsafe sexual practices which can result in pregnancies and sexually transmitted infections.

1.2 Problem statement

Teenage pregnancies are very high in Malawi. The National Statistics Office (2010) indicated that 26% of teenagers (15-19 years) were pregnant, while UNICEF (2013) reported that 34% of women aged between 20 and 24 had given birth by the age of 18 in 2012. Teenage pregnancy is a major health concern because it undermines the achievement of the Millennium Development Goals and the recent Sustainable Development Goals (SDGs). Teenage pregnancies coupled by post abortion illnesses, STIs and HIV/AIDS increase disease burden for the households and the country at large thereby draining public resources which would have been used in various developmental programs.

Two channels have been used to allow youth access reproductive health services in Malawi. The public hospital and other organizations offer these services for free while private hospitals, pharmacies and retail outlets offer SRH services at different user fees. However, long waiting time in public hospitals and other public outlets makes most youth not willing to utilize them. Furthermore, most youth have been considered immoral if they seek sexual and reproductive healthcare services in public healthcare facilities. The other available alternative is for female youth to pay out of pocket for SRH in private facilities which is efficient in service delivery but also they don't judge the youth who are seeking SRH services as immoral as they are profit oriented.

Most of the studies on reproductive health have been focusing on supply side factors that can increase utilization of SRH services which are quality, availability, acceptability, and accessibility. However, these supply side factors alone are not sufficient enough to drive utilization. Furthermore, these studies have been focussing on adults and married people yet female youth are equally affected by SRH problems. It is important to also consider demand side factors such as price, income, education level, age and other important social-cultural factors that can influence demand for SRH services. Therefore this study will address the information gap on the factors affecting demand for sexual and reproductive health services among female youth. Furthermore, the impact of introduction of user fees for reproductive health services by the government to reduce its economic burden is not known in terms of demand and access by the female youth.

1.3 Justification for the study

Teenage pregnancies are an important public health issue because they are associated with maternal, foetal, and neonatal adverse outcomes. Teenage girls who get pregnant are likely to drop out from school and teenage parents are unlikely to have the social and economic means to raise children. These, and many other reasons, justify the promotion of reproductive health services among female youth and this can only be achieved if the demand for such services is known. The study focuses on female youth aged between 14-24 years because statistics indicate that this age group is vulnerable to pregnancies and STIs and these have contributed to the aforementioned negative effects of teenage pregnancies. The significant composition of youth (65%) to the country's population also justifies the need to undertake the study to understand their demand as biologically this is the most sexually active group.

Furthermore, the recent withdrawal of bilateral donor support estimated at 60% to the country's budget support negatively affected the delivery of health care services by Ministry of Health. The resources which are available are insufficient and are mostly devoted to curative health care services. Sexual and reproductive health services struggles to compete for resources with other public health problems. Privatizing some of the health services would be an option especially the preventive in nature services. However, this can only be implemented if the demand for sexual and reproductive services is known before recommending on out of pocket payment for some of the SRH services. Understanding the demand side factors is crucial in implementing policy changes as regards to introduction of user fees for some health services especially the preventive ones. It is against this background that the study was commissioned to analyse the demand and factors affecting demand for sexual and reproductive health services among female youth using the willingness to pay approach. The study results will be used in making policy recommendations on the effect of introduction of user fees on reproductive health services use on its demand and how it will affect the fight against sexual and reproductive health problems.

1.4 Study Objectives

The overall objective of the study is to assess the demand for sexual and reproductive health services among the female youth.

1.4.1 Specific Objectives

- a. Determine the factors affecting utilization of SRH services by female youth
- b. Assess the willingness of the female youth to pay for SRH services
- c. Identify the demographic and socioeconomic factors that affect female youth's choice of SRH services.
- d. To identify the major socioeconomic factors that contributes to willingness to pay for SRH services.

1.5 Research Hypothesis

- a. Female youth are not utilizing SRH services hence high cases of teenage pregnancies
- b. Female youth are not willing to pay for sexual and reproductive health services
- c. Demographic and socioeconomic characteristics of the female youth have no influence on choice of SRH services
- d. Socio-economic factors have no effect on willingness to pay for SRH services

CHAPTER 2

SEXUAL AND REPRODUCTIVE HEALTH ISSUES IN MALAWI

2.1 Prevalence of teenage pregnancies in Malawi

Teenage pregnancy is defined as the proportion (%) of women aged 20 to 24 with a live birth before ages 15 or 18. Different studies have come up with different figures on the prevalence of teenage pregnancies in Malawi. However, what is common in all the studies is that cases of teenage pregnancies are very high in Malawi compared to other countries in Sub Saharan Africa. GoM (2012) reported that teenage pregnancies ranged from 4% among 15 year old girls to 64% among 19 year old girls. The proportion of teenage pregnancy among female youth is presented in Figure 1 below. UNICEF (2013) estimated teenage pregnancies at 34 % while the MDHS estimated it at 26 %. High cases of teenage pregnancies put a lot of pressure on the budget for antenatal and postnatal health care.

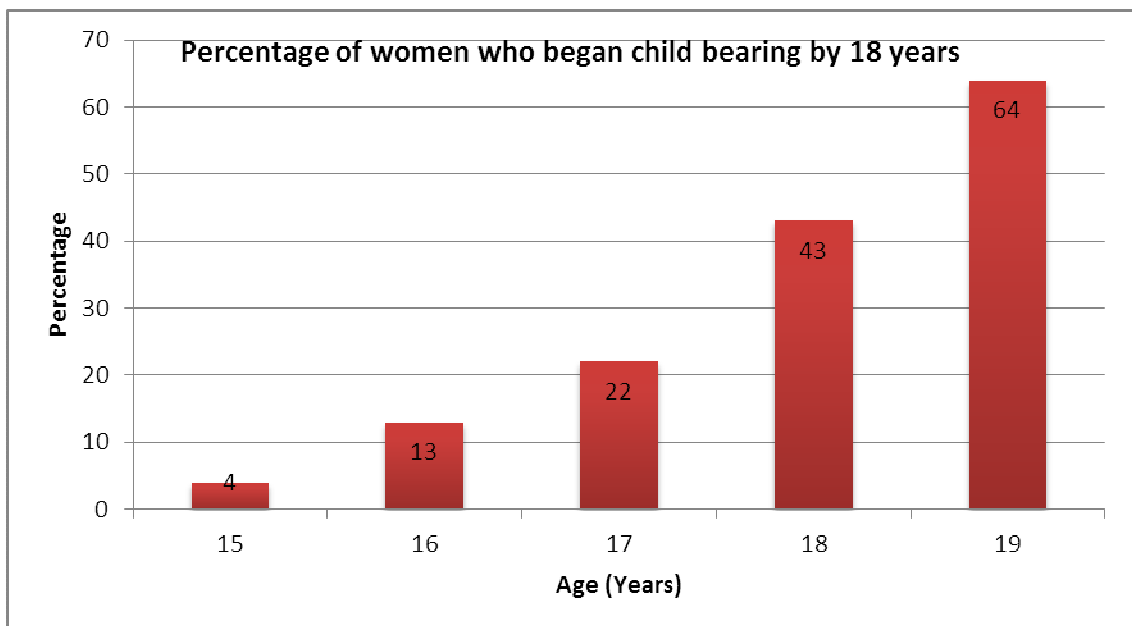


Figure 1: Prevalence of teenage pregnancies by age

Source: Malawi Population Data sheet, 2012

The rate of unintended pregnancy was also found to be high in Malawi (139 per 1000 pregnant women aged 15-44 years). This results in unsafe abortions as it is illegal in Malawi to perform an abortion and this increases disease burden.

In Malawi, it is estimated that 67000 abortions were performed in 2009 (IPAS). The study further reported that half of all women in Malawi seeking post abortion care were under the age of 24 and many young women aged 12-19 reported having one or more close friends who had tried to terminate pregnancy. The findings were also in line with National Youth Council of Malawi (NYCOM) study of 2009 which found that for every two of three unsafe abortions occur among women aged 15 -30 years and 14 % occur in young girls less than 20 years. In a study conducted to assess the magnitude of abortion in Malawi, the results as reported by different hospitals showed that the problem was common in women aged 19 years and above. It's also worth noting that a significant proportion of adolescent girls of 15-19 years had an abortion. The findings are summarized in Figure 2 below.

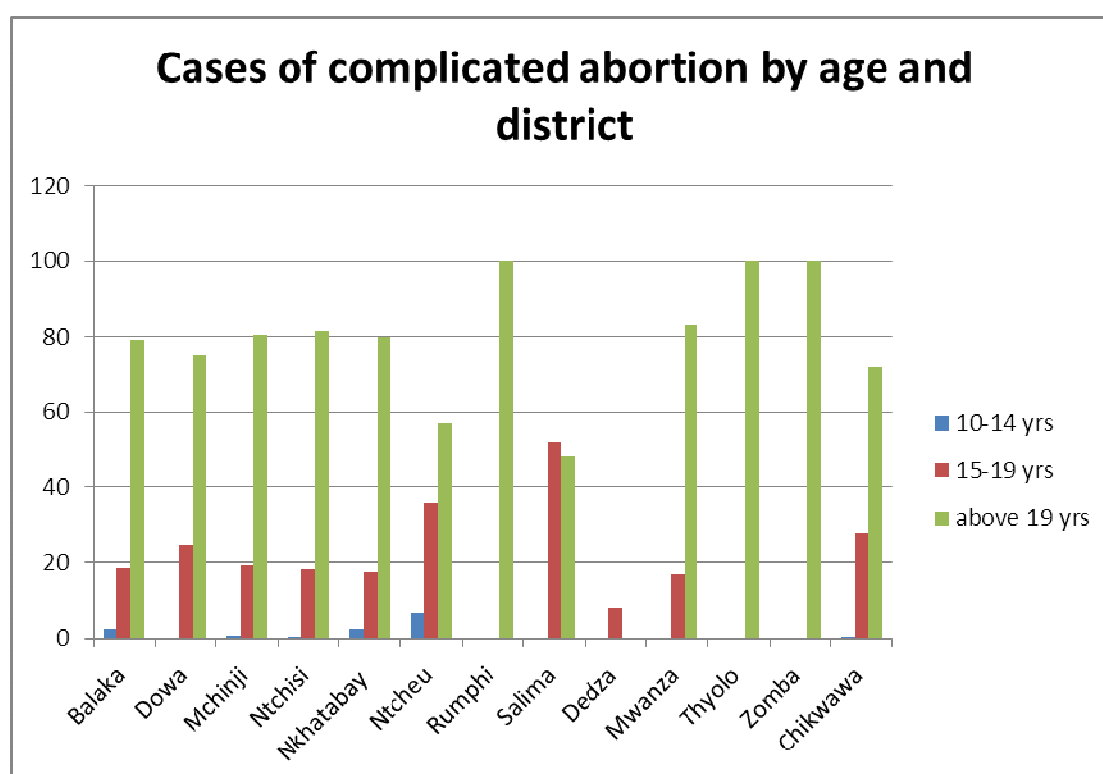


Figure 2: Prevalence of post-abortion illnesses by district and age

Source: NYCOM 2009

2.2 Awareness and use of sexual and reproductive health services in Malawi

Awareness about the availability of contraceptives has a significant bearing on its utilization. NSO (2010) indicated that 98 % of all women and 99 % of all men are aware of contraceptives. Injectables, condoms, female sterilization and pills are the most common known contraceptives among women in Malawi as it was reported by at least 85% of the women who were interviewed. Awareness of reproductive health services was very high among both men and women regardless of their socioeconomic characteristics such as age, education level, wealth and residential area (rural or urban).

In terms of use of contraceptives, 65% of all women reported to have ever used a contraceptive with injectables being reported by 61% and 43% of married and unmarried women respectively. The study showed that the proportion of unmarried teenagers using injectables was very low (3.2%). About 25.5% of sexually active unmarried women (15-24 years) use male condoms. The low usage of condoms is a worrisome situation considering the high prevalence of HIV (14%) among adults of 15-49 years of which 50% is among youth. In a study by Meekers et al (2009) youths who believed that condoms were effective against conception had a higher likelihood of using them than those who did not believe so. In Malawi, the use of modern family planning methods or any contraceptive is higher among sexually active unmarried women than for currently married women (46% versus 42%). The most notable difference between these two groups of women is that 23% of sexually active unmarried women use male condoms compared with 2% of married women (NSO, 2010). Overall, about 60% of sexually active unmarried youth are not using any contraceptive and the proportion is very high among teenagers (68.9%).

In a study to assess utilization of contraceptives in 13 countries in sub Saharan Africa, it was found that short term contraceptives were very prevalent compared to long term methods. Chintsanya (2013) underpinned that modern contraceptive use was high among married women with more education, women from wealthier households, and women with more access to the media. The number of living children was also singled out as another factor that increased utilization of modern contraceptives among married women.

Malawi is showing positive steps in attaining higher contraceptive prevalence ratio as depicted in the figure 3 below. However, the country is still very far from attaining the MDG goal number 5 on reduction of maternal mortality and universal access to reproductive health services.

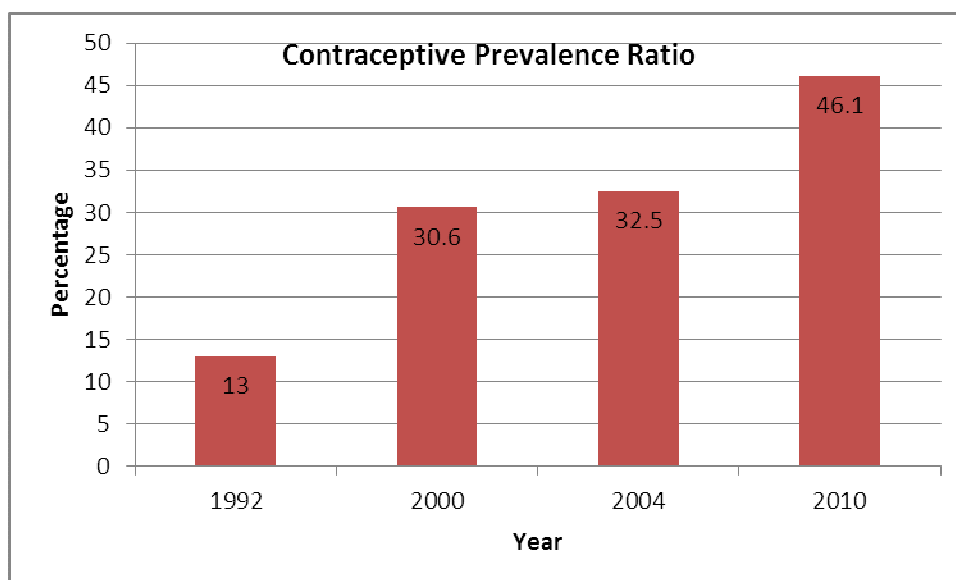


Figure 3: Contraceptive prevalence ratio trend

The World Health Organization (WHO) has estimated that 358,000 maternal deaths occur annually in the world, 99% of them in developing countries (McTavish et al, 2010), with sub-Saharan Africa accounting for 57% of these deaths. Malawi's maternal mortality is estimated at 460 deaths per 100,000 live births, one of the highest levels in the world, according to Index Mundi estimate in 2010. The highest mortality rates among children under age 5 also occur in sub Saharan Africa (UNICEF 2013). Reducing levels of maternal mortality and morbidity depends on increasing use of reproductive and maternal health services. High rates of maternal, neonatal, and child mortality are associated with inadequate and poor-quality reproductive healthcare, including family planning, antenatal care, skilled attendance at birth, and postnatal care. Overall, countries in sub-Saharan Africa have made limited progress in achieving the Millennium Development Goals (MDGs) of reducing maternal and child mortality (Kenny and Summer, 2011). Hence, achieving the MDG goal on maternal health requires providing high-quality pregnancy and delivery care, including essential obstetric care, and improving women's sexual and reproductive health.

2.3 Policy context of sexual and reproductive health services

A number of SRH policies have been laid down with the aim of increasing access and utilization of sexual and reproductive health services to all Malawians regardless of gender and age of an individual. These policies have been adopted at different levels. Some of the key policies are summarized below:

The 2012 National Population Policy

This policy is the revision of the 1994 National population policy which aims at minimizing the adverse effects of population dynamics such as rapid population growth, while optimizing the role of dynamics like urbanization and projected increase in the labour force resulting from declines in fertility and mortality in socioeconomic development. To achieve this, the policy primarily focus on accelerating fertility decline and slowing down the country's unsustainably high rate of population growth through voluntary and quality family planning services. The policy also recognizes that supporting the youthful population through investments in education, innovation and entrepreneurial skill development, youth friendly reproductive and health services, and delayed entry into marriage and parenthood can make them a valuable resource for socioeconomic development.

The 2002 Reproductive Health Policy

The goal of the policy is to provide accessible, affordable, convenient and comprehensive reproductive health services to all women, men and young people through informed choice in order to enable them to attain their reproductive health goals and rights. This will be achieved through family life education; provision of family planning services to all women, regardless of parity and marital status; ensuring that quality family planning services are accessible and convenient at all levels; ensuring reproductive rights of all individuals; ensuring that family planning and reproductive health services are male, youth and young adolescent (aged 8–14) friendly; and encouraging delay of the first pregnancy and condom use.

1996 Family Planning and Contraceptive Guidelines

Malawi's Family Planning Policy and Contraceptive Guidelines, revised in 1996, recognize the right of adolescents to receive reproductive health services. The guidelines further recognize that all persons of reproductive age, regardless of marital status, have the fundamental right to make informed decisions about how many children to have and when to have them. These guidelines also recognize the special risks of teenage pregnancy and advocate provision of family planning methods to adolescents without the consent of relatives, spouses or partners. In recognition of such problems as adolescent pregnancy, HIV/AIDS and other sexually transmitted infections (STIs) associated with adolescent sexuality, these policy guidelines also encourage the introduction of family life education within families, in primary schools and at all other levels of education, with special efforts being made to educate out-of-school youth.

2006-2010 National Reproductive Health Strategy

The strategy aims at promoting through informed choice, safer reproductive health practices by men, women and young people, including increased use of high quality, accessible reproductive health services.

The goal of the national programme is to improve sexual and reproductive health for all men, women and young people in Malawi, especially the vulnerable and underserved.

Maputo Plan of Action (2007-2010)

Recognizing that poor sexual and reproductive health practices are a leading cause of maternal and neonatal mortality, African Health Ministers adopted a plan of action to ensure universal access to comprehensive sexual and reproductive health (SRH) services on the continent. The plan aimed at integrating HIV/AIDS services into sexual and reproductive health rights, promoting family planning as a crucial factor in attaining the Millennium Development Goals; supporting the sexual and reproductive health needs of adolescents and young people as a key SRH component; addressing unsafe abortions through family planning; delivering quality and affordable health services while adopting strategies that would ensure reproductive health commodity security.

2007 Guidelines for Community Initiatives for Reproductive Health

The initiative seeks to empower the communities to take a leading role in identifying, planning, implementing, monitoring and evaluating interventions in reproductive health issues at community level for the reduction of maternal and neonatal morbidity and mortality in Malawi

The National Reproductive Health Program

The program aims at provision of safe maternal health care; family planning and adolescent reproductive health services; prevention and management of STIs, including HIV/AIDS; and equal access to information, education, supplies and services regardless of age, gender or economic status.

The different sexual and reproductive health policies and programmes are aimed at addressing four key results areas of i) reduction of teenage pregnancies among female youth, ii) fostering maternal health to reduce cases of maternal and infant mortality, iii) control STI and HIV/AIDS transmission and iv) Family planning, aimed at reducing fertility levels, while ensuring that men and women choose number of children and when to have children.

2.4 Providers of sexual and reproductive health services in Malawi

Contraceptives under family planning services are provided through both public and private sector. Initially, provision for family planning was offered only in public facilities and it was not for profit. The private for profit provision of family planning services emerged later in 1987 (Ngalande Banda and Simukonda, 2007). Government health centres and hospitals offer family planning services free of charge. Family planning clinics such as BLM and CHAM hospitals offer these services at subsidized rates, while market prices are offered at private clinics and pharmacies. BLM accounts for 61% of the market share as it is a significant and important provider of family planning services. . According to the 2013 Malawi Service Provision Assessment on reproductive health, the government is the leading service provider on reproductive health followed by NGOs and private as indicated in the table below.

Table 1: Providers of reproductive health services in Malawi

Service provider	Number of facilities	%
Government	472	95
CHAM	163	57
Private	214	79
NGO	58	81
Company	69	68

Source: Malawi Service Provision Assessment 2013-14, Government of Malawi

BLM operates on a market basis to recover some of its costs; however it provides subsidized treatment for SRH services with financial support from different donors and government especially to youth. The trend in SRH prices is summarized in the figure below:

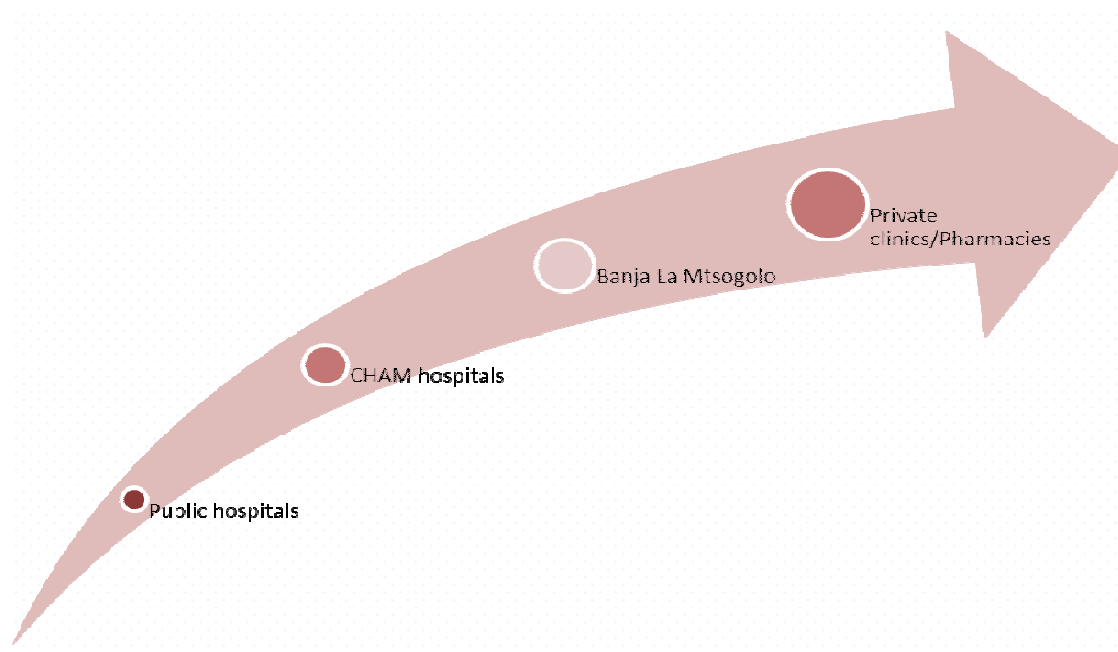


Figure 4: Trend for out of pocket payment for SRH services to different service providers

Conclusion

The chapter shows that teenage pregnancies are quite high in Malawi and cases of post abortion illnesses are prevalent across Malawi. An analysis of all SRH policies has demonstrated that Malawi is making positive strides in reducing fertility levels among women. However, utilization is still low among women who are in the reproductive age group (15-49 years) as evidenced by low contraceptive prevalence ratio. The situation is worrisome among female youth as they continue registering high cases of pregnancies, STIs and HIV/AIDS. There are different SRH service providers with some offering free services while others are offering subsidized services. The government remains the major SRH service provider with its large pool of public hospitals.

CHAPTER 3

THEORETICAL AND EMPIRICAL LITERATURE

3.1 Introduction

This chapter reviews theoretical and empirical literature on the theories of demand, utilization and determinants of utilization of healthcare services. The first part is dedicated to review of theoretical literature while the second part is covering empirical literature on understanding the factors that affect demand for healthcare services.

3.1.1 Consumer choice theory

Decision to use reproductive health services are made with influence from different socioeconomic factors. Economic theory through the consumer choice theory suggests that consumers are rational and have to maximize utility on a bunch of different goods and services. The individual has to make decisions on which goods and services one has to buy (consume) in the midst of unlimited wants with limited resources. Nicholson (2000) postulated that preference of consumers on which good to consume is shown by three properties of completeness, transitivity and continuity.

Consumer choice theory provides the basis for analysis of choices of individuals on what they should consume depending on the level of utility enjoyed. The theory assumes that each decision maker is able to compare two or more alternatives a & b in the choice set C using a preference indifferent operator. If a is weakly preferred to b ($a \succsim b$) the decision maker either prefers a to b or is indifferent. The ranking that occurs with the various options from least desirable to the most, is what defines individual's utility. The consumer choice theory was applied in this study to understand the decisions made by female youth on whether to use sexual and reproductive health services in relation to their utility function.

The utility function may be affected by the benefits enjoyed from use of SRH services as opposed to the costs associated in the event that they choose not to use SRH services.

Consumer choice theory has an effect on an individual's demand for health. Decisions on what to consume are affected by one's budget constraint, price of health services and price of the vector of other goods and services (Zweifel et al, 2009).

In view of this, the study was conducted to understand how income (budget), prices and other socioeconomic factors affect choice, utilization and willingness to pay for sexual and reproductive health method.

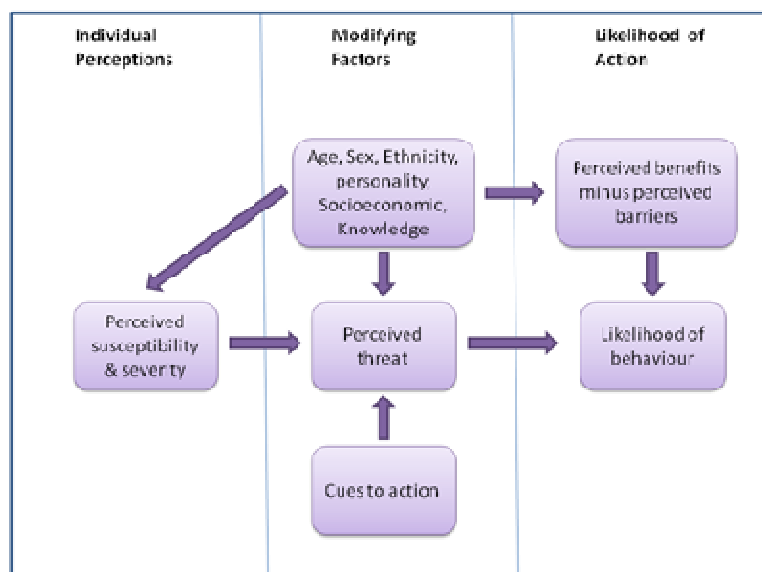
3.1.2 Health seeking behaviour

Understanding health seeking behaviour of an individual is of paramount importance as it determines the factors that may affect demand for healthcare services. MacKian (2003) categorized factors affecting health seeking behaviour of an individual into five groups of: i) cultural which considers issues of individual's status in society, ii) demographic factors which address the role of sex and age, iii) economic factors (price and income), iv) geographical factors including distance and physical access to health care facilities and v) organizational factors which addresses issues of organizational efficiency in delivering quality services and efficacy healthcare services. In view of this theory demand for sexual and reproductive health services will likely be affected by the five factors stated above which look both on the supply side and the demand side of reproductive health among female youth. In Malawi, demand for SRH services has been negatively affected by institutional (organizational) factors. Most female youth shy away from obtaining SRH services because of inefficiencies as there is long waiting time coupled by non-youth friendly services. Demographic factors have also contributed to demand for reproductive health services. Studies have shown that an increase in age increase demand and willingness to pay.

3.1.3 Health Belief Model (HBM)

The health belief model is a psychological, health behavior change model developed by Becker (1974) to explain and predict health-related behaviors, particularly in regard to the uptake of health services. The HBM is a modification of what was developed by Hochbaum, (1958). The model suggests that people's potential threats about health problems, perceived benefits of action and barriers to action, and self-efficacy explain engagement (or lack of engagement) in health-promoting behavior. Generally the model is based on the understanding that a person will take a health-related action if one feels that a negative health condition can be avoided; has a positive expectation that by taking a recommended action, he or she will avoid a negative health condition and finally believes that one can successfully take a recommended health action (Glanz et al 2002). In view of this this study considered the potential threats of different reproductive health problems and how these affect utilization and willingness to pay. It is believed that awareness and fear of contracting a reproductive health problem might increase demand while if the SRH method is in effective it will likely reduce demand and willingness for that particular SRH method and other methods in general. The model is summarized in the framework below:

Conceptual framework of Health Belief Model



Health belief conceptual framework, Source: Stretcher, V., & Rosenstock I.M. (1997)

The individuals will be affected by factors termed as cues to action; these may be environmental, in terms of media influence or physical, in terms of illness setting in. Then there are other variables that affect the behaviour in terms of demographic, social and economic factors which shape an individual's decision to seek reproductive health care. This theory was applied to the study to identify the factors that affect demand for sexual and reproductive health services among female youth.

3.1.4 The Health Care Utilisation Model

The model which is also called the socio-behavioural or Andersen model (Andersen & Newman, 1973) groups into a logic sequence three clusters or categories of factors (predisposing, enabling and need factors) which can influence health behaviour. The model was specifically developed to investigate the use of biomedical health services.



- a. Predisposing factors: age, gender, religion, global health assessment, prior experiences with illness, formal education, general attitudes towards health services, knowledge about the illness etc.
- b. Enabling factors: availability of services, financial resources to purchase services, health insurance, social network support etc.
- c. Need factors: perception of severity, total number of sick days for a reported illness, total number of days in bed, days missed from work or school, help from outside for caring etc.
- d. Treatment actions: home remedies (herbal, pharmaceuticals), pharmacy, over the counter drugs from shops, injectionists, traditional healers, private medical facilities, public health services etc.

In addition to the predisposing factors and enabling factors, Kroeger (1983) modified this version to include Health service system reforms and its link to a country's social and political macro-system.

This is a valuable extension as it puts emphasis on the link of health-seeking behaviour with structural levels within a macro-political and economic context. The model is very crucial in assessing the demand for sexual and reproductive health services as significant policy changes may affect utilization of reproductive health services. It is against this background that there are calls for introduction of youth friendly reproductive health services. Availability of these services and the other factors postulated in the model are important in determining SRH services since these services are affected by demographic, socioeconomic factors and need factors.

3.1.5 The Human Capital Theory

The human capital theory states that individuals are a stock of capital, which like any other stock of goods depreciates over time. The human capital theory recognizes that this capital stock should be maintained through seeking health care but also through trainings (education) to improve productivity. The identification of health capital as a component of human capital stock meant that people demand good health in order to realize potential gains in productivity.

Human capital refers to the stock of individual knowledge, capability, and skills that are economically usable thus all characteristics of an employee that may raise his or her productivity in the labour market including not only those skills that are acquired through education, but also talents and practical experience.

The human capital theory argues that, when there is an increase in an individual's stock of knowledge or human capital, his productivity in the market sector of the economy will increase where he produces money earnings, and in the non-market or household sector where he produces commodities that enter into his utility function (Grossman, 2000). Thus the human capital theory suggests that individuals and society derive economic benefits from investment in good health which not only improves physical health but also returns earned from efficiency in production.

3.1.6 1972 Grossman model

The Health demand model is the basis for assessing the demand for health as suggested by Grossman (1972). According to the model demand for good health is considered to be a function of prices consumers pay in obtaining health care, quality of health care, income as well as social, household, cultural and individual preferences and knowledge about the characteristics of, and need for medical treatment. The model views health as a durable capital stock that yields an output of healthy time.

It proposes that individuals inherit an initial amount of this stock that depreciates with age and can be increased by investment. It has yielded considerable insight into the determinants of health and into the allocation of time and money into health production. Health status is considered as both a production and consumption good.

The model recognises that individuals do not necessarily demand medical care as a good but they find utility in health days derived from consumption of medical services, diet, exercises and time. The prices of health care, people's wages and their productivity in the production of health will determine how resources are to be allocated between health capital and other goods and services that people buy.

Grossman model postulates that the demand for health increases with income because income increases the returns from labour days. Another factor that increases healthcare demand is education of an individual. Education increases health stock because more education improves the efficiency and productivity to produce health investments. Age and other factors that make health stock depreciate will decrease the demand for health because the marginal benefits of investment into health will decrease. The price of healthcare decreases the health demand because health investments become more costly. Health care inputs go into the health production function and they are an investment good to produce health.

The demand for health care inputs depends on the benefits and costs of health care inputs. In this regard, the consequences of reproductive health problems will determine the level of demand.

Female youth will be willing to invest in SRH services where the costs are huge. Demand for health care inputs increases with income and decreases with increases in price of the inputs.

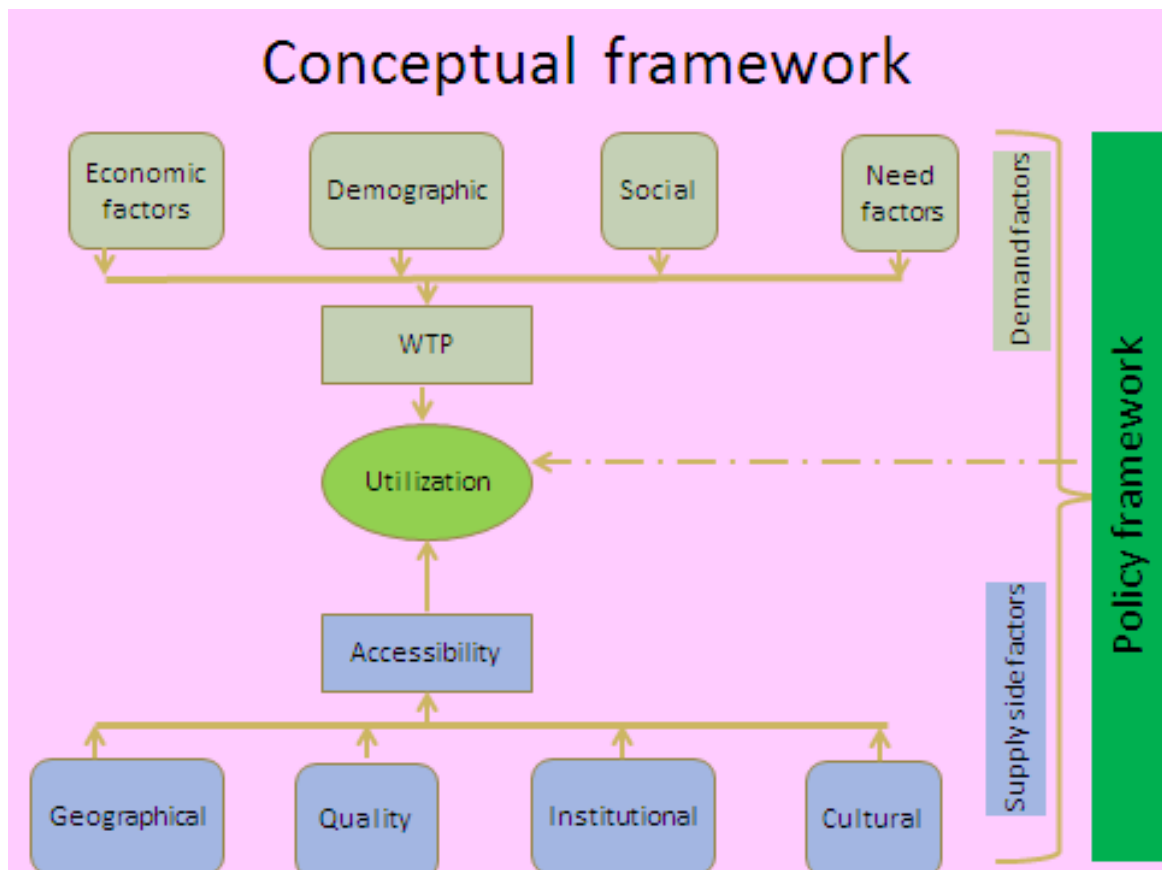
Conceptual framework for demand of sexual and reproductive health services

Nelson & Magnani (2000) coined a conceptual framework regarding the factors affecting demand for sexual and reproductive health services. The factors are in five broad categories. In the first place the individual has to articulate the goals that will prompt one to demand the SRH services, secondly the individual has to decide when the services are demanded in terms of time.

The third factor that may affect demand is enabling environment but also youth empowerment. Finally supply side factors also stimulate demand for sexual and reproductive health services.

These five categories comprise a set of variables. The goals of an individual and when to demand are affected by the demographic characteristics of an individual which may include age, marital status, number of children but also having a sexual relationship for female youth.

The third category of enabling environment is affected by policy framework which may include provision of youth friendly services, socioeconomic factors such as education, awareness of existing sexual and reproductive health methods, employment status, income levels, culture and religion. The socioeconomic variables cited may entail youth empowerment. The supply side factors affect issues of accessibility but also availability of different SRH methods depending on preferences (Nelson & Magnani, 2000). However, this conceptual framework was adapted based on the literature regarding factors affecting demand and willingness to pay for SRH services but also supply side factors. The adapted conceptual framework is presented in the following page.



3.2 Empirical literature

This section presents a summary of the factors affecting demand, utilization and willingness to pay for healthcare services. Attention was also paid to the methods used to assess demand for healthcare services to inform on the methodology for this study. Literature was reviewed for studies conducted in Malawi and some parts of the world.

3.2.1 Determinants of utilization and demand for health services

A study by Makoka (2007) investigated the determinants of demand for private health insurance among formal sector employees in Malawi. The study findings showed that demand for private health insurance was positively influenced by income and age of the individual. Other variables that were also affecting demand for private health scheme included family size and health status. Health status has been identified as a major challenge in private health insurance as it is an adverse selection problem.

Supakankunti (2001), using Logistic regression analysis showed that educational background, number of employed members in the family, household income per year,

presence of illness, convenient access to health care were important determinants in increasing demand for health care. These findings were echoed by Asfaw (2003). Using primary data collected in Ethiopia, Asterayi categorized the factors affecting demand for health care services into individual or household specific and choice specific variables. Using the Logit model which was employed in the study, individual and/or household specific variables such as sex of the patient, severity of illness, monthly income of the household and family size, and distance to reach the nearest health facility (a choice specific variable) were found to significantly affect whether treatment was sought at times of illness.

In another study, Odwee et al investigated the price and non-price factors that affect health care demand in rural Uganda using household data from Lira district in northern Uganda. The results suggested that the demand for government health care services was negatively and significantly influenced by the user-fees and drug unavailability. A simulation analysis suggested that an increase in medical charges (user-fees) leads to a fall in demand for government health facilities but increases the demand for both private health facilities and self-medication.

Lawson (2004) investigated the factors affecting demand for health services for both adults and children in Uganda. By using Multinomial Logit Regression model, the study showed that distance travelled to health facility and income were some of the important determinants for healthcare demand. The study further showed that sex of the respondent significantly affects choice of health care service provider. Men were likely to use private health care services while women mostly demanded services from government hospitals. Income was also found to be an important factor in demanding for medical services since most of the health facilities charge user fees. In terms of school going children, increased income reduces probability of boys to seek for medical care while increased income increases probability for girls to seek medical care.

In a study by Tipping and Segall (1995), it was shown that the social status of women, the type of illness, access to services and perceived quality of the service affect decision on demand and utilization of health services.

Rahman (2000) demonstrated that a woman's decision for a particular health care facility is the composite result of personal need, social forces, the actions of health care providers, the location of services, the unofficial practices of doctors, and in some contexts has very little to do with physical facilities at a particular service point. These findings resonate well with the fact that an individual would seek medical healthcare at a facility where their privacy will be respected. This explains why women would go to a distant health facility. MacKaine (2003) also acknowledges that other factors such as policy framework have significant impact on an individual's health seeking behaviour.

A study by Wado (2013) suggested that women's autonomy at the household level, including freedom of movement, is important to their use of reproductive health services. Moreover, for outcome variables, women's education, paid employment, urban residence, exposure to media, and wealth appear as important predictors for increased demand for health services. Muriithi (2013) also demonstrated that a patient's choice of healthcare is affected by healthcare service quality, wealth, user fees, and gender.

In a study on the impact of economic factors on contraceptive utilization in Balaka (Malawi), Chiumia (2010) found that having savings, education and employment had a positive relationship in increasing contraceptive use. The results further showed that these economic factors reduced the probability of using traditional methods. These results were empirically analysed using Multinomial Logit Model. Contraceptive use among women aged 15-49 years varied by area of residence, region, education, number of living children and wealth quintile. Contraceptive use increases with higher education attainment and dwelling in urban areas. Women who are poor are unlikely to use contraceptives because they cannot afford to pay for it amidst competing demands within the household. Instead such women use traditional family planning methods.

The other determinant for contraceptive use is number of children as most women wait until when they have the first child to start using sexual and reproductive health services (MDHS, 2010). In another study by Palamuleni (2013), to examine contraceptive use among currently married women in Malawi, it was found that

partners' approval of family planning, family planning discussion with partner, number of living children, work status, education and visit to a health centre determines its demand. In a publication by Association of Reproductive Health Professionals (2015), it was found that many factors converge to shape a woman's attitudes about the use of and the need for contraception. One factor is ambivalence about pregnancy. Women who are ambivalent about avoiding pregnancy are less likely to use contraception and more likely to have gaps in contraceptive use that put them at risk for unintended pregnancy. Low perception of risk for pregnancy was another critical factor in influencing attitudes about contraception.

In Uganda, Asiimwe et al (2013), studied socio-demographic factors associated with contraceptive use among young women in comparison with older women. The findings showed that key factors associated with current use of modern contraceptives among young women (15-24 years) were area of residence and desire for children while among women aged 25-34 years, the significant factors were education level, household wealth and desire for children.

3.2.2 Determinants of willingness to pay for health services

Hennink and Madise (2005) using focus group discussions studied the effect of introduction of user fees on reproductive health in rural communities of Malawi. The findings showed that communities were willing to pay for cheaper methods which are not long term as long as quality of service delivery improves. In Nigeria, Usman (2013) studied factors affecting willingness to pay for community based health care. Using Tobit Model, age, income, marital status, gender of respondent and distance to health facility were identified as important factors affecting an individual's willingness to pay for a health service. Women, the poor, and people with low level of education were less willing to pay. Age was found to be a determining factor for willingness to pay in Nigeria. The elderly are less willing to pay compared to the youth. These findings are in line with the findings of Dror et al (2007) in India, Asfaw et al (2008) in Namibia and Edoh and Brenah (2003) in Ghana.

In West Bengal, Mazumdar and Guruswamy (2009) assessed willingness to pay for publicly provided health care services for malaria and diarrhoea. Using ordinary least squares of multiple regression model, education and occupation were found not to

significantly influence willingness to pay for malaria and diarrhoea. Severity of illness and prior visit to a private practitioner were the main influencing factors for willingness to pay.

3.2.3 Analytical framework of the contingent valuation methods

This study will employ the contingent valuation methods to assess demand for sexual and reproductive health services among female youth. CVM is a survey based method used to estimate the value of goods that have no market prices or products whose market prices are distorted through price control. CVM is a stated-preference technique, as the individual “states” his preference. A contingent study involves asking consumers structured questions about their willingness to pay for a particular commodity with a hypothetical change in prices. Before the CVM question is asked, individuals are presented with background and explanatory material, and often asked other questions (Haab and McConnel, 2002).

WTP is elicited in different ways which include an open ended question format, a closed ended question format, a dichotomous choice question format, bidding game question format and also a payment card format. The study employed a dichotomous choice format with the base price of the SRH method followed by an open ended question format. The first technique is where an individual is asked whether he is willing to pay for a particular service at a given market price and the second part is whereby the consumers are asked directly the maximum they are willing to pay for a specified health product. Where consumers had difficulties in estimating maximum willingness to pay the bidding process was used until the ceiling price was reached (Klose, 1999).

CVM has been applied in a number of studies ranging from environmental economics to health economics. It remains one of the most important techniques with advantages over any other valuation techniques. The superiority comes in because it takes into account non-use value, such as the utility individuals derive from the existence of a good, even if they do not use it (Copper and Freeman, 1991; Hanemann, 1994)

Formally, WTP is defined as the amount that must be taken away from the person’s income while keeping his utility constant:

$$V(y-WTP, P, q; Z) \dots\dots\dots (1)$$

Where V denotes the indirect utility function, y is income, p is a vector of prices faced by the individual, and q is the quantity of goods and services to be consumed and Z is a vector of other goods and services.

Willingness to pay has been introduced in the analysis of demand of health care and utilization of medical services in order to discuss the effects on welfare and the potential for generating revenue of introducing or increasing user fees for health services (Mazumdar and Guruswamy, 2009). Usman (2013) used Tobit model to assess willingness to pay for community based health care services. CVM through willingness to pay is a concept of consumer behaviour whereby subjective desire for the consumption of a commodity becomes an objective want, only if the consumer exhibits sufficient willingness to pay for a commodity as well as possess the ability to pay for it.

In this study WTP was conducted on different sexual and reproductive health methods. Prices for different SRH methods were obtained from JSI (a USAID project involved in importation of SRH methods), Banja la Mtsogolo, pharmacies, retail shops and private clinics. An average price was calculated which was used as a benchmark for measuring willingness to pay for different SRH methods. During the survey, female youth were asked on the choice of sexual and reproductive health method followed by the dichotomous question on their willingness to pay for a particular SRH method at the prevailing average market price. The price had to be adjusted up or down depending on the response on willingness to pay using the bidding method. If the ceiling price could not be reached after three bids, maximum willingness to pay was elicited from the respondent.

Conclusion

The chapter reviewed both theoretical and empirical literature on factors affecting demand and WTP for sexual and reproductive health services. The studies investigated the role of socioeconomic variables in demand analysis. Most of the studies showed that socioeconomic and demographic factors were very instrumental in influencing WTP. Improved quality of services was also identified as another factor that increases WTP. The analytical methods which were used were simple Logit, Multinomial Logit model, Ordinary Least Squares and Tobit Models. The effects of

religion, cultural background and severity of different reproductive health problems on use of SRH were not studied. The study will therefore use Tobit Model to study demand using willingness to pay approach using contingent valuation methods. The role of socioeconomic, demographic and need factors will be investigated in this study. These factors will be analysed through an econometric model where factors affecting current utilization and choice of SRH methods will be determined.

CHAPTER 4

STUDY METHODOLOGY

4.1 Methods for analysing utilization, choice of SRH services and WTP

Simple Logit and Multinomial Logit Model were used to assess factors affecting current usage and choices of the particular sexual and reproductive health method respectively. Male condoms were used as a reference method in the model.

Willingness to pay was analysed using the Tobit model because the maximum willingness to pay was censored at zero for methods which had zero willingness to pay. OLS was not selected because it assumes that respondents with zero values do not demand for SRH methods but also inclusion of these respondents produces coefficients which are biased and inconsistent.

4.1.1 Estimation technique

The study used STATA 12 to estimate the Multinomial Logit Model. Male condoms were used as reference group in estimation of the model.

$$\text{Log}\left(\frac{P_2}{P_1}\right) = (G1) = \beta_0 + \beta_1 \text{age} + \beta_2 \text{Education} + \beta_3 \text{Income} + \beta_4 \text{Tribe} + \beta_5 \text{Denomination} \\ + \beta_6 \text{Savings} + \beta_7 \text{SRH awareness} + \beta_8 \text{Price} + \beta_9 \text{SRHExp}$$

Where G1 is preferred SRH method and four regressions were run since there are five choices on SRH method while P₂ is any preferred SRH method and P₁ is the male condom.

4.1.2 Estimation of the Tobit Model

A decision had to be made on whether WTP should be estimated either using Ordinary Least Squares or Tobit Model to predict the mean WTP. A Tobit model was opted to OLS regression because Tobit models uses even observations where the dependent variable carries zero values while OLS assumes that those not willing to

pay could be deemed not to participate in demanding for sexual and reproductive health methods. Furthermore, OLS is a misspecification by excluding those with WTP = 0 and this result to sample bias and ultimately the coefficient estimates are biased and inconsistent (Wooldridge, 2002 and Rajender Parsad and Sanju, 2012).

The Tobit Model is represented as:

$$WTP_i^* = \beta'X_i + \varepsilon_i$$

Where

$$WTP_i = \beta'X_i + \varepsilon_i \quad \text{if} \quad WTP_i^* > 0 \text{ and } 0 \text{ if } WTP_i^* \leq 0$$

X is a vector of explanatory factors in the regression, β is a vector of coefficients, WTP_i is the stated willingness to pay for the individual i .

The Tobit model assumes the error term is normally distributed and uses maximum likelihood estimates.

4.1.3 The econometric model for estimating WTP

The WTP is specified as a function of the respondent's age, income (pocket money), membership to youth club, tribe, denomination, awareness about SRH methods, personal financial savings, price of SRH method, and distance to SRH service provider, awareness about SRH problem, prior exposure to SRH problem.

WTP=

$$\beta_1 + \beta_2 AGE_i + \beta_3 INCI + \beta_4 TRIBE_i + \beta_5 DIST_i + \beta_6 DENOM_i + \beta_7 SRHAWA_i + \beta_8 PRI + \beta_9 YCM + \beta_{10} SAVE + \beta_{11} SRHSEV + \mu$$

4.2 Variables and their measurement

For the Multinomial Logit Model, the study used preferred SRH method as a dependent variable and it was unordered. This variable was categorical whereby 1 was for male condom, 2 for female condoms, 3 for pills, 4 for injectables and 5 for implants. In the estimation for the demand for SRH services Tobit Model was used and the dependent variable was WTP for different SRH methods. This was a continuous variable and was measured in Malawi Kwacha.

Explanatory variables

Respondent's age

This was a continuous variable which was captured in years. It is expected that age will influence decision on SRH method to be used. In this study age of the respondent ranged from 14 years to 25 years.

Education

The variable was also continuous and captured in years of education completed. Education level improves understanding and impacts on the choices one makes regarding SRH methods. The minimum number of years of formal education was 9 (form one) while the maximum was 15 in the university. However, the variable was dropped due to collinearity with age

Tribe

Tribe of the respondent was captured to be used as a proxy for effect of culture and estimate how it affects choices of SRH methods. There were six tribes that were captured in the course of data collection and these were Chewa, Lomwe, Ngoni, Sena, Tumbuka and Yao.

It was expected that tribe of a respondent will affect choice negatively as issues of SRH are not commonly discussed in public but also to assess if there were variations in choices of SRH methods based on tribe.

Denomination

Religion of the respondent was captured. Religion is to do with one's faith and can have a significant role in the decision making of female youth. Religion was categorized into four broad categories of Muslims, Catholics, Protestants and Pentecostals. Religion was treated as a dummy variable in the regression model, for instance 1= for being Muslim and 0 for otherwise.

Savings

Savings are believed to be an indicator of financial stability but also a measure of women's autonomy. This was a dummy variable 1 for ownership and 0 for otherwise.

Income

Since the study targeted female youth in schools, pocket money was used as a proxy for monthly income for the students. It is expected that an increase in income will influence choice of SRH method. It was regressed as a continuous variable

Awareness about SRH method

Awareness is an important aspect in decision making process of consumers. Female youth are likely to choose SRH method they are quite aware about. It was also a dummy variable where 1 for Awareness of particular SRH method and 0 for not being aware.

Severity of SRH problem

This was a dummy variable whereby respondents had to indicate what they consider as severe reproductive health problems. The reproductive health problems which were asked were teenage pregnancy, sexually transmitted infections, HIV/AIDS, gynaecologic cancer and sexual abuse. It is presumed that respondents which consider different SRH problems severe are likely to demand sexual and reproductive health services.

Cost/price of method

This was a continuous variable which captured the price of SRH method in Malawi Kwacha. The prices varied by method and the prices used were those which were reported by female youth on top of the shelf price offered at different outlets. It was hypothesized that prices affect individual's choices and quantity and quality of goods to be consumed. Thus expensive methods are unlikely to be selected

Exposure to SRH problem

This was a dummy variable and captured data on whether the respondent had ever received treatment on any SRH problem or not. It was expected that respondents who had suffered any sexual and reproductive health problem will demand for SRH methods.

Youth club membership

Membership to the youth club was a dummy variable 1 for members and zero for non-members. The variable is hypothesized to influence choice of SRH method but also willingness to pay. These youth clubs are sources of SRH methods and information and are likely to influence decision on whether to use SRH method or not.

The variables used, how they were measured and expected sign based on economic theory and empirical literature are presented in the matrix below:

Table 2: Expected signs of variables

Variable	Measurement	Expected sign
Age	Continuous	Positive
Income	Continuous	Positive
Denomination (religion)	Denomination was measured as categorical but introduced as a dummy variable. 1=Muslim, 2= Catholic, 3= protestant 4= Pentecostal	Negative
Tribe	Categorical but introduced as dummy 1= Chewa, 2= Lomwe, 3= Ngoni, 4= Sena 5= Tumbuka, 6= Yao	Negative
Severity of SRH problems	Dummy	Positive
Price	Continuous	Negative
Distance	Continuous	Negative
Exposure to SRH	Dummy	Positive
Youth club membership	Dummy	Positive

4.3 Study area, data sources and study design

The study was conducted in Lilongwe city in Malawi. The city has a population about 1,077,116 residents. The population of Lilongwe constitute a large proportion of female youth. It is estimated that 20.2% of the residents are between 15-24 years. According to the MDHS (2010), teenage pregnancy is estimated at 21% with the mean age at first birth for Lilongwe being 18.9 years. The contraceptive prevalence ratio for Lilongwe is estimated at 46.1. The area was purposively selected due to high incidences of teenage pregnancy and other reproductive health problems such as STIs and HIV/AIDS against the availability of sexual and reproductive healthcare facilities.

Culture was also considered to be an important factor which may affect demand for sexual and reproductive health services.

The 2008 population census estimated that 32% of the residents in Lilongwe are Chewas, Lomwe (18%), Yao (13.5%), Ngoni (11.5%) and Tumbuka (9%). The researcher stratified education institutions as secondary and tertiary. From this, 9 institutions were selected. Secondary and tertiary institutions were purposively selected but also public and private institutions in order to capture diversity in socioeconomic characteristics of respondents but also to ensure heterogeneity in the data collected. Once a decision was made to select private and public institutions, respondents were randomly selected in each school.

A list of students for randomly selected classes per institution was prepared where respondents were randomly selected using internet and computer based random number generator.

4.4 Sample size determination

According to the MDHS (2010), prevalence of teenage pregnancies in Malawi is estimated at 26%. To calculate the sample size the following formula which has been adopted from FAO (1990), was used:

$$n = \frac{z^2 \times p(1-p)}{e^2}$$

Description: **n** = required sample size; **z** = confidence level at 95% (standard value of 1.96) **p** = estimated prevalence of teenage pregnancy in the area; **e** = margin of error at 5%. The sample size derived from the prevalence of the population was 295 female youth, however the actual sample size targeted was 305 to cover for drop outs. In the end 302 respondents were interviewed.

4.4.1 Inclusion and exclusion criteria

The study focussed on female youth ranging from 14 years to 25 years since this is the group of youth that is very vulnerable to cases of teenage pregnancies (NYCOM, 2006, GoM, 2013) but also it is the official definition of youth in Malawi.

4.5 Interviewing process

A deliberate effort was made to recruit female research assistants in order to allow flexibility of the respondents to divulge information to their female colleagues. These research assistants were female volunteers of Family Planning Association of Malawi and were mostly used for outreach programs.

The research assistants were familiar with issues of SRH with vast experience in youth programmes. Training on the questionnaire was conducted in order to ensure that they properly understand the questionnaire but also to minimize enumerator's biases. Pretesting was done to perfect the questionnaire but also to measure the flow and suitability of the tool. Participants were provided with a thorough and detailed explanation of the study to facilitate an informed consent. The purpose and objectives of the study were explained to the participants and they were informed that they were free to participate in the study. Furthermore, they were also informed that they could withdraw from participation at any time they wish to do so during the course of the interview and no penalty would follow.

Face to face interviews with female youth were conducted using a structured questionnaire to collect both qualitative and quantitative data. Face to face interviews were preferred to ensure seriousness on the respondents, encourage probing but also to minimize errors in collection of the data. The experience of the research assistants in sexual and reproductive health was very relevant as they were able to tell if the respondent was lying and they would lead the discussion up until the sensitive information was collected. This ensured reliability and quality of the data collected

Table 3: Number of female youth interviewed by institution

LEVEL OF EDUCATION	INSTITUTION	Frequency	%
SECONDARY	Dzenza Secondary School	28	9.3
	Kaps Model School	29	9.6
	Lilongwe Girls Secondary	34	11.3
	Mitundu Secondary School	22	7.3
	Skyway Girls Pvt Secondary	31	10.3
	Vision private Secondary School	26	8.6
TERTIARY	Lilongwe Technical College	57	18.9
	Skyway University	39	12.9
	Lilongwe TTC	36	11.9
	Total	302	100

4.6 Data analysis

Data was cleaned for errors before analysis. Descriptive statistics and econometric analysis were used to analyse the data using STATA12 SE. The econometric models of Multinomial Logit for choice of SRH method and Tobit model of contingent valuation method for willingness to pay was adopted in this study for the multivariate analysis. Relevant frequencies, %ages, means and appropriate graphs were generated.

4.7 Ethical Considerations

Since human beings are entitled to human rights and need to be protected from abuse and exploitation, the proposal, data collection instruments and respondent consent forms were submitted to the National Health Sciences Research Committee (NHSRC) for review.

One of the requirements for the proposal to be submitted for review was to provide support letters from Ministry of Education Science and Technology where the sampling frame was drawn but also from the University of Malawi, Economics Department of Chancellor College where the researcher was affiliated. The researcher had also to provide consent form where respondents had to indicate willingness to participate in the study.

The proposal was reviewed and all members of the committee approved the study. A written letter of approval was provided. The implementation of the study began after the proposal was reviewed and approved. It was not necessary to seek parental/guardian approval or consent since seeking their approval could be a violation of their sexual and reproductive health rights as well as denying them access to information and services.

4.8 Chapter conclusion

This chapter focussed at the analytical framework, specification of the Multinomial Logit model and Tobit Model, definition of variables, study area, data sources. Issues of sample size determination and data analysis and ethical considerations were also presented.

CHAPTER 5

RESULTS AND DISCUSSION

5.1 Descriptive analysis of the respondents

Table 4 on the next page gives a measure of the dispersion of some of the variables for the respondent. It provides a summary in terms of the means, standard deviations, minimum and maximum number of observations. In terms of age the youngest respondent was found to be 14 years while the oldest was 25 years with an average of 18 years. Education wise, the mean number of years of education completed was 12 with 9 being the minimum and 17 being the maximum. The distribution of income which mainly was in a form of pocket money was much skewed. The minimum level of annual income was MK27000 while the maximum was MK450000. The average monthly income for the respondent was MK78646 with a standard deviation of MK75010.

The results showed that respondents from five major tribes were interviewed. About 33% of the respondents were Chewas followed by Ngonis (19%), Tumbukas (16%), Lomwes (13%) and Yaos (11%). This result showed that the sample was drawn from diverse cultures which may have a bearing on demand for sexual and reproductive health services. In terms of denomination, the majority of the respondents were Protestants (51%) followed by Pentecostal (19%) and Catholics (17%). Muslims constituted about 10% of the sample size. The sample proportion on tribe and denomination were also in line with the findings of the 2010 MDHS. The study captured stated maximum willingness to pay for different sexual and reproductive health methods. Maximum willingness to pay ranged from zero up to MK20000. The findings indicated that female youth were willing to pay higher user fees compared to shelf prices for all the methods except for implants. The calculated average price for implants was MK 2650 against MK5000 which Banja la Mtsogolo charges.

Table 4: Summary statistics of the key variables

Variable	N	Mean	Std dev	Minimum	Maximum
Age	300	18.55	2.974	14	25
Education	301	11.95	1.482	9	17
Income	301	78646	75010	2700	450000
Chewa	102	0.338	0.474	0	1
Lomwe	41	0.136	0.343	0	1
Ngoni	57	0.189	0.391	0	1
Sena	10	0.033	0.179	0	1
Tumbuka	49	0.162	0.369	0	1
Yao	34	0.113	0.316	0	1
Catholic	51	0.172	0.377	0	1
Protestants	155	0.522	0.500	0	1
Pentecostal	57	0.192	0.394	0	1
Muslim	31	0.104	0.104	0	1
WTP male condom	88	148.30	181.413	0	1000
WTP female condom	47	406.17	893.716	0	5000
WTP pills	39	458.97	329.248	0	2000
WTP emergency pills	7	1257.14	875.323	0	3000
WTP injectables	37	656.76	381.183	0	2000
WTP implants	70	2642.14	2798.390	0	20000
Distance (km) to SRH provider	285	3.42	11.30	0.01	100

5.2 Awareness of sexual and reproductive health methods and problems

The study findings indicated that about 98% of the overall sample was aware of at least one sexual and reproductive health method. Male condoms were the most popular cited by about 93% of the respondents followed by female condoms (81.5%). Emergency pills were the least known as cited by about 57% of the respondents. Level of awareness about other sexual and reproductive health methods is summarized in Figure 4.

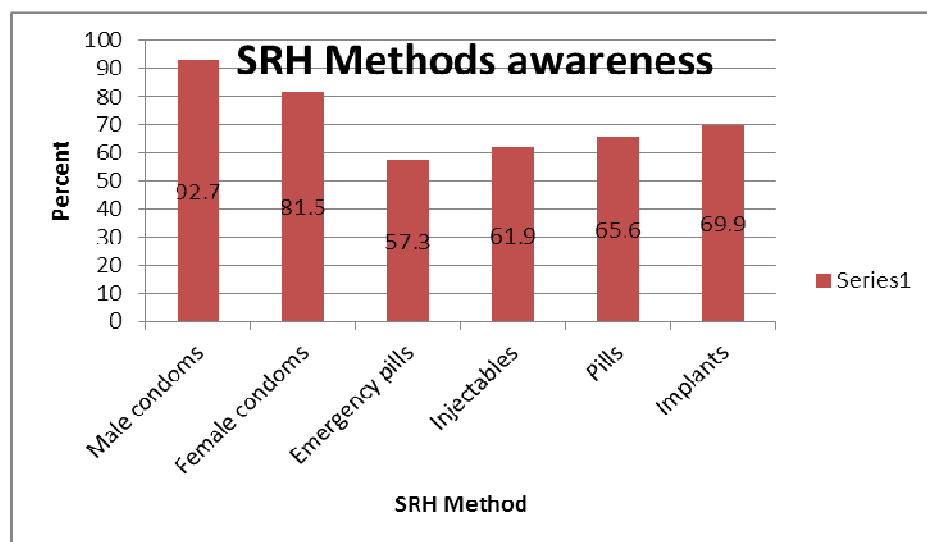


Figure 5: Awareness of SRH methods

Source: Survey data, 2015

5.3 Knowledge about sexual and reproductive health problems

Level of awareness for reproductive health problems did not vary by education level apart from gynaecologic cancer. Respondents from tertiary institutions had higher level of awareness about gynaecologic cancer (58%) than those in secondary schools (35%).

Table 5: Awareness of SRH problems

	Awareness of different Sexual and Reproductive Health problems (%)		
SRH method	Secondary	Tertiary	Total
Sexually transmitted infections	97.6	97.7	97.7
Gynaecologic cancer	34.9	58.3	45.2
Unwanted pregnancy	95.3	98.5	96.7
HIV/AIDS	97.6	94.7	96.3

Source: Own calculations from survey data

Respondents were also asked to rank two important sexual and reproductive health methods in terms of severity. About 45% of the respondents reported that unwanted pregnancies were the most serious problem followed by HIV/AIDS (30%). Sexually transmitted infections were the least in terms of ranking. However, when multiple responses was used to analyse overall important sexual and reproductive health problem, HIV/AIDS was singled out as the most important health concern by 84% of the respondents while unwanted pregnancies were second with 67%. The ranking of different sexual and reproductive health problems and their overall score are summarized in the table 6 below

Table 6: Perception of seriousness of SRH problems

Sexual and reproductive health problem	Rank of SRH problem (%)		Overall
	Most serious	Second most serious problem	
Sexually transmitted infections	7.6	12.0	19.6
Gynaecologic cancer	13.6	9.3	22.9
Unwanted pregnancies	45.5	21.9	67.4
HIV/AIDS	29.9	54.2	84.1

Source: Own calculations from survey data

An analysis of severity of SRH problems by age showed that changes in demographics have an important role in determining what female youth consider as more important SRH problem. This has been well demonstrated by all the SRH problems. In the case of STIs, proportion of respondents citing STIs was declining as one progressed in terms of age. This meant that there was growth in knowledge stock about STIs and their preventive and curative treatment and reduced fear of the infection. The level of awareness was found to be low in respondents under 16 years for gynaecologic cancer hence low proportion of female youth citing the problem. However, in the second age bracket (16-20 years), there was an increase in proportion of female youth citing gynaecologic cancer as a health concern from 18.6% to 26.8%. In the third category, the proportion declined to 16.5% which was below the youngest age group (Table 6). Unwanted pregnancies were cited as major SRH problem by respondents under the age of 16 years. However, the proportion declined in the second category to 64.8% then rose again to 70.8%.

This could be attributed to the fact that female youth at the peak of adolescence do not seriously consider unwanted pregnancies as a major problem up until they are 20 years and above. This also explains why there are increased cases of unwanted pregnancies at the peak of adolescence as most female youth fall pregnant during this age category (MDHS, 2010). The situation is different for HIV/AIDS. The proportion of female youth citing HIV/AIDS increased with age and increased by almost 10 %age point from 81% to 91%. This shows how serious the HIV/AIDS pandemic is to most female youth and the country at large.

Table 7: Severity of SRH problem by age

	Proportion (%) of respondents with identified SRH problem by age category (years)		
SRH problem	Under 16	16-20	21-25
Sexually transmitted infections	27.9	18.4	17.7
Gynaecologic cancer	18.6	26.8	16.5
Unwanted pregnancies	72.1	64.8	70.9
HIV/AIDS	81.4	81.6	91.1

Source: Own calculations from survey data

5.4 Bivariate analysis on use of sexual and reproductive health methods

The study findings indicate that about 65% of the sample was in a sexual relationship during the period of the survey of which 81% were in tertiary education institutions while 52% were in secondary education institutions. About 11% of the respondents had a break-up at the time of the interview. Overall the study findings showed that 73% of the respondents were involved in sexual activity. Use of reproductive health methods during last sexual activity was reported by 78% of the female respondents with only 48% using reproductive health methods consistently.

5.4.1 Relationship between age and SRH use

The study findings indicated that there is a positive relationship between use of SRH methods and age as summarized in table 8 below. Proportion of female youth using SRH increased with age across all age categories. The %age of youth using SRH method was very high in female youth who are in the age bracket of above 21 years compared to those who are under 16 years.

Increase in age is associated with other economic opportunities apart from adolescence demands which include sexual relationships.

Table 8: Relationship between age and SRH methods use

		% Use of SRH method	
Age group	N	No	Yes
Under 16 years	3	33.3	66.7
16-20 years	65	26.2	73.8
21-25 years	54	13.0	87.0
Total	122	20.5	79.5

Source: Own calculations from survey data

The disaggregated results by education level are presented in table 9 below. The results show an increasing trend in use of sexual and reproductive health methods as the level of education of female youth increases.

Table 9: Use of SRH methods by education level

		% Use of SRH method	
Education level		No	Yes
Form 1		50.0	50.0
Form 2		20.0	80.0
Form 3		28.6	71.4
Form 4		12.5	87.5
Tertiary		20.0	80.0
Total		20.5	79.5

Source: Own calculations from survey data

5.4.2 Relationship between SRH method use and religion

The survey results on SRH methods use during last sexual intercourse by religion indicated that there was high usage of SRH methods among Muslims, Catholics and Protestants and slightly low among Pentecostals. High proportion of SRH use was observed among Protestants.

Table 10: Use of SRH methods by religion

		Use of contraceptives by religion (%)	
Religion	Number of observations	No	Yes
Muslims	10	20	80
Catholics	22	22.7	77.3
Protestants	64	15.6	84.4
Pentecostals	26	33.3	66.7
Total	122	20.7	79.3

Source: Own calculations from survey data

5.4.3 Relationship between SRH method use and Income

The results show some weak pattern in terms of use of SRH and income quartile as presented in table 11 below. Use of SRH methods increases as there is a shift from quartile 1 to quartile 2. However, the trend slightly changes from quartile 2 to quartile 4 which shows a decline. The largest number of non-users of SRH methods is in quartile 4 and quartile 1.

Table 11: Use of SRH method and Income relationship

Income level	No of obs	Use of SRH method	
		Non use	Used
Quartile 1	21	19.0	81.0
Quartile 2	24	8.3	91.7
Quartile 3	10	10.0	90.0
Quartile 4	67	26.9	73.1

Source: Own calculations from survey data

5.5 Reproductive health methods used and their sources

It was also important to analyse the methods which were commonly used by female youth. The results showed that male condoms were the widely used sexual and reproductive health method. This method was reported by 80% of the respondents of which the majority were in secondary schools. High use of male condoms could be attributed to their wide availability but also affordability due to their low prices

(MK50) for the cheaper brands. Use of effective methods against pregnancies was reported very low among female youth in secondary schools.

Table 12: Common SRH methods used

	Use of SRH method by education level (%)		
SRH method	Secondary	Tertiary	Total
Male condoms	91.2	75.3	80.2
Female condoms	2.9	3.9	3.6
Emergency pills	5.9	2.6	3.6
Injectables	0	5.2	3.6
Pills	0	5.2	3.6
Rhythm	0	5.2	3.6
Implant	0	2.6	1.8

Source: Own calculations from survey data

Sources of SRH methods affect the nature of demand. Generally, it is expected that free SRH methods will pull the demand among most youths; however, the situation seems to be different. Where free services are offered, the question of waiting time arises in the delivery of health care services. The results showed that about 75% of the respondents obtained SRH methods in facilities where they charge user fees while the remaining proportion obtained the services for free. The facilities where respondents obtained SRH methods at a fee included retail outlets (37.4%), pharmacies (31.3%) and private clinics (7.1%). The other sources of SRH methods are presented in the chart 5. The fact that most female youth are paying for SRH services implies that resources through subsidization are being directed where they are not required and refutes the notation that female youth cannot afford to pay for such services.

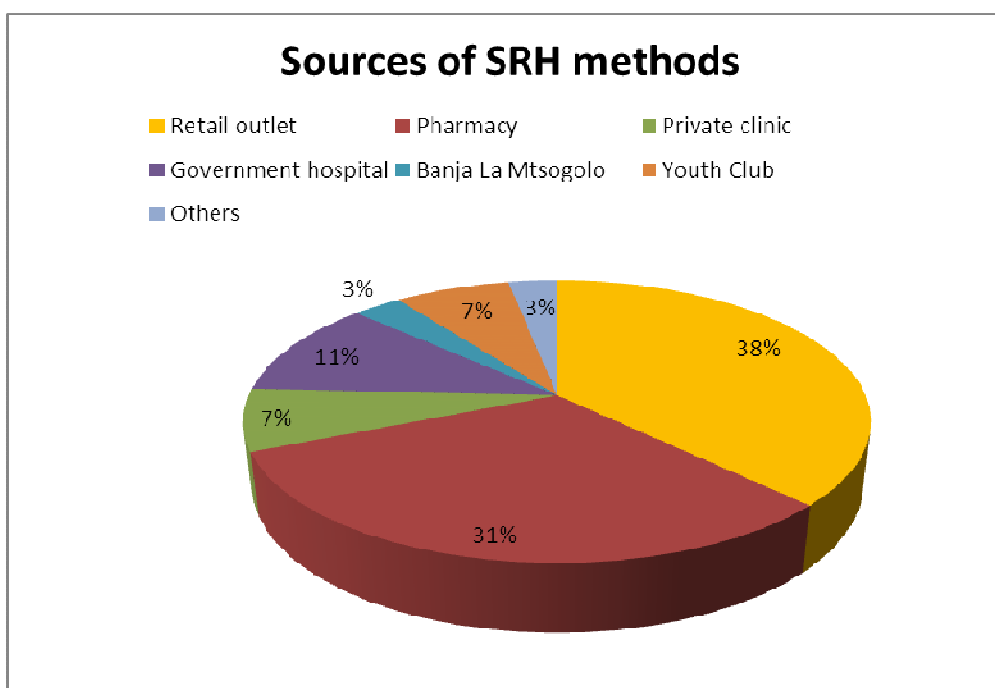


Figure 6: Important sources of SRH methods

5.6 Willingness to pay for SRH methods

Table 12 presents the mean maximum willingness to pay for different SRH methods. The results showed that majority of female youth are willing to pay for SRH methods. High proportions were observed on male condoms (90%), injectables (89%) and implants (81%). However, pills were the least in terms of willingness to pay. The calculated mean willingness to pay for different SRH methods is above the price which has been indicated in parentheses in table 13 below.

Table 13: Willingness to pay for various SRH methods

SRH METHOD	Willingness to pay (%)		
	No	Yes	Max. WTP
Male condoms (MK 50)	9.1	90.9	118.24 (85.23)
Female condoms (MK 150)	25.4	76.6	208.86 (133.46)
Pills (MK400)	35.7	64.3	402.70 (192.55)
Injectables (MK500)	10.3	89.7	594.29 (275.41)
Implants (MK2000)	18.3	81.7	2090.15 (1187.54)

Source: Own calculations from survey data

5.7 Factors affecting current utilization, choice of SRH and willingness to pay for SRH

This section presents the findings of regression results for simple Logit model which was done to assess factors affecting current utilization of SRH methods. Multinomial Logit model was modelled to assess the factors affecting choice of a specific SRH method while Tobit model was used to assess the factors affecting willingness to pay for SRH methods. The stated maximum willingness to pay was modelled as a dependent variable of a function of different explanatory variables in the Tobit model.

5.7.1 Econometric results for factors affecting current usage of SRH method

Table 14 presents the results of the Logit model which was estimated to assess the factors affecting current use of SRH methods. The results indicated that the simple logit model was statistically significant at 1% level of significance. Decision to use SRH methods is affected by a number of socioeconomic characteristics such as age, tribe, income, respondent's prior experience to SRH problem and peer's prior experience to SRH problem. These variables were statistically significant.

Age of the respondent was found to be significant at 5% and 1% for female youth of 16-20 and 21-25 years respectively. Age of the respondent determines the level of maturity but also increases access to different forms of capital. An increase in age by one year is likely to increase the probability of using SRH methods by 42% and 78% among female youth of 16-20 years and 21-25 years respectively. As for income, an increase in cash income by MK1000 will increase probability of using SRH methods by 4% and this result was significant at 10% level of significance.

Tribe of the respondent was found to be insignificant with current use of SRH methods although it was positively correlated. This implies that traditionally no tribe deliberately encourages female youth to use SRH methods despite different cultures having initiation ceremonies for female youth as they attain puberty. The positive relationship between current usage and tribe of female youth is in contrast to the Malawian tradition whereby Malawian culture does not openly discuss SRH issues. Nevertheless, the results showed that belonging to Lomwe and Chewa tribes increased probability by 53%. While membership to youth clubs was expected to increase probability of current SRH use, the results showed that it reduced probability

of current use by about 47%. This could be justified by youth programmes such as Youth Alert, Edzi Toto and Why Wait which promote abstinence.

The study also explored how exposure to SRH problem encouraged current of SRH methods. The results showed that female youth who once received treatment on SRH problems were likely to use SRH and the probability increased by 34%. The results are statistically significant at 1% level of confidence. The situation was also the same for female youth who knew about a colleague (peer) who suffered from any SRH problem. The situation also increased current usage by 14% and the results were significant at 1% level of significant.

The other factors which increase probability of using SRH method but were not statistically significant are awareness about SRH methods, youth club membership, knowledge about different sexual and reproductive health problems and religion minimizes probability of using SRH methods. Distance to SRH provider and price of SRH method were statistically significant in reducing probability of current usage of SRH methods by 34% and 28% respectively. The results are presented in table 14 below

Table 14: Logit model of Current use of SRH method

Explanatory variable	Use of SRH methods	
	Coefficients	P> z
Age	1.4266*	0.068
Youth club membership	-0.4727	0.186
Chewa	1.4574	0.179
Lomwe	1.8335*	0.104
Ngoni	1.1400	0.296
Sena	1.6561	0.251
Tumbuka	0.5965	0.590
Yao	1.1330	0.354
Catholic	-0.4055	0.587
Protestant	-0.5033	0.464
Pentecostal	-0.3295	0.653
Income	3.89e-06 *	0.068
Savings	0.7277**	0.030
SRH method awareness	0.1099	0.186
SRH problem awareness	-0.3458	0.563
Respondent exposure to SRH	1.3396***	0.002
Peer exposure to SRH	1.1498 ***	0.001
Price	-0.2804*	0.078
Distance	-0.3421**	0.043

***significance at 1%, **significance at 5%,* significance at 10%

Number of obs = 268 LR chi2(18) = 83.16 Prob > chi2 = 0.0000

Log likelihood = -130.79323 Pseudo R2 = 0.2412

5.8 Econometric results for Socioeconomic factors affecting choice of SRH method

The model was estimated to assess the probability of an individual's choice of a specific SRH method from a pool which is being offered on the market. Choices about SRH methods are made with influence from demographic, social, and economic determinants among other important factors. Table 15 present the different factors that affect probability of an individual to choose a particular SRH method. The results indicated that the model is statistically significant at 5% level of significant. In the estimation of the model, male condoms were used as a base reference.

Table 15: Factors affecting choice of SRH method

	Female condom		Pills		Injectables		Implants	
Variable	Coefficients	P> z	Coefficient	P> z	Coefficient	P> z	Coefficient	P> z
Age	0.6101*	0.094	0.1049*	0.072	0.2257*	0.068	0.0029	0.993
Income	-7.91e-06**	0.039	1.40e-06*	0.0600	8.46e-08*	0.077	1.53e-06*	0.072
Ownership of savings	0.1693	0.701	.3102	0.460	.5700	0.236	0.2549**	0.049
Chewa	-0.9009	0.504	-1.2796	0.991	-0.1470	0.922	-1.4261	0.236
Lomwe	-1.5660	0.268	-1.0734	0.991	-1.1032	0.486	-2.2346*	0.075
Ngoni	-1.6486	0.224	-1.4958	0.991	-2.9628*	0.099	-1.5794	0.189
Sena	-0.2582	0.879	-0.6077	1.000	-0.0823	0.966	-1.1998	0.439
Tumbuka	-2.0625	0.148	-1.8482	0.991	-0.4831	0.752	-1.9595	0.112
Yao	-.7999	0.595	1.9336	0.991	-2.2202	0.199	-2.3581*	0.083
Catholic	-1.6879	0.150	-0.1274	0.891	-2.4967**	0.018	-0.2491	0.756
Protestants	2.0183*	0.069	0.1693	0.840	-1.7742**	0.049	-0.1343	0.857
Pentecostal	2.1913*	0.057	-0.4694	0.631	-1.7097*	0.082	0.0392	0.961
SRH method awareness	0.5653	0.140	0.0762	0.463	0.0205	0.859	0.2193**	0.021
SRH problem awareness	2.0272	0.115	1.1237	0.403	0.6620	0.163	0.4341***	0.013
Exposure to SRH problem	-0.0923	0.856	0.1890	0.702	-0.2706	0.594	-0.8539**	0.036
Price	-0.1624**	0.046	-0.1975*	0.101	-0.3152**	0.026	-0.4125**	0.042
Distance	0.0912	0.164	-0.312	0.128	0.2611*	0.074	0.3254*	0.079

Source: Own calculations from survey data

Number of obs = 267, LR chi2(72) = 94.49, Prob > chi2 = 0.0390, Log likelihood = -369.07811

Pseudo R2 = 0.1135

Interpretation of the results

Age of the respondent: This variable was found to be significant and had a positive sign for female condoms, pills and injectables at 10% level of significance but insignificant for implants. This shows that an increase in age increases the probability of choosing these methods as opposed to implants. This entails that choice of implants over male condoms as an SRH method is not affected by age.

Income of the respondent: The statistical significance and positive sign for income means that choice of pills, injectables and implants increases with an increase in level of income. However, the increase in income had a negative effect on the choice of female condoms. Female youth who had higher income are likely to switch from female condoms compared male condoms to reliable methods such as injectables and pills.

Ownership of savings: This variable was found to be significant for implants only and had a positive sign. This means that ownership of some savings increases probability of choosing implants as compared to male condoms. Savings was insignificant for SRH methods such as pills, female condoms and injectables due to their low cost which may not require one to save in order to access the alternative SRH methods as opposed to male condoms.

Tribe of the respondent: The variable was insignificant and had a negative sign for female condoms, pills and injectables. However, Ngoni, Tumbuka and Yao tribes were significant for implants. This means that being a Ngoni, Yao and Tumbuka reduces probability of female youth choosing implants as an SRH method. The negative sign across all the methods implies that Malawian tribes reduce probability of female youth to take part in family planning.

Religion of the respondent: Religion of the respondent carried positive sign for female condoms and pills and negative sign for injectables and implants. This shows that probability of choosing female condom increases by being a protestant and Pentecostal. These results were statistically significant for female condoms among Protestants and Pentecostals. Injectables were not likely to be selected among female

youth of all religious groupings and these were significant at 1%, 5% and 10% level of confidence for Catholics, Protestants and Pentecostals respectively.

Awareness about SRH method: This variable had a positive sign and significant for implants and insignificant for female condoms, pills and injectables. Respondents who are aware about implants are likely to select this method as compared to male condoms. Awareness about pills, female condoms and injectables had no effect on their choices compared to male condoms. Increased awareness about implants increases probability of choosing implants by 21% as compared to male condoms.

Awareness about SRH problems: This variable carried a positive sign and was only significant for female condoms and implants. This means that awareness of about any of the reproductive health problems increased probability of use of any SRH method. This entails that female youth are confident on the efficacy of the SRH methods to prevent SRH problems hence the positive sign of the coefficients. Awareness about SRH problem had a larger effect on implants and this increased probability of female youth using implants by 43% as opposed to male condoms.

Prior exposure to SRH problem: The statistical insignificance and positive sign means that choice of the SRH is positively affected by respondent exposure to SRH problem. Respondents who were once affected by an SRH problem are likely to choose any SRH method for fear of repeated SRH problem. This result was pronounced in female youth who once fell pregnant and while using one of the SRH methods. Exposure to SRH problem will increase probability of choosing implants by 85%.

5.9 Factors affecting willingness to pay for sexual and reproductive health services

Tobit model was estimated to assess determinants of willingness to pay for SRH methods. The dependent variable, maximum willingness to pay (WTP) was regressed against different socioeconomic explanatory variables. WTP for different SRH methods was conducted and the results are presented below.

5.9.1 Willingness to pay for male condoms

Table 16 provide determinants of willingness to pay for male condoms. The table highlights variables which were significant at 99%, 95% and 90% confidence interval. The overall model was found to be significant at 1% level of significance.

Table 16: Determinants of willingness to pay male condoms

	Willingness to pay	
Explanatory variable	Coefficient	P> z
Age	.4327122	0.977
Youth club membership	147.8496**	0.025
Lomwe	177.7994*	0.060
Ngoni	332.6588***	0.000
Sena	122.6588	0.448
Tumbuka	118.547	0.152
Yao	338.3257	0.131
Catholics	-144.2881**	0.041
Protestants	-188.8192**	0.026
Pentecostals	-43.6271	0.593
Income	0.0058**	0.048
Savings	44.1868	0.523
SRH method awareness	-124.3953	0.525
Gynaecologic cancer	237.3514	0.143
Pregnancies	96.37021**	0.044
HIV/AIDS	217.4612**	0.032
Cost	-0.0262	0.769
Distance	-8.5825	0.505

Source: Own calculations from survey data

***significance at 1%, **significance at 5%, * significance at 10%

Number of obs = 76 , *LR chi2(18)* = 41.30, *Prob > chi2* = 0.0014

Log likelihood = -153.5609 *Pseudo R2* = 0.1185

21 left-censored observations at $G4 \leq 0$, 55 uncensored observations

Interpretation of the results

Age of the respondent: The positive coefficient of age indicates that an increase in age increases willingness to pay for male condoms although it is statistically insignificant. This entails that we can accept the null hypothesis that age of the female youth does not affect willingness to pay for male condoms.

Membership to a youth club: The statistical significance and positive coefficient for membership to a youth club means that WTP increases with membership to a youth club. Membership was found to increase willingness to pay for male condoms by MK148. This result is statistically significant at 5% level of significance. We can therefore reject the null hypothesis that membership to youth club does not affect willingness to pay.

Tribe: All the tribes were found to be increasing willingness to pay for male condoms. However, the Ngonis had higher willingness to pay followed by Lomwes at 1% and 10% confidence interval. By being a Ngoni, the WTP for male condoms was MK330 while for the Lomwe respondents it was MK180. Willingness to pay for the Yaos was also high (MK330) but insignificant. This insignificance can be attributed to small sample size for the Yaos.

Religion: Respondents were put into four broad categories of denominations of Muslims, Catholics, Protestants and Pentecostals. Muslims were used as a base group. The results showed that religion decreased WTP at 5% for Catholics and Protestants. However, the results were not significant for Pentecostals. The null hypothesis that religion does not affect willingness to pay is rejected. These results are consistent with a priori that religion discourages use of SRH methods as doing so will be deemed as encouraging fornication.

Income: The results showed that an increase in level of income increases willingness to pay for male condoms and this was significant at 5% confidence interval. This result also implies rejection of the null hypothesis that income does not affect WTP. However, the rate at which an increase in income increased WTP is very low implying that WTP for male condoms is inelastic to increase in income.

Personal financial savings: In comparison to respondents without personal savings, ownership of savings was found to be another determinant that increased WTP although it was statistically insignificant. Savings increases WTP by MK44.00 and we can accept the null hypothesis since male condoms are cheaper and one does not need to save in order to buy male condoms.

Awareness about male condoms: This variable was found to decrease willingness to pay for male condoms and the results was statistically insignificant. Although a priori, awareness was expected to increase WTP the results show that awareness about male condoms has no bearing on their WTP among female respondents.

Severity of SRH problem: Using sexually transmitted infections as basis for comparison, fear of getting pregnant and contracting HIV/AIDS were found to be significant determinants increasing WTP for male condoms by MK96.00 and MK217.00 respectively at 5%. Fear of contracting gynaecologic cancer was also increasing WTP although it was insignificant. In view of this we can reject the null hypothesis for pregnancy and HIV/AIDS while accepting one for Gynaecologic cancer.

Cost of male condoms: Increasing the cost of male condoms was found to decrease WTP although the results were not significant at 10%. We can therefore reject the null hypothesis. However, this result should be treated with caution as a price increase beyond a certain threshold can significantly affect WTP

Distance from access point: Results on distance from point of sale indicate that longer distance reduce WTP for male condoms. The results were statistically insignificant. Increasing distance by one kilometre will reduce WTP by MK8.00

5.9.2 Willingness to pay for female condoms

Willingness to pay for female condoms is affected by several factors. These factors were tested to assess their significance. The results of willingness to pay for female condoms and its interpretation are presented in table 17 below. The model was statistically significant at less than 1% level of confidence.

Table 17: Willingness to pay for female condoms

	Willingness to pay for female condoms	
Explanatory variable	Coefficient	P> z
Age	0.3806535	0.878
Youth club membership	-39.40519***	0.005
Lomwe	-31.05927*	0.104
Ngoni	-28.3423	0.127
Sena	-17.60502	0.637
Tumbuka	-5.190269	0.784
Yao	-17.27616	0.720
Catholics	-27.2441	0.189
Protestants	-22.3574	0.213
Pentecostals	-14.04039	0.465
Income	-0.0008064	0.211
Savings	-17.2584	0.241
SRH method awareness	-16.76703	0.744
Gynaecologic cancer	3.110986	0.913
Pregnancies	272.1364***	0.001
HIV/AIDS	-57.79922*	0.063
Cost	-0.0017436	0.857
Distance	-0.2845137	0.551

Source: Own calculations from survey data

***significance at 1%, **significance at 5%, * significance at 10%

2 left-censored observations, 74 uncensored observations

Number of obs = 76, LR chi2(26) = 104.16, Prob > chi2 = 0.0000,
Log likelihood = -387.41033 Pseudo R2 = 0.1185

Interpretation of the model

Age of respondent: The study results show that WTP increases as age of the respondent increases. However, the hypothesis was tested and the results were not statistically significant. Based on these results we can therefore accept the null hypothesis that age increases WTP for female condoms.

Membership to a youth club: Youth clubs play an important part in creating awareness about SRH programs. These are also sources of SRH methods. The findings indicated that membership to youth clubs decreases willingness to pay by MK39.00. These results were significant at $p < 0.001$. It can therefore be argued that we reject the null hypothesis that WTP for female condoms is not affected by youth club membership.

Tribe of the respondent: The study found that tribe decreases willingness to pay for SRH methods. All the tribes had a negative willingness to pay. The results were tested and found to be significant at 10% significance level for female youth who were of Lomwe tribe. Respondents who were Lomwe, Ngoni and Yaos reduced WTP by MK31.00, MK28.00 and MK17.00 respectively.

Religion: The results showed that willingness to pay decreased among all religious groupings. However, these results were not statistically significant and therefore the null hypothesis that religion does not affect WTP can be accepted.

Savings and income: Ownership of personal savings and an increase in the respondent's income were found to be affecting WTP for female condoms negatively. This may imply that increased income is allocated to other uses where utility is high but also it may be invested in other ventures where returns are better. Furthermore, an increase in income may trigger female youth to demand better SRH methods than female condoms.

Awareness about female condoms: The results showed that awareness about female condoms reduces WTP. Although it is expected to increase WTP, the situation appears different. This could be attributed to misconceptions associated with female

condoms but also difficulties in using female condoms as reported by other female respondents during interviews could be affecting WTP.

Severity of SRH problems: Respondents' perception about SRH problems affected willingness to pay for female condoms. The survey results showed that fear of getting pregnancy increased willingness to pay by MK270 while the fear of HIV reduced willingness to pay by MK58.00. These results were significant at p-value of 1% and 10% respectively.

Distance to access point and price of female condoms

Increasing price of female condoms and distance to the point where female condoms are accessed decreased willingness to pay and the results were not significant even at 10%.

5.9.3 Willingness to pay for oral combined contraceptives (pills)

The model was estimated to assess willingness to pay for oral combined contraceptives (pills). These variables included demographic, social, economic and exposure to SRH problems. As for WTP for pills, three variables were significant and these were tribe (Lomwe in particular), fear of contracting HIV/AIDS and distance.

Table 18: Willingness to pay for pills

	Willingness to pay for pills	
Explanatory variable	Marginal effect	P> z
Age	-10.4233	0.161
Youth club membership	-21.1020	0.592
Lomwe	-98.7290*	0.061
Ngoni	-43.1457	0.400
Sena	-112.3828	0.300
Tumbuka	-24.9593	0.623
Yao	-86.5908	0.537
Catholics	-42.1586	0.241
Protestants	-68.1812	0.170
Pentecostals	-11.2897	0.831
Income	0.0005	0.793
Savings	-55.0330	0.206
SRH method awareness	21.9098	0.605
Gynaecologic cancer	-99.0180	0.255
Pregnancies	24.4883	0.713
HIV/AIDS	-96.9087*	0.090
Cost	0.0217	0.449
Distance	4.7465 ***	0.001

Source: Own calculations from survey data

***significance at 1%, **significance at 5%, * significance at 10%

Number of obs = 76, LR chi2(24) = 35.09, Prob > chi2 = 0.0470,
 Log likelihood = -467.88488 Pseudo R2 = 0.0961

Interpretation of the results

Tribe of the respondent: The study results indicated that tribe reduced willingness to pay for pills among female youth. The variable was significant for Lomwe respondents whereby WTP declined by MK98.00. The trend was the same for the other tribes however; the p-value was not statistically significant.

Severity of SRH problems: The severity of the impact of HIV/AIDS negatively affected WTP for pills. The effect of HIV/AIDS reduced willingness to pay for pills by MK97.00. This could be explained considering that pills are for preventing pregnancy so female youth will be demanding a method that is dualistic in nature by preventing pregnancy and HIV/AIDS. We can reject the null hypothesis that HIV/AIDS does not affect WTP for SRH methods at 10% significance level.

Distance to access point for SRH: The results showed that an increase in distance to the point where SRH services are accessed increases willingness to pay. Female youth would be willing to pay for pills offered in distant healthcare points than collect the pills in the neighbourhood. This is done to protect themselves from being labelled as immoral and deviants since sex and family planning methods are considered to be for the married. The variable was significant at 1% significance level and not only rejects that distance has no effect of demand for SRH method but also the results indicate that privacy of health seekers is an important issue.

5.9.4 Willingness to pay for injectables

The model for WTP for injectables was significant at 1% level of significance with a number of variables that were statistically significant. An interview with key informants at BLM and FPAM indicated that female youth preferred injectables to other SRH methods.

Table 19: Determinants for WTP for injectables

	Willingness to pay for injectables	
Explanatory variable	Coefficient	P> z
Age	91.7867*	0.096
Youth club membership	-449.7753*	0.073
Lomwe	-1182.1110	0.142
Ngoni	-1182.1110 ***	0.016
Sena	-101.8717	0.868
Tumbuka	-59.7490	0.832
Yao	-1445.5820***	0.016
Catholics	-1774.5951***	0.007
Protestants	-1526.8860***	0.007
Pentecostals	-1403.4480***	0.011
Income	0.0262**	0.052
Savings	514.1856 **	0.050
SRH method awareness	466.2868**	0.051
Gynaecologic cancer	453.4609	0.414
Pregnancies	262.3924	0.590
HIV/AIDS	893.6793*	0.079
Cost	355.4215	0.128
Distance	488.2561	0.059

Source: Own calculations from survey data

***significant at 1%, **significant at 5%, * significant at 10%

Number of obs = 267, *LR chi2(20)* = 58.75, *Prob > chi2* = 0.0000

Log likelihood = -326.04356 *Pseudo R2* = 0.0826

Interpretation of the model

Age of respondent: The variable was found to be significant and positive. An increase in age by one year increased WTP by MK91.79.

Education of parent: While education level is considered as an important factor in increasing WTP, parents' education was significant in reducing WTP for injectables. This implies that parents who educated will reduce willingness to pay by MK1270.

Youth club membership: The statistical significance and negative sign for this variable means that WTP for SRH methods decreases with membership. This finding is inconsistent with a priori that membership should have a positive sign. This shows that female youth clubs discourage youth from promiscuous behaviour and promotes abstinence. The negative sign may also come as a result of HIV/AIDS since injectables are only effective against pregnancy.

Tribe: The variable had a negative sign which means that all the respondents regardless of their tribe were less willing to pay for injectables. However, the results were quite significant among the Ngonis and Yaos at 5% level of significance.

Religion: The negative sign on religion showed that religion of the respondents reduced willingness to pay for injectables. This result was significant for all denominations at 1% level of significance.

Income and savings: These variables had positive coefficients and were significant at 5% level of significance. A 1% increase in income will increase willingness to pay by 0.02% while ownership of financial savings will increase WTP for injectables by MK514.

Awareness about SRH problem: The variable was not significant apart from HIV/AIDS. However, all of them carried positive sign which means that awareness of an SRH problem will increase WTP for injectables. HIV/AIDS increases WTP by MK893.

Awareness about injectables: The statistical significance and positive coefficient implies that awareness increases WTP for injectables by MK470. This means that female youth who are aware about injectables are likely to increase their WTP.

CHAPTER 6

CONCLUSION AND POLICY RECOMMENDATION

6.1 Summary and conclusions

This study used contingent valuation method (CVM) to elicit willingness to pay for SRH services for female youth studying in secondary and tertiary institutions of Lilongwe and Tobit model was used to assess determinants of willingness to pay for SRH services. Additionally, the study also assessed factors affecting current usage of SRH services and factors that may affect an individual's choice of SRH method.

Current usage of SRH is positively affected by age of the respondent, respondent's prior exposure to SRH problem, exposure of peers to SRH problem, tribe, savings and income. However, SRH use as a result of a change in income was found to be low especially for female condoms and male condoms. SRH usage is further discouraged by youth club membership in schools, religion and knowledge of SRH problem.

Probability of choosing a specific SRH method is positively affected by age, level of income, financial savings, knowledge about SRH problem and awareness about SRH method. It was also observed that factors such as religion, tribe, price, distance and respondent's exposure to SRH problem negatively affected probability of selecting some of the SRH methods.

The survey results indicated that about 76% of the interviewed female youth used SRH methods during last sexual intercourse from private institutions which included retailers, pharmacies and private clinics. About 81% of the respondents were willing to pay for different SRH methods. The results showed that most female youth showed WTP for male condoms (90.9%) followed by implants (81.7%). Female condoms were reported by 76%, oral contraceptive pills (64.3%) and injectables (89.7%) of the respondents.

However, effective demand is still low as only 28% of female youth paid for SRH method which was used during last sexual intercourse. Mean maximum willingness to pay ranged from MK118 for male condoms to MK 2090 for implants. The cheap shelf price for male condoms was MK50.00 while the price for implants was MK5000.00

The key determinants for willingness to pay for different SRH methods were identified. These determinants also varied by SRH method. The following socioeconomic variables were found to positively affect willingness to pay for male condoms; youth club membership, income, fear of getting pregnant, fear of contracting HIV/AIDS and tribe and in particular being from Lomwe and Ngoni tribe. On the contrary, denomination of the respondent, distance to source and cost of male condoms negatively affect willingness to pay for male condoms. We can therefore reject the null that these socioeconomic factors do not affect willingness to pay for male condoms.

WTP for female condoms was negatively affected by youth club membership, tribe (Lomwe), fear of HIV, and income. Fear of pregnancy positively affected WTP for female condoms. In view of this we can reject the null hypothesis that youth club membership, tribe, fear of HIV/AIDS and pregnancies do not affect WTP for female condoms.

WTP for injectables is positively affected by age, income, savings and awareness about injectables. Socioeconomic factors such as parent education, tribe, denomination, and youth club membership negatively affect WTP. We can therefore reject the null hypothesis that these factors do not affect WTP. WTP for pills is positively determined by distance, age, income and awareness while other socioeconomic variables such as tribe, fear of HIV/AIDS negatively affects WTP. We can therefore reject the null hypothesis that these variables are insignificant in determining WTP for pills.

Furthermore, we can also conclude that sociological factors such as tribe, religion and prior exposure to SRH problems play an important role in determination of choice of SRH method and WTP. Respondents who feared and had received treatment for a particular SRH problem ensured that they choose a method that would protect them from that SRH problem. This also affected their willingness to pay.

A general overview across all the methods shows that WTP is positively affected by age of the respondent, income, savings, prior exposure to SRH problem, and awareness about SRH method. It was also observed that religion, tribe, distance and cost of SRH method reduced WTP. The decline in demand for condoms and pills while there is an increase in income and savings show that these methods are inferior compared to injectables and implants.

Furthermore, source of SRH methods also had a significant effect on WTP as respondents who obtained SRH methods in public places were less willing to pay unlike respondents who obtained SRH methods from private hospitals, pharmacies and retail outlets.

6.2 Policy implications

Based on the results, making SRH services free does not increase demand as most of the female youth obtained SRH methods from pharmacies, retailers and private clinics where they were paying. Decision to access SRH methods in private institutions was affected by distance to the facility and waiting time. There was long waiting time in facilities where SRH services were free unlike in private facilities. In view of this, economically empowering female youth will increase the effective demand for SRH services as they will be able to pay for it.

There is subsidization of SRH services in public hospital, CHAM and BLM. Government should review its position as most female youth do not access these services in the public healthcare facilities. Non utilization of these resources from public facilities is a manifestation of allocative inefficiency. There is need to promote youth friendly SRH services in public health facilities to increase demand for SRH methods. This should be coupled with improved efficiency in service delivery. These reforms should be coupled by youthful SRH service providers.

Intensification of information, education and communication (IEC) on sexual, reproductive health and rights campaigns would increase utilization by female youth as they will be able to demand these services from their sexual partners where the partner is not willing to utilize.

Female youth must also be encouraged to consistently use SRH methods as failure to do so will result in increased cases of pregnancies and HIV/AIDS.

Introduction of user fees for SRH methods can reduce the burden on the government to support reproductive health services as most female youth indicated willingness to pay. However, care must be taken in the implementation of this policy as 15% of female relied on free SRH services and introduction of user fees may exclude this group.

6.3 Study limitations

The limitation of the study was non-inclusion of male youth in assessing demand for SRH services. It was observed that some of the decisions on which method to use were made by male counterparts and absence of this sub sample in the study brought in some information gaps.

The small sample size makes the study conclusion to be treated with caution. Increasing the sample size of the respondents for future studies will make the study draw rigorous conclusions.

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