

IMPROVING ADOLESCENT SEXUAL AND REPRODUCTIVE HEALTH: A REVIEW OF EFFECTIVENESS OF PROGRAMS IN SUB-SAHARAN AFRICA TO INFORM RECOMMENDATIONS FOR NIGERIA

Oluwadara Ajoke Ola, Nigeria

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IMPROVING ADOLESCENT SEXUAL AND REPRODUCTIVE HEALTH: A REVIEW OF EFFECTIVENESS OF PROGRAMS IN SUB-SAHARAN AFRICA TO INFORM RECOMMENDATIONS FOR NIGERIA.

A thesis submitted in partial fulfillment of the requirement for the degree of
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by

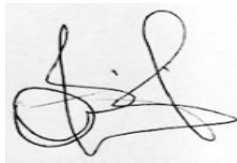
Oluwadara Ajoke Ola, Nigeria

Declaration

Where other people's work has been used (either from a printed source, internet or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements.

The thesis, "Improving Adolescent Sexual and Reproductive Health: A review of effectiveness of programs in sub-Saharan Africa to inform recommendations for Nigeria" is my own work.

Signature



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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
AU	African Union
CDC	Centre for Disease Control
CSE	Comprehensive Sexuality Education
CSOs	Civil Society Organizations
EWEC	“Every Woman Every Child”
FLHE	Family Life and HIV Education
HIV	Human Immunodeficiency Virus
HRB	Health Risk Behaviour
ICPD	International Conference on Population Development
IPPF	International Planned Parenthood Fund
LMIC	Low and Middle Income Countries
MDGs	Millennium Development Goals
MMR	Maternal Mortality Rate
MPA	Maputo Plan of Action
NDHS	Nigeria Demographic Health Survey
NYNETHA	Nigerian Youth Network on HIV and AIDS
PID	Pelvic Inflammatory Disease
SDGs	Sustainable Development Goals
SRB	Sexual Risk Behaviour
SRHR	Sexual Reproductive Health and Rights
SSA	sub-Saharan Africa
STIs	Sexually Transmitted Infections
TFR	Total Fertility Rate
TP	Teenage Pregnancy
TPB	Theory of Planned Behaviour
UNAIDS	The Joint United Nations Programme on HIV and AIDS
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children’s Emergency Fund
WHO	World Health Organisation

GLOSSARY

Adolescents: These are young people aged between 10 and 19 years. They are classified into young/early adolescents (10-14 years) and older/late adolescents (15-19 years).¹

Attitude: A learned global evaluation of a person, place or issues that influences thoughts and actions".²

Health risk behaviours: "Actions and related attitudes and perceptions that underlie someone's tendency to engage in activities associated with increased susceptibility to a specific disease or ill health".^{3,4}

Comprehensive Sexuality Education: Education based on age appropriate and relevant information on all matters related to sex and sexuality.⁵

Reproductive Health: "A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in relation to reproductive system matters."⁶

Reproductive Rights: "These are the human rights of individuals and couples to decide on the number and spacing of children they want at the best level of their reproductive health."⁶

Safer sex: A sexual practice that prevents HIV transmission and pregnancy by use of condom.

Sexual Health: "A state of physical, emotional, mental and social well-being in relation to sexuality; and not just the absence of disease, dysfunction or infirmity."⁶

SRB: Acts that increase the risk of contracting sexually transmitted infections and experiencing unintended pregnancies.⁷

Sexual Rights: "These are human rights which include the right of all persons related to sexuality and, free of discrimination, coercion, and violence."⁶

Sexuality: An individual's expression of sexual feelings.

Sexually transmitted infection: Infections caused by bacteria and viruses usually acquired through sexual contact.

Teenage pregnancy: Pregnancy occurrence in female adolescents aged 13 to 19 years.

Young people: Those aged between 10 and 24 years.¹

Youth: Those aged 15 to 24 years Sexual reproductive health and rights.¹

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To my mother, I know I have made you proud...

To my husband Oluwaseun, you made this happen and I love always...

And to my son Oluwafemi, you are the treasure I will always cherish...

ABSTRACT

Background: Nigeria is the most populous country in sub-Saharan Africa with 30 million adolescents sexually active at early age and at risk of contracting STIs or becoming pregnant (making someone pregnant in the case of boys) against their will. Both STIs and teenage pregnancy have dire health and socio-economic consequences with devastating impacts on adolescents and their future aspirations in Nigeria. Effective interventions to support adolescents make informed choices regarding their sexual and reproductive health are necessary.

The Objective of the study: To assess the current state of evidence about what interventions are most effective in preventing STIs/HIV and teenage pregnancy among adolescents in sub-Saharan Africa and make recommendations to the Federal Ministry of Health and other program planners to improve adolescent health in Nigeria.

Methodology: This study is a literature review which was carried out using peer reviewed published and grey literature. Findings were analysed using the Theory of Planned Behaviour and RE-AIM framework.

Findings: Age, gender and peer norms are strong predictors of adolescent sexual risk behaviour; huge policy and programs gaps exists in sub-Saharan Africa in comparison with international standards; multi-component interventions are more effective in targeting adolescent sexual reproductive health issues.

Conclusion: The SRHR interventions targeted at adolescent health should use a combination of evidence informed approaches and participatory needs assessments involving adolescents, their important referent persons and other relevant stakeholders for effectiveness.

Keywords: adolescents, sexual health, STI, HIV, prevention, risky sexual behaviour, sexual practice, teenage pregnancy, Nigeria, sub-Saharan Africa, Africa.

Word Count: 12,122

INTRODUCTION

Adolescent health remain in the centre of global discussions as the young people of this generation are the largest group ever.⁸ Globally, there are 1.8 billion young people of which adolescents between the ages of 10 and 19 years accounts for 1.2 billion and about 23% of this population live in sub-Saharan Africa (SSA).⁹ Compared with other regions of the world where the proportion of young people will decrease, SSA is expected to have an increasing share of young population from 18% in 2012 to 28% by 2040¹ hence their health status is of great concern as a determinant of future population health and the development of socio-economic wellbeing.¹⁰

HIV infection among other sexually transmitted infections (STIs) is a global problem among young people as one million youths are newly infected yearly worldwide; and young women in SSA account for 72% of people living with HIV.¹¹ The World Health Organization (WHO) estimates that globally, about one million cases of preventable STIs are acquired daily in people aged 15 -49 years¹² and young people aged 15 to 24 years make up 70% of STI cases.¹³ STIs increases the risk of the sexual transmission of HIV infection which is a recognised epidemic in most developing countries.¹⁴ SSA records the greatest share of early child bearing in adolescents as high as 200 births per 1000 girls aged 15 – 19 years.¹⁵ Unmarried adolescents are more likely to have unintended pregnancies and possible induced abortions.¹⁶ Teenage pregnancy (TP) and early child birth result in high maternal mortality and morbidity in adolescents with increased risk of unsafe abortion¹⁷ and adolescent girls aged 15 to 19 years account for 15% of the yearly 22 million unsafe abortion occurring worldwide.¹¹

Studies conducted in Nigeria shows that adolescents engage in risky sexual behaviours and unsafe sexual practices with challenges of undesired reproductive health outcomes such as STIs including HIV infection, unintended pregnancy, unsafe abortion and early childbearing.¹⁸⁻²⁰ Nigeria as the most populated country in SSA has a young population with over 30 million adolescents and about one third of its population under 25 years.²¹ Adolescent's peculiar needs are often not addressed because they grow out of programs planned for children and do not fit into programs planned for adults.⁹ Various efforts are in place both nationally and internationally to address the health of the adolescents particularly with the aim of leaving no one behind.⁶

Interventions have been designed to target these issues in most low and middle income countries (LMICs) including Nigeria however problems still lingers as²² the global burden of TP, STIs including HIV, unsafe abortions continue to increase through the risky sexual activities and unsafe sexual practices of young people²³ indicating that most of the interventions are successful but often times not effective.²⁴ It is important for the policy makers and other stakeholders to be aware of effective programs aimed at adolescent sexual reproductive health and rights (SRHR) issues in order to address the challenges of the adolescents in Nigeria towards a better health.

Having worked for five years as the HIV program co-ordinator in Sacred Heart Hospital Abeokuta Ogun State; managing HIV/AIDs in adolescents is tasking because care is life-long with presently no hopes of cure in Nigeria. The program also lacks comprehensive approach to care in addressing the special needs of adolescents living with HIV coupled with the physical, psychological and socio-economic effects of the disease on the adolescents, their families and communities. Hence prevention of HIV infection has been my keen area of interest which birth this thesis idea.

This thesis will focus on the review of the effective adolescent SRHR interventions targeted at STIs including HIV and TP across SSA with the aim to identify various strategies that has worked and to learn from their experiences in order to improve adolescent SRHR in

Nigeria. The findings of the study will be provide recommendations to Federal Ministry of Health, program planners and other stakeholders for the future planning and implementation of adolescent SRHR interventions.

Chapter 1 presents background information on Nigeria; Chapter 2 presents the problem statement, justification, and methodology; Chapter 3 presents analysis of the adolescent sexual risk behaviour in sub-Saharan Africa; Chapter 4 presents adolescent SRHR policies and programs in SSA and comparing with international standards; Chapter 5 presents the appraisal of effective adolescent SRHR interventions targeting STIs/HIV and teenage pregnancy in SSA; Chapter 6 presents discussion of findings and study limitations; Chapter 7 presents the conclusions and recommendation for improving adolescent SRHR in Nigeria.

CHAPTER 1 BACKGROUND INFORMATION ON THE COUNTRY

This chapter is focused on the background demographic characteristics about Nigeria and other information relevant to this study. Figure 1. Shows the map of Nigeria, its states, boundaries and geopolitical zones.

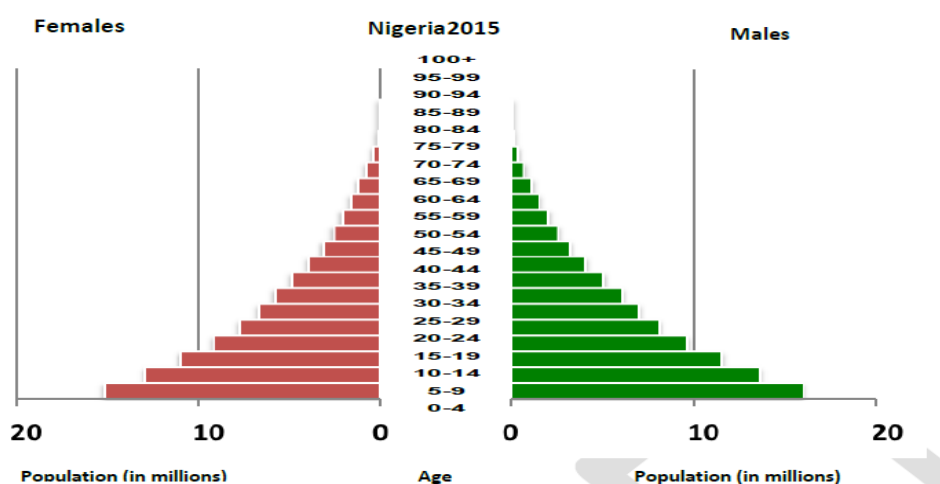


Source: National Demographic Health Survey 2013²⁵

Figure 1: Map of Nigeria

1.1 Geography and Population

Nigeria is located in the western part of Africa with total surface area of 923, 768 km² and 800 km of coast line lying within latitudes 4°16' and 13°53' North and longitudes 2°4' and 14°41' East.²⁶ The boundaries are the Niger Republic and Chad (North); Cameroun (East); the Republic of Benin (West) and the Atlantic Ocean (South).²⁶ It is the most populous country in Africa and seventh most populous country in the world with a population of about 200 million people.^{27,28} The country is expected to double its population size by 2050 with its growth rate of 2.6%.²⁸ Nigeria has a young population²⁸ with a median age of 18.2 years, high total dependency ratio (89.2%) and youth dependency ratio (84%).²⁹ There are over 30 million adolescents and about one third of the population are under 25 years.²¹ See Figure 2. showing the population pyramid of Nigeria



Source: National Demographic and Health Survey 2018³⁰

Figure 2: Nigeria Population Pyramid

1.2 Sociocultural and Religious Context

Nigeria as a nation is multicultural and with diverse languages. There are 374 ethnic groups with the major ones being Hausa, Igbo and Yoruba.^{19,26} The dominant religions in the country are Christianity and Islam. The religious sects range from one geopolitical zone to another with Islam predominant in the Northern parts and Christianity in the Southern parts. The Nigerian society is patriarchal with more power ascribed to males resulting in gender inequality and poor power relations for women and girls regarding access to decision making, information, education and resources.²⁶

1.3 Political structure

Nigeria has a democratic system of government and a fairly stable political atmosphere. There are six geopolitical zones, 36 states with Abuja as the Federal Capital Territory (FCT) and 774 local government areas. There are no distinct roles and responsibilities of the three arms of government as regards health care provision and financing.²⁹

1.4 Economy

In 2013, Nigeria became the largest economy in Africa with a GDP of \$502 billion and economic growth rate of 6% in 2014.²⁹ The oil and gas reserve has overtaken Agriculture to become the country's main source of economic strength²⁶; Although due to the crises in the North eastern Nigeria and declining oil revenue, the gross foreign and fiscal reserves are reducing.²⁹ Over 20 million people are unemployed with an unemployment rate of 9.9% and underemployment rate of 17.4%. People aged 15 to 34 years are the most affected by unemployment; higher in urban than rural area.³¹ Underemployment is predominant in the rural area.³¹

1.5 Literacy

The primary school net attendance ratio is 61% and two of every 10 children do not complete primary education in Nigeria.⁹ The adult literacy rate in Nigeria is high with about 75% of men and 50% of women learned; higher in urban area than rural areas.⁹ Thirty-eight percent of women compared to 21% of men have no education; 17% of both sexes have primary education while 45% of women compared with 62% of men have secondary education and higher.²⁹ For both sexes, level of schooling is higher in the South-South and South-East zones compared to the North-west and North-East zones.²⁵ Youth literacy rate is about 71%²⁹

1.6 Health System

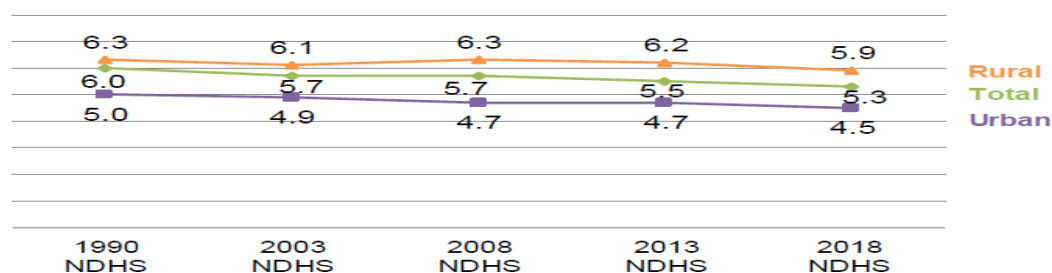
The health system of Nigeria comprises of the formal and informal sectors. The formal sector is recognised by the government and divided into the public and private sectors. The public health care delivery sector runs in three arms that is the primary (health posts and primary health centres), secondary (comprehensive health centres, state hospitals) and tertiary (Teaching hospitals, specialised hospital). They connected ideally with each other by a referral system under good functional conditions. The private sector has continued to play a huge role in service delivery; however the quality of health care services in available health facilities are poor due to lack of integration, inadequate coordination and absent comprehensive framework for regulation of quality and standards. The Federal Ministry of Health is the main regulatory body on public health issues and is also responsible for policy formulation, dissemination monitoring, evaluation and coordination as regards health.³² The National health policy aims to improve the nation's economic growth and development strategies in accordance with the national development agenda and Vision 20:2020 by provision of quality and affordable health care for all Nigerians throughout their life cycle.³¹ However the loss of confidence in the system drive the population to seek health care even outside the country.³¹ The health system of Nigeria is poor and unresponsive with lack of financial risk protection and inadequate performance across WHO building blocks.³¹

1.7 Health care financing

Health care financing in Nigeria is driven through revenue generation, revenue pooling and purchasing.³¹ The Federal government allocated about 4% of its total health expenditure allocated to health despite the Abuja declaration of up to 15% to improve the health sector.³³ There is scanty data of state budgetary allocations to health.³¹ Out-of-pocket payment remains the major mode for accessing health care services as less than 5% of the population are on health insurance scheme. Also adolescent SRH services are not included in the basic benefit packages of the available social health insurance schemes.

1.8 Reproductive health indices

The intensified efforts to address reproductive health in Nigeria has led to gradual progress in the reproductive health indices. According to the National Demographic and Health Survey (NDHS) 2018, the overall total fertility rate (TFR) was 5.3 births per woman of reproductive age group³⁰ compared with 5.5 in 2013²⁶ and 5.7 in 2008.³⁴ See Figure 3. Only 17% of women (currently married) use a family planning method and unmet need among married women of reproductive age is 19%.³⁰ Maternal Mortality Rate (MMR) remains high at in 576 per 100,000 live births in 2013.²⁶ Nigeria has the highest number of mother to child transmission of HIV in the world and greatest burden of HIV infection amongst pregnant women and children.³⁴ In 2012, 1.25 million induced abortions (at the rate of 33 abortions per 1,000 women aged 15-49 years) was reported in Nigeria though abortion on demand is illegal in the country.³⁴ Cancers of the reproductive health system such as breast and cervical cancers remain the leading cause of cancer-related mortality in women in Nigeria.³⁴



Source: National Demographic and Health Survey 2018³⁰

Figure 3: Trends in TFR by residence in Nigeria from 1990 to 2018

1.9 Adolescent Sexual Reproductive Health

Adolescent SRH has evolved in Nigeria but still weak.²¹ The first policy was formulated in 1995 after the 1994 ICPD conference, this focused on adolescent and youth development.³⁵ There after a review of the policy was done 12 years after to better improve adolescent health and achieve the MDGs. However since 2007, priority has waned as adolescent health is addressed as part of others reproductive health issues in recent policy documents. The current National Reproductive Health policy 2017 addresses adolescent sexual health briefly which is a mismatch considering the challenges they face.³⁴ These policies remain broad and do not address adolescents' specific needs in their different kinds as in-school versus out-of-school, married versus unmarried, younger adolescents versus older adolescents, those living in urban versus rural settings, those living with disability and adolescents in conflict settings. Sexual reproductive health services are delivered at public and private health sector however the use of the services by adolescents remain poor. Discussions around sex and sexuality remain a taboo in the multicultural context of Nigeria.²³ The Federal government has put in place sex education programs for adolescents and youths such as Family Life and HIV Education (FLHE) in secondary school curriculum and the Peer Education Plus program targeting out-of-school adolescents.²¹

CHAPTER 2 PROBLEM STATEMENT AND STUDY JUSTIFICATION

This chapter presents the magnitude of the problems adolescents face in Nigeria with regards to their sexual health, the justification for this study, the study objectives, the methodology used, and introduction of the frameworks used in this study.

2.1 Problem statement

Adolescents have been reported to face poor reproductive health outcomes owing to high prevalence of unprotected sex and risky sexual behaviours in Nigeria.^{34,36} In Nigeria's young population, about 25% of adolescents are sexually active³⁷ with early sexual debut between 10 years to 14 years and the mean age being 11 years for both male and female adolescents.³⁷ The prevalence of STIs in adolescents remains high ranging from 14% in Northern part to 17% in South East part of Nigeria.³⁷ With over three million people infected with HIV, Nigeria has the second highest burden of HIV infection worldwide³⁸ and HIV infection in adolescents is associated with increased morbidity and AIDS related deaths compared with other age groups.³⁹ In Nigeria, about 19% of adolescents aged 15-19 years had begun childbearing with urban teenagers (8%) having relatively lower percentages compared with those in rural settings (27%) where there is low literacy and high poverty levels.²⁹ In 2016, the overall adolescent fertility rate in Nigeria was 120 births per adolescent aged 15-19 years; lowest in South East zone (38) and highest in North West zone (179).²⁹ Also over 70% of all induced abortion occurred in adolescents and accounted for 60% of all gynaecological hospital admissions.¹⁶ Evidence shows that maternal mortality ratio is elevated in adolescents compared with older women.¹⁷

STIs are often asymptomatic and may be undiagnosed with young people often facing numerous barriers to access formal health services, including STI screening.⁴⁰ STIs occurring in adolescents and young persons can have lasting health consequences if undiagnosed or untreated.⁴¹ These consequences can include transmission to multiple partners and other adverse outcomes such as acute and recurrent pelvic inflammatory diseases (PID), chronic pelvic pain, ectopic pregnancy and infertility.¹³ While a host of home-based and point-of-care methods for screening are being developed around the developing world, these methods are not widely available in LMICs such as Nigeria.⁴² Prevention and treatment of STIs is challenging, because most often, it requires both partners' involvement to reduce risky behavior (condom use and reduction of risky sexual practices), partner notification, and treatment to prevent reinfection.¹³

Pregnancy during adolescence or young adulthood can have adverse social, economic and health consequences.²⁹ Within the context of countries such as Nigeria, pregnant adolescents can face additional risks such as anaemia, spontaneous abortion, obstructed labour, and obstetric fistulae.⁴³ Also, rapid repeat pregnancy during adolescence can increase the risk of infant and child mortality including higher rates of adverse new born outcomes such as prematurity and low birth weight babies.³⁰ The social, educational and economic consequences of young motherhood can be profound and long lasting, including a decreased educational and employment opportunities, poverty and stigma.⁴⁴

In the context of Nigeria, there is poor access to SRHR information and services for adolescents despite the huge need.⁴⁵ Also unmarried and pregnant adolescents are stigmatized in the society hence may face more marked limitations in accessing care.⁴⁶ With the restrictive abortion laws under penal and criminal codes in Northern and Southern Nigeria,⁴⁷ young girls are like to procure abortion from unskilled providers with limited or no access to post abortion care which puts them at risk of fatal complications as sepsis, uterine perforation including death.^{48,49} Lack of confidentiality, respect, privacy, negative provider attitude, and poor communication skills in youth friendly spaces are fears the adolescents face in accessing services at reproductive health facilities.

2.2 Justification

With the myriad of adolescent sexual health challenges and poor reproductive health outcomes in Nigeria which also affects SSA, a clear need for evidence-based interventions cannot be overemphasized. As adolescence remains a universal period of transition from childhood to adulthood,⁵⁰ the experiences of the period differs from one adolescent to the other.²² Experimentation, risk taking behaviour, and difficult decision making are the hall mark of this period.⁵¹ Counselling and behavioural interventions have been integrated into different settings to target adolescents and offer primary prevention against STIs including HIV and teenage pregnancy.¹²

In the recent past, Nigeria has also made efforts by implementing interventions especially at the national level which include "Family Life HIV Education (FLHE), the Peer Education Plus program, National Youth Network on HIV/AIDS in Nigeria (NYNETHA)",²¹ however these interventions have been faced with challenges due to poor adolescent involvement, varying levels of implementation and evaluations of the programs.^{45,52,53} FLHE was implemented in secondary schools in 2003 and evaluation done in 2013 reported that only 13% of adolescents were reached.⁵⁴ Also FLHE has focused on HIV/AIDS excluding some vital and broader components of SRHR as masturbation, STIs prevention and treatment, contraception and abortion services.⁵⁵ Thus the evaluation of effective strategies to address the adolescent SRHR issues comprehensively is lacking which is a reason to review the literature to inform future intervention design.

To contribute to the promotion of adolescent SRHR in Nigeria, this review is motivated by the continuing need for rigorous evaluation and stronger evidence of what works and, does not work, to prevent STIs/HIV transmission, unintended and repeat pregnancy among adolescents in Nigeria. Also, while policy-makers in Nigeria can learn from the legacy of adolescent HIV/AIDS interventions, it is also necessary to understand any issue that might be specific to improving contraceptive access and use among Nigerian adolescents. Addressing adolescents SRHR needs will help achieve demographic dividend in Nigeria through financing health, education and economic initiatives.³⁴ The need to rethink the strategies and by understanding the determinants of their sexual risk behaviours, policies and programs can help inform better approaches for design and implementation of effective interventions.

2.3 Study question

What are the effective adolescent SRHR interventions targeting STIs/HIV and teenage pregnancy in SSA?

2.4 General Objective

The general aim of this study is to assess the current state of evidence about what interventions are most effective in preventing STIs/HIV and teenage pregnancy among adolescents in SSA and make recommendations to the Federal Ministry of Health and other program planners to improve adolescent health in Nigeria.

2.5 Specific objectives

The set objectives are

1. To analyse the determinants (factors) of sexual risk behaviour of adolescents in SSA.
2. To analyse the current adolescent SRHR policies and programs aimed at STIs/HIV and TP prevention in SSA and compare with international standards.
3. To appraise evaluated interventions aimed at prevention of STIs/HIV and TP among adolescents in SSA and synthesize evidence of effectiveness.

4. To make recommendations to guide the design of future interventions aim at improving adolescent SRHR in Nigeria.

2.6 Methodology

To achieve the research objectives and answer the research question, a qualitative literature study and desk review was done. Qualitative literature review allows for in-depth and structured analysis of the topic and also the use of a framework to review existing knowledge, achievements, challenges and controversies while providing evidence-informed solutions to the issues pertaining to a health topic.

Databases from HINARI, PUBMED, Cochrane Library and Science direct were searched. Google Scholar and Vrije Universiteit library search engines were used to search for published peer reviewed literature. Publications of international organisation such as UNAIDS, WHO, UNICEF, UNFPA, Guttmacher Institute was retrieved via their websites. Reports, policy documents and guidelines from NACA, FMOH and other published reports from working on Adolescent SRHR in Nigeria were used in this review.

Other relevant journals were searched manually and included via snowballing technique from the references of cited articles. Grey literature, relevant program reports and publications were also used. Search delimiters include peer-reviewed articles between January 2009 and 2019, published in English language. Boolean operators such as "AND", "OR" were used to modify searches in the search engines and connect the various keywords depending on the scope of the search.

Keywords included adolescent, sexual health, reproductive health, sexuality, STI, HIV, prevention, risky sexual behaviour, sexual practice, teenage pregnancy, Nigeria, sub-Saharan Africa, Africa. See Table 1. in the Annex for search strategy.

Table 1: Showing search strategy

Source	Literature search strategy keywords used by objectives		
Search engine	Objective 1	Objective 2	Objective 3
Google Scholar, Vrije Universiteit library, HINARI, PUBMED, Cochrane library	Adolescents sexual risk behaviour	Policies and programs	Adolescent SRHR interventions
	adolescent, sexual health, reproductive health, sexuality, STI, HIV prevention, risky sexual behaviour, sexual practice, teenage pregnancy, Nigeria, sub-Saharan Africa	adolescents, teenage pregnancy, reproductive rights, sexual rights, STI, HIV, prevention	(Adolescents OR teenagers) AND "Evaluation" AND "STI" OR "HIV" OR "PREGNANCY" AND "sub-Saharan Africa" (Adolescents OR YOUNG PEOPLE OR TEENAGERS) AND (INTERVENTION OR EVALUATION) AND (STI OR HIV) OR SUBSAHARAN AFRICA.
Websites	adolescent, sexual health, reproductive health, sexuality, STI, HIV prevention, risky sexual behaviour, sexual practice, teenage pregnancy, Nigeria, sub-Saharan Africa	Policy of CSE Policy on child marriage Adolescent health Teenage pregnancy Maputo plan of action SDGs, MDGs, WHO guidelines on adolescent health	Evaluation Reports On Adolescent Srhr Programs, Report On Reproductive Health Program, Health Education Program
UNAIDS, WHO, UNICEF, UNFPA, Guttmacher			

The abstracts of the published evaluated interventions from initial search result were screened to include relevant articles, thereafter selected articles were screened by a set criteria to select interventions that were included in the appraisal.

Set criteria include:

1. Interventions with adolescents 10 – 19 years being the target population.
2. Focused on sub- Saharan Africa region.
3. Interventions focusing on STIs, HIV and/or pregnancy prevention with contents on knowledge, attitudes, sexual behaviour, risk reduction as primary outcomes.
4. Published in English language between January 2009 to January 2019.
5. Methodology of the articles well described.
6. Methods and results of evaluation of interventions are well described

Exclusion criteria include:

1. Interventions with target group predominantly > 19 years or target group poorly defined.
2. Articles outside SSA region.

3. Articles before January 2009.
4. Articles published in languages other than English language.
5. Intervention with insufficiently described methods and evaluation results.

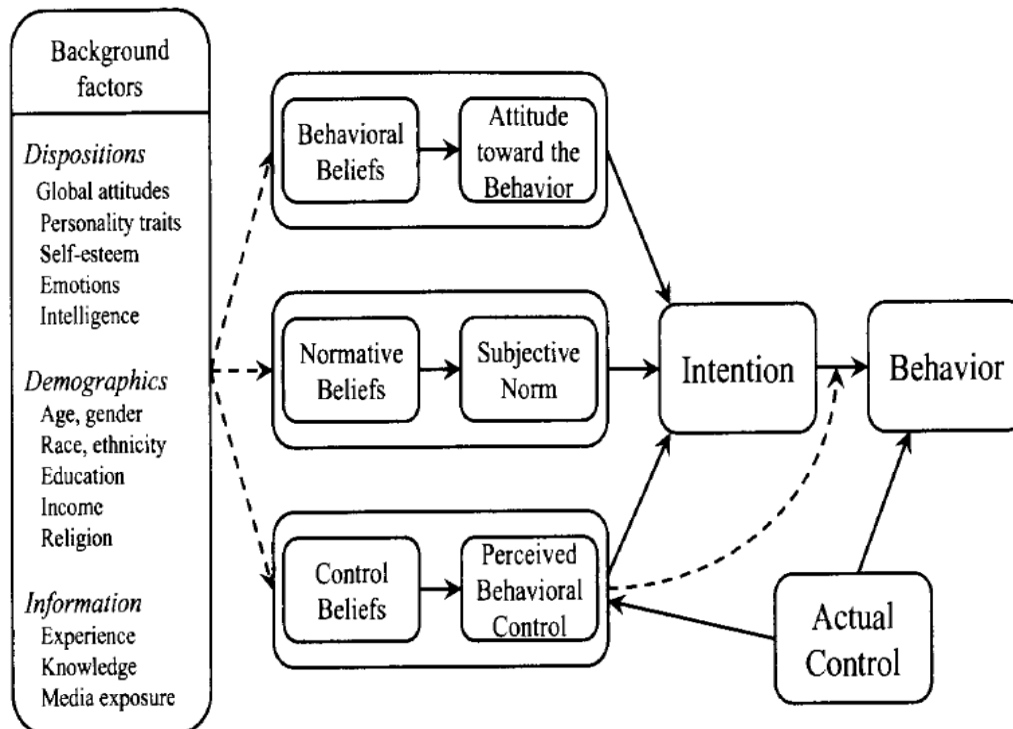
2.7 Theoretical Frameworks

This review was guided by two main theoretical models: The Theory of Planned Behaviour (TPB) and the RE-AIM framework for program evaluation.

2.7.1 The Theory of Planned behaviour

The TPB was developed by Ajzen over 30 years ago; and is an extension of the Theory of Reasoned Action which identifies determinants that predicts the human social behaviour.⁵⁶ According to TPB, the prominent beliefs about the likely outcome of an action shapes a positive or negative attitude towards the behaviour.⁵⁶ The subjective norms are perceived social pressure of whether or not the behaviour is acceptable to important referent individuals.⁵⁶ The ability and skills to determine whether or not to carry out a certain behaviour is the perceived behavioural control or efficacy.⁵⁶ Hence the more positive the attitude and subjective norm, the more the perceived behavioural control, the stronger the intention to carry out the action. Therefore intention comes before behaviour however TPB also builds on that the accomplishment of the entire behaviour is not under purposeful control, it goes through a continuum from total control to complete lack of control.⁵⁷

TPB framework as shown in Figure 4 below will guide the analysis of the various factors influencing adolescent sexual risk behaviour in SSA. TPB connects attitudes and behaviour; based on beliefs and cognitive outcomes.⁵⁷ This framework has been used in previous studies and found to be suitable to predict sexual risk behaviour such as condom use, contraception and premarital sex behaviours especially in the African setting (Tanzania, South Africa, Ethiopia, Ghana) where culture and tradition plays an important role.⁵⁸



Source: Ajzen I, Albarracin D. Predicting and changing behaviour: A reasoned action approach. Prediction and change of health behaviour: Applying the reasoned action approach. 2007. 3-21 ⁵⁶

Figure 4: Showing the schematic of the Theory of Planned Behaviour (Ajzen 2007)

2.7.2 The RE-AIM framework

The RE-AIM framework guided the analysis on the state of evidence about what interventions are most effective. RE-AIM is an acronym which stand for Reach, Effectiveness, Adoption, Implementation, and Maintenance. The framework was developed initially to improve reporting on vital implementation and external validity of health promotion research.⁵⁹ It has evolved over 20 years from evaluation of intervention to dissemination and generalization of research which is important for planning and transforming theory to practice.⁶⁰ The framework also fits with system based, socio-ecological thinking, community based and public health interventions.⁵⁹ See figure 5 The various domains of the framework were defined as follows:

“Reach refers to absolute number, proportion, and representativeness of individuals who participated in the given intervention or program.”⁵⁹

“Efficacy refers impact of an intervention on outcomes, including potential positive and negative effects, quality of life, and economic outcomes.”⁵⁹ It also measured behavioural outcomes and biologic outcomes for the purpose of this review.

“Adoption refers absolute number, proportion, and representativeness of settings and intervention agents who initiated the intervention or program.”⁵⁹

“Implementation refers to how well the intervention was delivered following the protocol also known as fidelity. This includes consistency of delivery of the intervention as intended and the time and cost of the intervention. Its combination with efficacy gives the effectiveness of the intervention.”⁵⁹

“Maintenance is the extent to which the intervention becomes institutionalized or be part of the routine organizational practices and policies. At the individual level, it is defined as the long-term effects of an intervention or program outcomes in six or more months after intervention was given.”⁵⁹

Reach and efficacy measures impact on individual-levels while adoption and implementation measure organizational impact levels. Maintenance can measure both individual- and organizational-level of impact. Evaluation of impact on both individual and organisational levels provides valuable information about intervention impact and effectiveness. This framework has been used for program evaluations in several studies.⁶⁰

RE-AIM Dimension	Questions for Assessment
Reach (individual level)	What percentage of potentially eligible participants will take part and how representative are they?
Effectiveness (individual level)	What impact did the intervention have on all participants who began the program, on process and primary outcomes, and on both positive and negative (unintended) outcomes, including quality of life?
Adoption (setting level)	What percentage of settings and intervention staff (such as worksites, schools/educators, medical offices/physicians), will participate and how representative are they?
Implementation (setting/staff level)	To what extent are the various intervention components delivered as intended (in the protocol), especially when conducted by regular (nonresearch) staff in applied settings? To what extent and how was the program modified over time?
Maintenance (both individual and setting level)	<ol style="list-style-type: none"> 1. <i>Individual level:</i> What are the long-term effects (minimum of six to twelve months following intervention)? 2. <i>Setting level:</i> To what extent are different intervention components modified, continued, or institutionalized?

Source: Glanz k, Rimer Barbara. Health and Health behaviour 2008 ⁶¹

Figure 5: RE-AIM framework, its dimensions/domains and questions for assessment

CHAPTER 3 ANALYSIS OF THE ADOLESCENT SEXUAL RISK BEHAVIOUR IN SUB-SAHARAN AFRICA.

This chapter will focus on the analysis of adolescent sexual risk behaviour (SRB) in sub-Saharan Africa using the Theory of Planned Behaviour (TPB) model.

3.1 Introduction

The early adolescent period lays a strong foundation for attitude and behaviour formation which impacts the outcome of disease burden in adult life.⁶² During adolescence, the predisposition to risk taking and acting on impulse makes health risk behaviour (HRB) a crucial subject.⁴ Although, HRB vary across regions and populations, sexual risk behaviour (SRB) is a commonly assessed type.⁴ HRB results in disability and fatal outcomes and contributes majorly to the disease burden and social problems in young people globally.⁶³

Sexual Risk Behaviour (SRB) is one aspect of HRB which is important in the promotion of adolescent health. Common examples include having sex at an early age, having multiple sexual partners, having sex while under the influence of alcohol or drugs, and having unprotected sexual intercourse.⁷

The analysis of the determinants of adolescent sexual risk behaviour in SSA guided by the TPB model.

3.2 Background factors

The underlying factors that influence behaviour are grouped into dispositions, demographics and information. While background factors are thought to indirectly affect behaviour; their impact on behavioural, normative and control beliefs are not clear.⁵⁶ Adolescent behaviours differ by age, gender, socioeconomic status, geographic location, education, information and experiences available to them. Experimentation with sexual feelings and behaviour starts in early adolescence where they may face forced or unwanted sexual events.⁶² Also gender has an influence on the way adolescents view themselves. In SSA, gender norms have different expectations from a boy and girl child for instance a study found that while boys may be pressured to prove their fertility, girls were expected to abstain from premarital sex.⁶² This when reinforced over time may create unequal power relations.

Also another systematic review in SSA found that young males had more decision making power and control over condom use than females and were more likely to use a condom if they were in casual relationships or have used condoms in their previous relationships.⁶⁴ In marriage, adolescents face early sexual initiation and are less likely to use contraception.⁶⁵ For example a study done in Burkina Faso, Ghana, Uganda and Malawi found that early sexual debut was associated with early adolescent marriage in three countries and affected females more than males except in Ghana.⁶⁶

Education has been linked to good SRH outcomes such as delaying sexual debut, increasing contraceptive use, delaying early marriage, pregnancy and child bearing however in many developing countries, most adolescent girls were less likely to continue to secondary education compared with boys.⁶² Examples were seen in Ghana and Kenya where higher education levels were associated with lesser SRB.^{67,68} Adolescents get information from various sources including friends, siblings, media and internet.^{65,69} Sexual information obtained from friends, cousins, and media were associated with increased intention to initiate sexual intercourse while those from parents, grandparents and religious leaders did not.⁷⁰ For adolescent SRHR interventions, considerations of these factors have implications for good SRH outcomes when they are addressed in program planning.

3.3 Attitude towards behaviour and behavioural beliefs

Attitude is a person's disposition to respond positively or adversely towards certain a behaviour and it depends on the subjective outcome of the behaviour. For instance correct and consistent use of condoms in preventing HIV infection is a positive outcome. In adolescents, behavioural beliefs are developed on the basis of general attitude towards the behaviour, perceived risk associated with acting out the behaviour⁷⁰ and personality.⁷¹ These beliefs influence the perceived outcome or consequences of behaviour. For example, a study in Western Kenya reported that youths believed condoms were ineffective immoral and likely to spread HIV and even when viewed positively, they were unlikely to obtain condom because of shame.⁷² However in South Africa, adolescents believed condoms prevented HIV but had negative attitude to condom use as they also felt it decreased sexual pleasure.⁷³ Another study in rural Ghana found that girls remain at risk of unintended pregnancies from unprotected sexual intercourse as they viewed buying of condoms as the responsibility of the boys.⁷⁴

Adolescents tend to use common readily available methods of contraception and contraceptive use amongst them is generally low.^{75,76} Some adolescent girls believe opting for hormonal family planning methods could result in having a disabled child in later life; increased possibilities of infertility; and also contact with the health care providers would give them out sexually active and therefore have a negative attitude towards those methods of contraception.^{77,78} In South Africa, adolescent boys want to prove their masculinity and hence prefer not use condoms so as to impregnate their girlfriends while girls for the sake of trust do not enforce condom use.⁷³

Early sexual debut (sex before age 15), inconsistent use of condom and having multiple sexual partners are un-avoided risks adolescents are vulnerable to for discovery and experimentation rather than ill health.⁷⁹ This is due to coercive sexual intercourse, transactional sex, and lack of skills to negotiate for safe sex.⁶² A systematic review of early sexual debut across sub-Saharan African countries reported that in West Africa, more adolescent girls than boys had early sexual debut compared to Central, Eastern and Southern Africa where the proportion was mixed with more males than females.⁸⁰ For most countries, the rural and poorly educated females were more affected.⁸⁰

In another systematic review, a combination of early exposure of adolescents to comprehensive sexuality education and contraception provision intervention has improved knowledge of adolescents on pregnancy prevention and decreased adolescent pregnancy but prove about influencing behaviour change regarding delay of sexual debut was not ascertained.⁸¹ This was reported in Rwanda where adolescents despite knowing risks associated but condom use was not influenced.⁸²

3.4 Perceived Norms and Normative Beliefs

Perceived norms are functions of beliefs that important individuals approve or disapprove of certain behaviour. Adolescents may feel that certain expectations are required of them as regards their sexual behaviour pertaining to culture, parental influence and peer norms.⁷⁰ Behaviour can influenced by the rules of the society, position, power and hierarchy of the persons within the society.⁸³ In the African setting, adolescents look up to the their parents and community leaders.⁸⁴ Family structure have been found to influence SRB.⁶² In Kenya, a study reported that adolescents with both parents living together were 80% less likely to be involved in SRB compared with their peers from other family structure.⁶⁸ This was also seen in Ghana.⁶⁷

The African culture also holds premarital sex abstinence in high esteem however in Swaziland, it was found that the distressing effects of HIV infection on family structures and dynamics makes marriage not as valued over the years and young people engage in premarital sex.⁸⁴ Based on religious beliefs, a study in Kenya found that Catholics were

40% less likely to be involved in risky sexual behaviours compared with those without religious affiliation and Moslems too because of strict sharia laws.⁶⁸

The conventional African society fails to accept the reality of sexual activity amongst the adolescents so promotion of condoms is difficult.⁸⁴ Adolescents also experience a lot of stigma from their communities, relations and parents as engaging in sexual activities is frowned at.⁸⁵ Discussions about sex and sexuality between parents and adolescents remains difficult because parents have raised fears of giving the adolescents approval for sexual activity when such discussions are held.⁸⁶ In a South African study, adolescents believe that correct information about sex can be obtained from parents rather than peers.⁷³ Parents despite having such influence on adolescents shy away from such conversations⁸⁶ however in Tanzania a study found that parents thought many adolescents involve in sexual activity at an early age because they lacked proper SRH education at home and in school.⁸⁷

Adolescents seek approval from friends and peers hence they model their ideas and practices after their friends. Peers remains a vital part of adolescent social network that influences their sexual behaviours.⁷⁰ For instance a study done in Ghana reported that adolescents abstained from premarital sex because they perceived that their friends disapprove of premarital sexual activity and engaging in such behaviour results in a loss of respect within their peer group⁸⁸ whereas in South Africa found that adolescents engaged in sexual activity to gain respect within their group and boys were influenced more than girls to have sex by their peers.⁷³ Thus adolescents for wanting to belong and gain acceptance within their peer groups may succumb to peer pressure from peers who are engaged in same behaviour⁷⁰ This has been a means of program intervention for behaviour change communication.

3.5 Perceived behavioural control and control beliefs

The perceived behavioural control refers to an individual's view regarding whether or not he has the required skills, ability and resources to perform the behaviour. Actual behavioural control in this model relates to the ability to perform a certain behaviour; and it impacts on intentions leading to the behaviour. Actual behavioural control also influences perceived behavioural control which is comparable to Bandura perceived self-efficacy in the social cognition theory which is how well one can make decisions over actions in situations that affects their lives.⁸⁹ For instance a study showed that access to condoms for very young adolescents especially girls may pose some difficulties due to structural barriers and cultural sanctions.⁶² This may imply that even when the condoms are available and they want to use condoms they may be discouraged to obtain condoms. For example a systematic review of condom use in SSA found that in rural settings, adolescents were not likely to admit to knowing where to obtain condoms.⁹⁰ Poverty and poor economy puts adolescents especially females at risk of transactional and intergenerational sexual relations with a disadvantage to negotiate safe sex and condom use to prevent STI/HIV and unintended pregnancy.⁹¹ Older adolescents have been the focus of research as younger adolescents were often considered young for such a sensitive subject.⁹² The higher the sexual self-efficacy, the lesser the likelihood of demonstrating risky sexual behaviours. However a study conducted in South Africa reported that the preparedness of the learner for self-decision making and skills to resist peer pressure were very crucial.⁷⁰

CHAPTER 4 ADOLESCENT SRHR POLICIES AND PROGRAMS IN SSA IN THE CONTEXT OF INTERNATIONAL STANDARDS.

This chapter presents the analysis of the adolescent SRHR policies and programs in SSA and compares with international standards

Policies and programs are important to addressing adolescent SRHR needs. Globally, the 1994 International Conference on Population and Development (ICPD) marked a change in SRH from emphasis on population control to emphasis on individual needs and rights where 179 countries agreed on the implementation of its Programme of Action (PoA).⁹³ This spurred several actions towards sexual and reproductive health with development of policies, frameworks and strategies towards programme implementation; However due to poor commitment, political will and inadequate resources, SRHR issues lingers on the discussion table of most countries in SSA.⁹⁴

In 2000, the Millennium development goals (MDGs) were aimed to end poverty in developing countries over 15 years. The MDG targets were relevant to achieving universal education, promoting gender equality, reducing maternal deaths and reducing the HIV/AIDS related morbidity and mortality.⁹⁵ By the end of 2015, two fifths of the SSA population still lived in poverty.⁹⁶ Adolescent childbearing rates in SSA made the least progress at 116 births/1000 adolescents (15-19years) both in relative and absolute numbers. Gaps identified were gender inequality, inequity (rich/poor, rural/urban), poverty and lack of access to basic services.⁹⁶

The Maputo Plan of Action (MPA) on SRHR was thereafter adopted in 2006 in which members of the African Union (AU) were to ratify the policies, engage in advocacy, capacity building of health workers and SRHR service expansion.⁹⁷ This was in realization that African countries are unlikely to achieve the MDGs.⁹⁸ Evaluation of this plan found that most SSA countries had SRH policies but were not practicable.⁹⁹ Also in the context of SSA, there were differing understanding regarding SRH rights hence undermining the policies and programs.⁹⁹ As regards adolescents and young people, the MPA emphasized the need to address inequalities in service delivery and integration of SRHR with STI/HIV/AIDS programs, within maternal, new born, and child health programs with attention to the sexual and reproductive health needs.¹⁰⁰

In 2015, after the era of the MDGs which targeted developing countries, the SDGs came on board with 17 goals and 169 targets requiring all UN member states to achieve the set goals and target. The SRHR related goals (3,4,5,6,8,10,16) and the "Every woman Every Child" (EWEC) global strategy for women, children and adolescent health was launched in 2015 in view of uneven progress in adolescent health and needs and this helped the countries as part of their efforts for improving reproductive health to prioritise adolescent health.¹⁰¹

Global organisations such as UNFPA, WHO and IPPF have supported international commitments on policies in various countries by provision of several guiding documents on policies like as comprehensive sexuality education (CSE), access to contraceptives, access abortion and post abortion care, access to STI services including HIV counselling and testing. CSE is one of the strategies that reflects the view of global organisations on advancing adolescent sexual health.⁵ Several factors such as sociocultural, economic, religious, and gender factors affect the development and implementation of CSE across countries in SSA. The Eastern and Southern Africa committee review of CSE across its countries reported that of 21 countries in the region, only 15 provides CSE/Life Skills in at least 40% of primary and secondary schools.¹⁰²

In Nigeria, young people and key populations face stigma and discrimination in accessing SRHR services.¹⁰³ The Same-Sex Marriage Prohibition Act Nigerian adopted in 2014 has

increased police encroachment into LGBT spaces, which also serves as HIV testing sites. Other barriers include long distances to health services and high levels of poverty among young people.¹⁰³ Most adolescents are often not reached by the services intended for them.⁹² Also poor government commitment and support attributed to fear of public opinion affects SRHR services in countries like Nigeria and Botswana.⁹⁴ Also the conservative culture and religious nature around sexuality matters hamper SRH policies and programs for instance most SSA countries such as Uganda, Malawi, Kenya, and Ghana prohibits homosexuality on mass media.⁹⁴ In most SSA countries, adolescents especially girls require parental consent to seek SRHR services¹⁰⁴ coupled with negative attitude from the health care worker.¹⁰⁴ See Annex 7. In Uganda, Tanzania and Zambia, adolescents friendly reproductive health services have been established by NGOs reaching young people though coverage and quality of services vary and ¹⁰⁵are limited.

Circumstances around abortion in SSA remains controversial for young women. While abortion laws are liberal for most countries, the socio-cultural and religious beliefs towards abortion make the laws appear more restrictive. Of the 54 countries in Africa, only ten countries completely prohibits abortion for any reason.¹⁰⁶ Reasons such as rape, incest, fetal anomaly are indications in most countries where abortion is allowed to save life and preserve physical and mental health like Ghana, Swaziland, Botswana and Liberia.¹⁰⁶ Others require parental/spousal consent in addition to these reasons like in Mauritius and Morocco.¹⁰⁶ In Nigeria, Uganda and Tanzania, abortion is done only under life threatening conditions to save a woman's life compared to South Africa where abortion is allowed without restrictions.¹⁰⁶ See Annex 4 for detailed summary.

Unhindered access to contraception for adolescents remains a huge barrier.¹⁰⁷ Condoms are central and cost effective for STIs including HIV and unintended pregnancies.¹⁰⁸ Since 1990, about 45 million HIV infections have been averted through condom use globally however condom use among young people in SSA have remained low.¹⁰⁸ See Annex 5. A prevention gap report of 23 countries in SSA found that less than 60% of male youths with multiple partners used a condom during their last sexual intercourse in 15 countries.¹⁰⁸ Also less than 60% of young women with multiple partners reported condom use in 19 countries.¹⁰⁸ See Annex 6. In some SSA countries, it is especially challenging for young women to negotiate condom use with their male partners compared with Asia where women with greater autonomy in decision-making are more likely to negotiate safer sex, have higher HIV knowledge and use condoms.¹⁰⁸

In summary, policies and programs across SSA fall short of the standards from WHO guidelines which makes strong recommendations for developing countries to improve adolescent health by advocating for STIs/HIV and adolescent pregnancy prevention through increased educational opportunities, provision of comprehensive sexuality information, education and life building skills, provision of accessible contraception services, formulation of laws and policies to promote SRHR on issues of child marriage and abortion and overall the creation of supportive environments for adolescents.¹⁰⁹

Chapter 5: APPRAISAL OF PUBLISHED EVALUATED INTERVENTIONS AIMED AT STIS/HIV AND TEENAGE PREGNANCY IN SUB-SAHARAN AFRICA

This chapter will focus appraising the published evaluated interventions aimed at STIs/HIV and teenage pregnancy in sub-Saharan Africa and presenting the findings and result using the RE-AIM framework. The results are summarised in the following tables: Annex 1 describes the general characteristics of the evaluated interventions. Annexes 2 and 3 presents the evaluation results of the interventions that were used in the review.

5.1 Common outcomes; different approaches

The reviewed articles focused on the prevention of STIs, HIV infection and/or pregnancy in a wider concept in relation to SRHR. There were varying approaches however the targeted outcomes were closely related to the outcomes of interest in this review. These outcomes were increasing knowledge, attitude and behavioural changes related to STIs, HIV and teenage pregnancy including risk perception, HIV testing, STI treatment and HIV/STI prevalence.

The different modes of delivery were teacher-led, peer-led, peer-assisted or a combination of these modes. The different structures of the intervention were in forms of incorporation into the school curriculum, after-school sessions, and formation of anti-AIDS club. The activities were classroom discussions, life skill sessions, peer counselling, body mapping, role plays, peer recreational activities, peer-led group discussions, imagery discussions, watching videos, dramas, games (body change games, personality games) and quizzes. See Annex 1.

5.2 Similarities and differences of demographic characteristics.

A total of 15 peer reviewed evaluation reports^{45,110-123} were selected after the screening. All studies were conducted in SSA. Seven of the interventions implemented in East African region^{114,115,117,118,120,122,123} (Kenya-3, Rwanda-1, Tanzania-2 and Uganda-1), three in West Africa^{42,113,122} (Ghana, Liberia, Nigeria) and five in Southern Africa (South Africa-4, Zimbabwe-1)^{111-113,116,121}. South Africa had the highest number of interventions (n=4) followed by Kenya (n=3). Of the 15 interventions, nine were in the rural areas, two in the urban setting^{119,123} and four were distributed country wide.^{45,116,118,120} Twelve of the interventions were school-based,^{45,110-113,115,116,118-122} three were mixed (community based, health facility, and school).^{116,117,123} Ten of the interventions were in secondary school students^{45,110-113,116,119-122} with two on primary school pupils^{115,118} and the other three did not specify the type of schools.^{116,117,123} All the interventions targeted male and female adolescents^{45,110-121,123} with the exception of one in Rwanda which targeted males.¹²² Most of the participants were aged 10-19 years except the intervention in Ghana where the age range for participants was 10-21 years and it was included as study most of the participants were predominantly adolescents and mean age was 15.84 years.¹¹⁰ Ten of the articles were effect evaluations^{110-114,116,118-120,122}, two were process evaluations^{45,117} and the remaining three were mixed (effect and process)^{115,121,123}. See Annex 1.

5.3 Study design and Sampling methods

Twelve of the interventions were quantitative methods, two mixed methods^{111,113} (involving both quantitative and qualitative techniques) and one qualitative method.¹¹⁷ In the quantitative study design, there were four quasi-experimental, four randomised control trials (RCT), one non-RCT,¹²² two cross sectional with pre and post-test surveys^{115,116} and one used quantitative data.⁴⁵ The study designs differ slightly from each other. The interventions with quasi- experimental design carried out in Ghana¹¹⁰ and Uganda¹²⁰ randomised into two arms (intervention and control) while in Kenya¹¹⁸ and Tanzania,¹²³ there were pre- and post-test designs with no controls. For the RCTs, two were clustered RCTs done in South Africa where the schools were the sampling units.^{112,121}

One was grouped RCT done in Liberia with four matched schools randomly selected¹¹⁹ while in Kenya, the community RCT had sampling done from population survey with two intervention and one control arms. The non-RCT in Rwanda had eight intervention and six control schools that were sampled purposively.¹²² Of the two cross-sectional study, the one in Zimbabwe was a before-after study with comparison group while the other one in Kenya was a pre-and post-test survey. In Nigeria, quantitative data obtained from the Federal and State Ministries of education was used.⁴⁵

5.3 Data Analysis

Of the twelve quantitative methods, ten of the evaluation used statistical analyses however only six provided data in the pre and post-test data collection for both intervention and control arms.^{110,114,116,119,121,124} which allows for reliability the results. In two of the interventions, there were no comparison groups however one had a delayed post-test which allowed effects to be studied over a period¹¹⁸ while the other one drew inference from the use of a one-group pre- test post-test experimental design.¹¹⁵ Two reports were mixed methods using both qualitative and quantitative techniques^{111,121} which allows for exploration of the determinants of the intervention effectiveness. Two reports were process evaluations which reported on the implementation process which is also very important for the effectiveness of intervention on the process of implementation and influencing factors.^{45,117}

5.4 Reach

This assessed the absolute number, proportion of participants reached by the interventions, the characteristics of the participants targeted by the intervention and how representative they are. The proportion of actual participants reached versus targeted participants and also selection of the participants were discussed in this section.

In the context of RE-AIM framework, the only one of the process evaluation reported the reach. The absolute number of participants reached were 1,625 to 142,602 (mean=23,419, SD 30,186.7); Compared with the number of teachers trained 75 to 401, the results were not significant. States with higher number of trained teachers had lower numbers of teachers ($r=-0.554$, $P<0.01$). This finding was because the reports were based on the numbers of reporting schools and not the number of schools adopting or implementing the program.⁴⁵ There was no report on the representativeness of the participants.

5.4.1 Actual participants versus targets in evaluation.

The remaining 14 interventions did not mention reach but the absolute number or proportion of actual participants versus the targeted participants who participated in the evaluation were in eight of the 15 selected interventions.^{110-113,115,118,120,121} See table 2. Six of the intervention, it was not stated.^{114,116,117,119,122,123} Only four interventions stated the targeted and actual participants .^{110,113,118,121} Others stated the number of schools^{112,120} and sites.^{111,115} In Ghana, the SPEEK program reached 98.64% of targeted participants¹¹⁰ while the PREPARE program in South Africa reached only 55.3%¹²¹ though both programs requested for parental consent and assent from participants. In Kenya, the targeted participants were reached as intervention targeted teachers to deliver the intervention to the pupils.¹¹⁸ Timol et al in South Africa reached the minimum targeted participants for the intervention however this was based on assumption that all the schools in the region implemented the program.¹¹³

5.4.2 Selection of participants for the interventions

The strategies for selection were different for various interventions.

The selection of participants were drawn from different population: adolescents, youths and community depending on the study design. Five of the interventions had samples

drawn from randomly selected schools.^{110,115,118,119,121} Two drew participants from sites selected based on epidemiological burden of disease.^{114,116} Two were country-wide programs^{45,112} which limited the selection of appropriate controls for comparison with the target group in one of the evaluation report.¹¹² Two were based on set criteria,^{111,120} and others were based on assumption¹¹³ and purposive sampling.¹²² Only two interventions did not state their sampling technique.^{117,123}

In Ghana, Liberia and Kenya (Nyanza province) selected schools were randomly assigned into intervention and control arms and same self-administered questionnaires were used for participants at base line, post-test and follow up however the intervention in Nyanza province of Kenya did not have a control arm and the intervention in Liberia had gift incentives given to participants.^{110,118,119} In PREPARE program (South Africa), randomization of participating schools was done by an independent statistician and schools which had a public health related intervention were randomly replaced.¹²¹ The "Making Life Responsible Choices" abstinence based education program in Kenya had participants randomly selected from catholic primary schools (public and private).¹¹⁵

The selection of intervention sites in Zimbabwe and Kenya were based on the epidemiological burden of the SRH problems.^{114,116} In Tanzania, participants for the MEMA kwa Vijana program were selected based on findings from previous local studies and previous similar intervention in the region¹¹⁷ while the "For A better Tomorrow" program (Tanzania) participants were selected from three schools in one district in the capital city.¹²³

In Nigeria, FLHE program was a part of the curriculum of all secondary schools⁴⁵ and also the Scripted Lesson Plan (SLP) was introduced into the education curriculum in South Africa and participating schools were from low income communities.¹¹² The WSWM program (Uganda) was already implemented in selected schools by an NGO and controls were matched based on the type of school (day/boarding, male/female/mixed school)¹²⁰ compared with the Vhutshilo program (South Africa) which participants selected from poor townships and rural communities.¹¹¹

5.5 Effectiveness/Efficacy

This measures the impact of the program on the participants who began the intervention, the process of the intervention, primary outcome (both positive and negative), the quality of life and economic outcomes. Tables 3 and 4 shows the evaluation of the interventions according to study design methods.

Of the 15 reports, only 11 quantitative reports^{110-112,114,116,118-123} and two mixed methods were included in the analysis.^{111,113} The remaining two reports were process evaluations which discussed varying themes.^{45,117}

5.5.1 Process evaluation

Udegbe et al⁴⁵ found a significant difference in the number of schools implementing compared to number of schools reporting ($t=3.64$, $df=22$, $p<0.05$). More schools were implementing (mean =168.9) than reporting (mean=48). This showed that high level of program implementation does not equal high level of reporting ($r=0.060$, $p>0.05$). Also the number of teachers trained were not significant to the number of students.⁴⁵

Wight et al¹¹⁷ found that that restrictive norms, education and religion, and parents' concern about the well-being of their children were the sociocultural facilitators of their program.¹¹⁷ The barriers were multiple among which gender, cultural norms, age, peer pressure and socio-economic factors were the most prominent.¹¹⁷

5.5.2 Quantitative methods evaluation

Eleven reports^{110-112,114,116,118-123} of the reports were evaluated and the common outcome variables were reported in Annex 2. Outcomes were knowledge on STI/HIV/pregnancy

prevention, delaying sexual debut, attitude towards condom use, condom efficacy, perceived risk, perceived behavioural efficacy and number of sexual partners. In addition other outcomes were HIV testing and STI treatment (service-related); and STI/HIV prevalence (biologic outcomes).

Eight of the intervention increased knowledge on HIV/STI/ pregnancy prevention^{110,111,114,118,120-123} and only one found no effect¹¹⁹ and two did not report on knowledge.^{111,112} The intervention in Liberia found no effect as knowledge increased in both intervention and control groups. This was attributed to the general health curriculum in the schools that had modules thought on HIV and data was not shown. For abstinence and delaying sexual debut, only one intervention in Ghana reported a positive effect ($p < 0.002$).¹¹⁰ Five reports found condom use attitude^{110,114,118-120} and three report found no effects.^{116,121,124} On condom efficacy, 5 interventions reported positive effects and two found no effects. For perceived risk and perceived behavioural efficacy two interventions of the interventions found effects and 2 did not. There were no effects on the number of sexual partners, HIV testing, STI treatment and HIV/STI prevalence.¹²²

In Ghana, program found positive effects on knowledge on condom use, pregnancy and STIs testing significantly, increased attitude toward exercising sexual rights, condom availability and condom use; improved perceived behavioural control toward sexual delay, condom use and sexual intercourse; and perceived risk toward STIs (P 's <0.002).¹¹⁰ The intervention in urban Tanzania evaluated both process and effect, though 45 minutes picture drama found increase in knowledge ($p < 0.000$) but no effect on attitude ($p = 0.666$ girls, $p = 0.973$ boys) and behaviour change ($p = 0.003$ girls, $p = 0.019$ boys). The delivery time of the intervention was short hence retention could not be ascertained.¹²³

One of the interventions in South Africa reported no effect between intervention and control arms for self-reported sexual debut (12.7 vs. 12.0 %; AOR: 1.07; 95 % CI 0.83–1.40), self-reported condom use at last sex (80.6 vs. 83.5 %; AOR: 0.64, 95 % CI 0.33–1.25), number of sexual partners in the past 12 months (0.62 vs. 0.40; B: -0.03; 95 % CI -0.71 to 0.64).¹²¹ In Rwanda, showed no effect in increasing knowledge and attitude, and behaviour change towards HIV prevention, condom use or delaying sexual debut ($p = 0.088$).¹²²

Of the three studies in Kenya, The abstinence based intervention in catholic primary school showed increased overall knowledge from 47.23% (pre-test) to 64.8% (post-test) with $p < .001$.¹¹⁵ One found positive outcome in knowledge, self-efficacy relating to changes in sexual behaviours and condom use, acceptance of HIV positive students, endorsement of HIV-testing and delaying sexual debut or decrease sexual activity.¹¹⁸ While the community and school-based program had a positive outcome on knowledge of SRH issues as HIV prevention, it had little effect on attitude and no effect on sexual behaviour.¹¹⁴

In Zimbabwe, overall effect ASRH strategy was a rise in condom utilisation in the treatment group by 9.7% but however not statistically significant.¹¹⁶ Also in Liberia, the intervention had positive outcomes on protective peer norms and positive condom attitudes. The intervention did not impact sexual initiation or multiple sex partnerships and did not increase condom use at 3 months survey.¹¹⁹ In Uganda, there was reversed effect of intervention on knowledge about risky sexual behaviour leading to STI, HIV or pregnancy, delaying sexual intercourse, self-efficacy for sexual coercion and positive effect on attitudes towards using condoms¹²⁰

5.5.3 Mixed Methods

There were two mixed methods both in South Africa.^{111,113} The peer education program showed improved knowledge of support networks and improved program indicator scores for participants with low SES¹¹¹ one reported that at least on session of intervention gave

participants positive effect of increasing knowledge of condom and HIV and also attitude towards delaying sexual debut. ¹¹³

5.6 Adoption

This refers to the absolute number, proportion or percentage of representativeness of the agencies, individuals, decision makers, or agents (teachers, health workers) who were willing to implement or initiated the program or intervention.

Only eight of the evaluation reported on the adoption of the interventions. Five were effect evaluations, two were mixed and only one was a process evaluation. See Annex 1

The evaluation of FLHE in Nigeria reported adoption in its evaluation report in which at the end of seven years, 77.8% of States had started the programme. This trend was observed across the country except in the North-West where adoption was seen in 29% of the states within a year of introduction of the program.⁴⁵ This may have been responsible for the poor implementation of the program across the country. In Kenya, the MLRC program was a collaboration between the Commission for Education and Religious Education within the Kenya Conference of Catholic Bishops (KCCB) and faculty/staff members from the largest Catholic university in the United States. At initiation about 15 of 25 (60%) of KCCB diocese implemented the program and later extended to 24 out of 25 (96%) after the pilot trials.¹¹⁵ Also in school and community based program in Kenya, the various agencies involved in the intervention design and implementation were the Ministry of Education, science and technology; the Ministry of Health; the Ministry of Gender, sports and culture, local civic and religious leaders, community leaders, district officers, parents, head teachers, teachers and peer educators.¹¹⁴

In South Africa, there were three reports, one was the PREPARE program which was implemented with willingness from the Western Cape Department of Health (regional), the City of Cape Town Health Department (district), and the Desmond Tutu HIV Foundation (NGO);¹²¹ and the second one was the SLP which was incorporated into sexuality education curriculum willingness from the Education Development Centre (EDC) with support from USAID/PEPFAR (NGO).¹¹² The third one was implemented by the Western Cape Department of Basic Education in schools as a new delivery model by using the peer education.¹¹³ In Rwanda, the peer education program was implemented in all the 15 secondary schools in the district by the Rwandan Red cross and the school principal, teachers and peer educators were involved.¹²² In Liberia, involvement of the schools and community stakeholders guided the curriculum adaptation.¹¹⁹

5.7 Implementation

This refers to how much the intervention conforms to the protocol developed. It includes the consistency of delivery as intended, the time of delivery, dosage delivered and dosage received, as well as cost of implementation.

5.7.1 Fidelity

Only three of the interventions mentioned fidelity check of how implementation tallied with actual program.^{117,120,121} The PREPARE program in South Africa had two independent observers assessed the fidelity in the intervention by observing the facilitators at randomly unannounced times for a total of two sessions each in different schools.¹²¹ In tMEMA kwa Vijana program in Tanzania there was supervision of the health facility clinician to ensure youth friendliness.¹¹⁷ In Uganda, 16 out of 21 intervention schools had fidelity checks to access whether implementation was according to manual.¹²⁰

5.7.2 Dosage

Only Liberia reported on dosage. It was found that the number of sessions attended was positively related to HIV knowledge at the 3-month follow-up (B3mth= .14, $p < .05$). More attendance was inversely related to ever having sex (OR = .83, $p < .05$) at the 3-month follow-up but did not persist in the long term. This implies that more attendance was associated with abstinence. In a lifetime, participants were 1.20 times more likely not to have had sex in their lifetime at the 3-month follow-up.¹¹⁹

5.8 Maintenance

This domain assessed both the individual and the organizational levels. The individual level refers to the long term effects of interventions from minimum of 6 to 12 months after implementation. The organisational level refers to the institutionalization of the intervention. The articles that reported future sustainability were also included here.

Only nine reported the time for follow up, three did not state the follow-up time and two required no follow-up. See Table 2. For the two interventions that required no follow up, one was a baseline evaluation and end-line follow up was not due¹¹² and the other one had an immediate post-test¹²³. Only eight interventions were analysed for the long term effect as one had follow-up at 4 months.¹¹¹

In Ghana, long term intervention effects were absent.¹¹⁰ whereas in Rwanda, the peer education intervention increased HIV protection knowledge and enacted stigma but had no effect on sexual risk behaviour¹²² and in South Africa, long term effects of peer education was present for knowledge of HIV transmission and self-efficacy towards sexual relations.¹¹³

In Liberia, long term effects at nine months showed positive peer norms and attitudes; but effects on HIV/AIDS knowledge or sexual refusal self-efficacy, sexual initiation rates and number of partners were not present. There was a delayed effect on increase condom use that was not seen at 3-months follow-up. The evaluation also found that at nine month follow up, protective sexual attitudes were lower in the intervention group which was absent at three months¹¹⁹ and in Zimbabwe no effects were present.¹¹⁶

One of the interventions in Kenya had a long term effect which showed positive effects were present at both 10 and 22 months for HIV knowledge and condom self-efficacy and factual knowledge (only in males) improved at 22 months.¹¹⁸ While in the community and school-based intervention in Kenya, both intervention arms had increased awareness of sexual reproductive and body functions, contraception. There were increased knowledge of abstinence as a means of avoiding STIs/HIV. In the community and school-based intervention arm, effects on the awareness of HIV were not present. Also were negative effects on the condom use as a means of avoiding STI/HIV was found at follow up.¹¹⁴

In South Africa for the PREPARE program, at 12 months follow-up, there were no differences between intervention and control arms in 1-year incidence of self-reported sexual debut (12.7 vs. 12.0 %; AOR: 1.07; 95 % CI 0.83–1.40), self-reported condom use at last sex (80.6 vs. 83.5 %; AOR: 0.64, 95 % CI 0.33–1.25), number of sexual partners in the past 12 months (0.62 vs. 0.40; B: -0.03; 95 % CI -0.71 to 0.64). However there were better condom knowledge scores and lower rates of IPV in intervention arm compared with the control arm.¹²¹

In Tanzania, the long term evaluation of MEMA kwa Vijana suggested that a shift of predominant community norms required longer period. Also individual level intervention are better thoroughly evaluated than structural level intervention hence better evidence of effectiveness.¹¹⁷

Only three of the interventions were institutionalized^{45,112,116} and the detailed process were not stated.

Chapter 6: Discussion

Understanding what makes interventions' effective in preventing adolescents from becoming pregnant unintentionally or contracting STIs including HIV, both of which can have dire consequences is important. The key findings will be discussed in this chapter.

The determinants of adolescent SRB in SSA were analysed using the TPB model. The analysis showed that age and gender were background factors that played a mediating role in influencing SRB. This agrees with the report from Guttmacher institute on developing countries that puberty and sexual maturity coincides with early adolescent years and overtime, age at puberty has reduced in many countries; hence adolescents have longer years before marriage which puts them at risk of SRB.⁶² Gender was also another factor. In SSA the role of gender continues to reflect on SRB especially in the context of SSA where culture has strong influence. In some countries in SSA including Nigeria, female adolescents are considered matured for marriage when they approach puberty which exposes them to early sexual debut, early child bearing amongst other poor SRH outcome. Another finding is the normative beliefs especially in important referent individuals like peers and family members. The influence of family structure in predicting SRB explains that adolescents who lived with both parents are unlikely to engage in SRB however sex and sexuality remains a sensitive topic in most settings. This differed from the study in Tanzania where it was found that young people had open discussions about sex with their fathers and this justifies premarital sex¹¹⁷ putting them at risk of SRB. Peer influence however clearly stood out as adolescents were likely to adopt behaviour either positive or negative to gain respect and acceptance into their peer groups as observed in Ghana, Kenya and South Africa. This finding supports the suggestion by UNFPA that peer education strategy can be used to develop positive knowledge, attitudes, beliefs, and competencies of adolescents to make them responsible for their health.⁹⁵ In the context of Nigeria, most cultures do not openly support discussions around sex and sexuality for young people especially outside marriage hence utilizing peer approach as a behavioural strategy to prevent adolescents from the risk of acquiring STIs including HIV has been proven to be acceptable as recommended by the WHO.¹⁰⁹

The analysis of the various policies and programs across SSA found that countries in SSA are unable to honour their international commitments at addressing adolescent SRHR they do not attain different goals and targets set for achievements despite being a signatory. The various commitments include the ICPD PoA, Maputo plan of Action, MDGs, EWE strategy, and the SDGs. The major findings were weak policy formulations, poor access to SRHR services, and reproductive and sexual health rights. A huge concern central to adolescent SRHR issues in SSA are poor laws and policy formulation. The WHO guideline strongly recommends the formulation and enforcement of policies and laws to address adolescent SRHR issues like unsafe abortion, child marriage¹⁰⁹ which still exists in most countries in SSA.¹²⁵ The abortion laws in SSA are liberal however implementation remains a huge challenge.¹⁰⁷ Also, the laws on paper are liberal but most women and girls are not aware of how liberal the laws are and religious and cultural beliefs about abortion make the general population to perceive abortion laws as rigid. Decriminalization of abortion and allowing free access to post-abortion care services will reduce the maternal deaths and improve overall quality of life as liberal abortion laws alone do not address the challenges.¹⁰⁶ In Nigeria and other countries in SSA, adolescents still need parental/spousal consent to access services even when these services are available. This agrees with the UNAIDS report as Nigeria had less than 20% of adolescents aged 15-19 years who had a say over their health compared to countries like Rwanda and Zimbabwe had over 70% of adolescents partake of the decisions as regards their health.¹⁰⁴ Health service related barriers such as negative and judgemental attitude of the health workers,

lack of confidentiality and privacy are barriers adolescents face in SSA including Nigeria that needs to be addressed to improve their health.

The review of evaluated reports of interventions aimed at promoting adolescent SRHR was analysed using the RE-AIM framework. It was difficult to conclude on one best effective intervention approach. South Africa was found to have the highest number of interventions which may be as a result of the high burden of HIV and STIs on the region. Broadly, the selected interventions were found to increase knowledge of HIV/STI transmission, knowledge of condom use, delaying sexual debut, perceived risk and condom efficacy. Some of the evaluation did not produce significant changes which may suggest that they were not the best approaches in addressing adolescent SRHR challenges for desired outcome however considering other aspects of the interventions like strategies of delivery, study designs.

It was evident that the reach of the interventions were difficult to ascertain as only one of the 15 countries reported the reach. Planning and setting of clear targets are important parts of interventions that should not be over looked for effectiveness of such interventions. The intervention participants were however sampled for reach a clear example of challenges with consent for adolescents was seen in South Africa, where just about half of targeted adolescents participated in the evaluation for consent related issues.¹²¹ Adolescents continue to depend on significant others to be part of decisions that majorly influence their lives without having the choice freely to make contributions to issues pertaining to their health. This continue to play out in intervention designs, implementation and evaluation of adolescent programs. None of the interventions by their design included adolescents for the development and design of the implemented programs. This undermines the rights of the adolescents and also may explain the ineffectiveness of some programmes as they may not address the needs of adolescents. This is in keeping with evidence from UNICEF that adolescents outgrow the programs planned for children and do not fit into the adult programs owing to their peculiar needs.⁹

Also most of the interventions showing positive effects were observed to be in the short term. Results focussing on favourable outcomes should be interpreted with caution due to flaws in study design, selection bias of program evaluation participants and methods of evaluation. The need for more rigorous study design for evaluation of programs cannot be overemphasized hence the need for more evidence informed studies to fill the lacuna in Nigeria. The FLHE evaluation report from Nigeria by Udegbe et al was motivated by the need to fill a research gap.⁴⁵ This is keeping with adolescent SRH strategy in Zimbabwe that was implemented on a large scale without piloting.¹¹⁶ The piloting of interventions for effectiveness as seen in Kenya¹¹⁵ and South Africa¹¹² where outcomes were favourable gives an insight to the need for a research plan as part of development and implementation of interventions to work towards to achievement of desired outcome. Also a need for a larger scale evaluation of the FLHE has been suggested from previous study.¹²⁶

Adoption in the evaluated reports was poorly reported. The percentage of representativeness of stakeholders willing to implement an intervention determines the feasibility of the program. In Nigeria, despite the directive of the Federal Ministry of Education to incorporate the FLHE in the primary and secondary school curriculum, more efforts have been in the junior school and also with varying levels of implementation across the country owing to limited resources.⁴⁵ This is keeping with the report from Kenya where only 3% of the schools implementing the program could participate in the evaluation due to limited resources.¹¹⁵ It is important that stakeholders in Nigeria show willingness and commitment to work towards set achievements. As seen in the Abuja declaration where countries commit to increase their share of current health expenditure on health to

at least 15% to improve health outcomes, most counties in SSA including Nigeria fail to reach this target.³³

Findings on fidelity of interventions was a strong predictor of effectiveness in this review. While most of the interventions organised and delivered training for the intervention, monitoring and delivery of programs according to protocol was challenging. Only three of 15 evaluation reports however stated their fidelity checks. In Nigeria, the FLHE program had varying levels of implementation and based on cultural and religious reasons, the implementation and delivery of the FLHE was modified.⁵⁵ A better approach of intervention design can help improve implementation by multi-stakeholder engagement the formulation stage. Insights can be lent from the community and school based approach in Kenya where multiple stakeholders played important roles to intervention delivery.¹¹⁴

The long term effects of evaluated reports for over six months and more was found in six of the nine evaluation reports. The period of time taken to measure for effects was a strong finding as seen in Tanzania where it was found that the shift of cultural norm required a longer period.¹¹⁷ The timing of measurement of the effects should be considered to get the desired effect. As suggested in Ghana, a longer follow-up time to measure outcome may have influence the effects.¹¹⁰ There is also strengthening of the evidence of effectiveness as seen in Kenya.¹¹⁸ Sustainability of interventions is dependent on a number of factors with cost effectiveness included which was difficult to evaluate in this review as only one of the evaluation reports included cost in their report.⁴⁵ However cost can be a barrier to sustainability as seen in Tanzania where condom component of the program was aborted owing to cultural beliefs, sustainability and cost.¹²⁷ In reviewed reports, the NGO and FBO also have a role as partners delivery of interventions to enhance sustainability as seen in Kenya ¹¹⁵. None of the evaluated reports mentioned the institutionalization of interventions. However insights can be drawn to from SLP which was an activity introduced in the curriculum in South Africa to improve the quality of sexuality education curriculum.¹¹²

6.1 LIMITATIONS OF THE STUDY

This thesis is qualitative literature review that used analytical frameworks address adolescent health concerns. This review used relevant peer reviewed published articles that were recent including information from credible websites. The use of various websites helped to get as much information as possible. However review depended on information from available literature. No primary data collection was done. Also only literature published in English Language was considered leaving out all the relevant information and articles written in other languages. The online sources of the articles used may also be prone to publication bias.

6.2 USEFULNESS OF THE FRAMEWORKS

Two frameworks were used in this review: the Theory of planned behaviour by Ajzen and the RE-AIM framework by Glasgow.

The TPB was used in analysing the adolescent SRB in this review was useful. It helped in organising findings on the personal factors, beliefs, attitude and norms of the adolescents. It also showed the link between intention and behaviour. The limitation was that it could only predict behaviour under volition and self-efficacy is not well enumerated in this model.

The RE-AIM framework was used to appraise effective interventions in SSA. It helped in organising the findings on the interventions to determine effectiveness in relation to the outcome of interest however one of the demerits of the framework is that reporting through all the five dimension made it difficult to assess most domains of the reports and hence conclude on their effectiveness.

Chapter 7:

CONCLUSION

This thesis has been able to analyse the determinants of adolescent SRB in SSA; analyse current adolescent SRHR policies and programs and compare with international standards; and appraise the effective interventions in SSA with use of analytical frameworks and relevant peer reviewed articles.

Findings from the analysis of SRB identified age, gender and peer norms as strong factors influencing adolescent SRB using the TPB model. Adolescents' needs differ by age and gender; peers norms are important to the variety of adolescent groups. It is worthy of consideration to incorporate these factors into design and planning of interventions suited for adolescent SRHR in planning future interventions.

Analysis of policies and programs across SSA showed needed to towards achieving improved adolescent health however there are still huge gaps and expectations to be met when compared with international commitments and standards. Countries in SSA including Nigeria still suffer from the high burden, consequences and complications of STIs/HIV and teenage pregnancy. The improvement of the burden of adolescent sexual health problems is largely dependent on formulation, implementation and enforcement of laws and policies as strongly recommended by the WHO guidelines on adolescent health. Creating access to services alone will not overcome the various barriers that the adolescents face regarding their sexual health thus this creates a great opportunity for program planners and stakeholders in improving adolescent health.

Appraisal of effective SRHR intervention targeted at STIs including HIV and teenage pregnancy was addressed in this review with the aim of finding "what works" in the context of SSA. Findings showed various interventions and approaches multi-component interventions were found to be more effective in preventing teenage pregnancy and STIs as compared to single component interventions. And also that the lack of rigor in the design of the evaluation studies implies that the results should be interpreted with caution. The reviewed interventions have shown the potential ineffective approaches and flaws in design of interventions. The need to harmonise these evidences and improve on the standards of research in adolescent SRH and work towards sustainability will improve the overall adolescent sexual and reproductive health and achieve the SDG goal of leaving no one behind.

RECOMMENDATIONS

From this literature review, the following recommendations are hereby made to FMOH, policy makers, program planners and relevant stakeholders for improving adolescent SRH in Nigeria:

(Programs and services)

1. The FMOH should plan programs with gender-transformative approach and incorporate the role of peer group for intervention delivery clearly in the protocol.
2. The FMOH should conduct a needs assessment with quantitative and qualitative components for adolescent SRHR programs targeting prevention and piloting of the intervention with evaluation to be done before scaling up.
3. FMOH should collaborate with local CSOs and NGOs working on adolescent population to have a joint database and harmonised reporting tools as seen in most HIV/AIDS programs
4. FMOH should build up the capacity of all State Ministry of Health services including comprehensive health centres to be able to offer SRHR information and services

Policy and Laws

5. The FMOH should review and update the outdated 2007 National Policy on Adolescent and Youth Development through an evidence informed and rights-based approach to address adolescent health; and ensure dissemination to relevant service points.
6. The FMOH to outline detailed strategic plans for adolescent health in the National Strategic Health Development Plan (NSHDP) for 2016-2021. These plans should address the health service related structural and quality of service barriers of adolescents.
7. The Federal Ministry of Education in conjunction with FMOH revise the CSE curriculum following the UNFPA Technical guidelines on CSE and adapt the curriculum as a stand-alone life skills sessions taught at all levels of education in Nigeria.
8. Policy makers, NGOs, CSOs and other program planners should to advocate for decriminalization of abortion and free access of post-abortion care for adolescents.

(Research)

9. The FMOH should draw an evaluation plan for implemented projects focussing on adolescent SRHR, and implement periodic evaluation (baseline, midline and end line evaluations), analyse and disseminate results to inform actions plans.
10. CSOs should carry out research and document their findings for publications and disseminate results to all stakeholders including the communities in appropriate form.

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Annex

Annex 1: showing the characteristics of evaluated interventions.

Evaluated by	Program Name	Country and region	Study design	Type and Intervention site	Outcome and theory	Mode of delivery	Structure of intervention	Sex and Age of participants	Number of participants	Type of evaluation	RE-AIM component reported	Follow-up
Atwood et al 2012 ¹¹⁹	MPC	Liberia [West Africa]	Grouped RCT [pre-test and post-test for both intervention and control]	Elementary/middle school	Outcome- K,A -positive condom attitude -Delay sexual initiation Theory- SCT,TRA	- Teacher-led	-8 modules -role plays	Male and Female Age- [15-19 years]	n= 812 participants	Effect	E,A	3 months, 9 months
Harper et al 2018 ¹¹⁵	MLRC	Kenya [East Africa]	One group Pre and post -test experimental design	Primary catholic schools	Outcome- K,A,	- Teacher-led	-51 sessions -1 per week -40 minutes long -cultural specific songs -bible verses to reinforce HIV prevention -role play	Male and female Age- [11-12 years]	N=1846	Process and Effect	E,A,I,M	n/s
Krugu et al 2018 ¹¹⁰	SPEEK	Ghana [West Africa]	Quasi-experimental	School based Peer education Junior high school	Outcome -K,A,P -self-efficacy -perceived risk -perceived behavioural control Theory- HBM, TPB, TRA	-Peer-led	-11 lessons -1 lesson per week -each lesson for 1 hour	Male and Female Age [10 - 21 years] Mean Age -15.84 years	N= 1822 N=1805(pre-test) N=1959(post-test)	Effect	E,I,M	6 months
Madeni Frida 2012 ¹²³		Tanzania [East Africa]	Quasi experimental [one group pre and post-test design]	School based	Outcome- K,A, behaviour	- Facilitator-led	45 minutes program -pre-test -14 piece audio-visual drama -discussion -post-test	Male and female Age- [11-16 years]	n=313 participants	Process and Effect	E	-
Mathews et al 2016 ¹²¹	PREPARE	South Africa [Southern Africa]	Clustered RCT	Secondary schools	-K,A, -delay sexual debut -increase condom use -decrease intimate partner violence (IPV) among young adolescents	-Peer-led	21 lessons -1 lesson per week -each lesson 1-1.5 hours after school	Male and female Age- Mean Age 13 years (intervention and control)	N=3451	Process and Effect	E,A,I,M	6 months, 12 months

Maticka Tyndale E. et al 2011 ¹¹⁸	PSABH	Kenya [East Africa]	Quasi-experimental [pre-post-post cross sectional]	Primary school	Outcome-K,A -Self-efficacy -condom use -Acceptance of HIV positive students	- Teacher-led	n/s	Male and Female Age-[11-16 years]	n=26,461 participants	Effect	E,I,M	10 months, 22 months
Evaluated by	Program Name	Country and region	Study design	Type and Intervention site	Outcome and theory	Mode of delivery	Structure of intervention	Sex and Age of participants	Number of participants	Type evaluation of	RE-AIM component reported	Follo w-up
Michielsen et al 2012 ¹²⁴		Rwanda [East Africa]	Non RCT	Secondary schools	Outcome – K,A, Sexual behaviour Theory- TRA, SLT, HBM, the Diffusion of Innovations Theory	- Teacher-led	Anti-AIDS club -songs -drama -counselling Interactive method	Males Mean age – 18.41 (intervention) Mean age -17.60 (control)	N=1588	Effect	E,A	3 months, 9 months
Muchaibawa et al 2019 ¹¹⁶		Zimbabwe [Southern Africa]	Cross-sectional before and after study with comparison group	Community Health facility school	-K, A -condom use -STI treatment -STI prevalence -HIV testing -HIV prevalence	-Teacher -Peer-led - Community YFS -Health workers	n/s	Male and Female Age- [15-19 years]	n/s	Effect	E	5 years
Njue et al 2015 ¹¹⁴		Kenya [East Africa]	Community RCT	Community Primary and Secondary schools	Outcome- K,A,P, self-efficacy	- Teacher-led -Peer-assisted	School: 14 sessions of life skills -1 per week over 3 terms Community: -500 community activities ->15000 meetings (sites A&B)	Male and female Age-[10-19 years]	n- 3522 (base line) n- 3758 (end line)	Effect	E,A	18 months
Rijsdijk et al 2011 ¹²⁰	WSWM	Uganda [East Africa]	Quasi-experimental	Secondary schools	Outcome-K,A -Behaviour -self-efficacy -perceived risk -intention -condom use, -delaying sexual intercourse -Non-coercive sex Theory-TPB,HBM	n/s	14 lessons Virtual sex education sessions	Male and Female Age- [15 - 19 years]	1986 participants N=853 (intervention) N=1011(control)	Effect	E,I,M	n/s
Speizer et al 2018 ¹¹²		South Africa [Southern Africa]	2 arm clustered RCT	Secondary schools	Outcome- K,A, -school retention -self-reported risk behaviour -HIV treatment -STI incidence (HSV-2) -Pregnancy	- Teacher-led	8 lessons- grade 8 11 lessons- grade 9	Male and female Mean age-13.6 years [grade 8 girls] Mean age- 14.3 years [grade 8 boys]	N-3606	Effect	E,A,I	-

								Mean age- 16 years [grade 10 girls]				
Swartz et al 2012 ¹¹¹	Vhutshilo	South Africa [Southern Africa]	Mixed methods (Quantitative & qualitative) Longitudinal Quasi-experimental	Secondary schools	Outcome -K,A,	-Peer-led	13 one hour sessions -peer delivery after school sessions	Male and Female Age- [14 - 16 years]	n- 183 quantitative survey data n- 32 semi-structured interview	Effect	E	4 months
Timol et al 2016 ¹¹³		South Africa [Southern Africa]	Mixed Methods (quantitative cross-sectional) Post intervention data collection and delayed post intervention data collection	Secondary schools	Outcome- K,A,P, self-efficacy in sexual relations, -decision-making, - healthy relationships -social support.	- Facilitator-led	45 minutes program -pre-test -14 piece audio-visual drama -discussion -post-test	Male and female Age- [13-15 years]	N- 7709	Effect	E,A,I	5-7 months
Udegbe et al 2015 ⁴⁵	FLHE	Nigeria [West Africa]	Quantitative (analysis of secondary data)	Secondary schools	Outcome- K,A,P (STI/HIV, condom use)	- Teacher-led	-component of school curriculum	Male and Female Age- [10 -19 years]	n/s present in all states	Process	R,E,A,I	n/s
Wight et al 2012 ¹¹⁷	MEMA kwa Vijana	Tanzania [East Africa]	Qualitative method -Participant observation -In-depth interviews -Intensive group discussions	Community Health facility School	-K, A -perceived risk/susceptibility -anticipated/regret, -self-efficacy intentions or goals, and subjective norms	- Teacher-led -Peer-assisted	-40 sessions for 3 upper years of primary school	Male and Female Age- [13-19 years]	92 participants	Process	E,I	n/s

Note: K – Knowledge, A – Attitude, P – Practice, n/s – not stated

Theory: SCT –Social Cognitive Theory, TRA- Theory of Reasoned Action, HBM- Health Belief Model, TPB- Theory of Planned Behaviour, SLT- Social Learning Theory

Program Name- MPC- Making Possible Choices, MLRC- Making Life’s Responsible Choices, PSABH- Primary School Action for Better Health, WSWM- the World Starts With Me, FLHE- Family Life and HIV Education

Annex 2: Summary of Evaluation results for quantitative methods

Reference	Country	Knowledge (STI/HIV/pregnancy prevention)			Abstinence/delaying sexual debut			Condom use attitude			Condom efficacy			Perceived risk			Perceived behavioural efficacy			Number of sexual partners			HIV testing	STI treatment	HIV/STI prevalence
		+	n/s	-	+	n/s	-	+	n/s	-	+	n/s	-	+	n/s	-	+	n/s	-	+	n/s	-			
Quasi-experimental or RCT																									
Krugu et al 2018 ¹¹⁰	Ghana	x			x			x			x			x			x						-		-
Muchabaiwa Lazarus 2019 ¹¹⁶	Zimbabwe								x														No effect	No effect	No effect
Maticka Tyndale E 2013 ¹¹⁸	Kenya	x						x			x												-	-	-
Rijsdijk et al 2011 ¹²⁰	Tanzania	x			x			x			x				x		x						-	-	-
Atwood et al 2012 ¹¹⁹	Liberia		x		x			x			x				x						x				
Mathews et al 2016 ¹²¹	South Africa	x			x				x			x									x		-	-	-
Speizer et al 2018 ¹¹²	South Africa																	x					n/r	n/r	-
Njue et al 2015 ¹¹⁴	Kenya	x			x			x			x							x					-	-	-
Non RCT																									
Michielsen 2012 ¹²²	Rwanda	x							x			x			x								-	-	-
Pre and post survey with no control																									
Harper et al 2018 ¹¹⁵	Kenya	x																					-	-	-
Madeni Frida 2011 ¹²³	Tanzania	x				x																	-		-
Grand total =11		8	1	0	1	5	0	5	3	0	5	2	0	2	2	0	2	2	0	0	2	0	2	2	1

Note : + positive effect seen at least 3 months; n/s no effect; - negative effect; n/r not reported.

Annex 3: Summary of Evaluation reports for mixed methods

Reference	Country	HIV transmission knowledge			HIV prevention knowledge			HIV attitude			Self-efficacy/decision-making			Future orientation			Healthy relationships		
		+	n/s	-	+	n/s	-	+	n/s	-	+	n/s	-	+	n/s	-	+	n/s	-
Mixed methods (qualitative and quantitative techniques)																			
Swart S et al 2012 ¹¹¹	South Africa	x					x			x			x			x			x
Timol et al 2016 ¹¹³	South Africa	x			x				x		x			x			x		
Grand total= 2		2	0	0	1	0	1	0	1	1	1	0	1	1	0	1	1	0	1

Note : + positive effect seen at least 3 months; n/s no effect; - negative effect.

Annex 4: Reasons for legal abortion in Africa

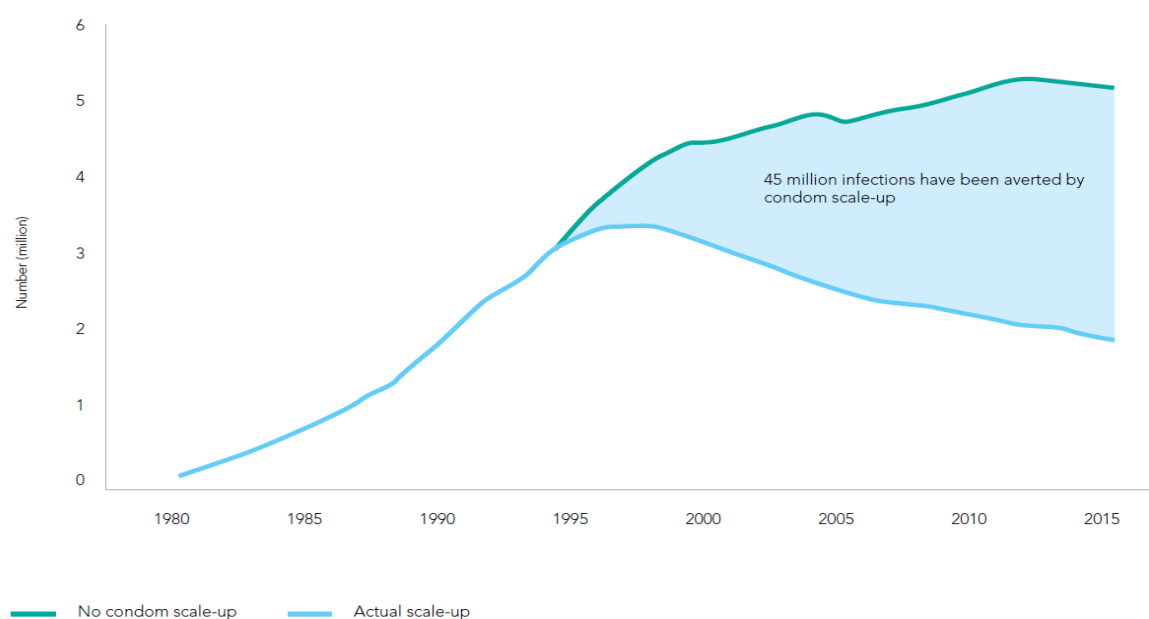
Reason	Countries
Prohibited altogether, (no explicit legal exception)	Angola, Congo-Brazzaville, Congo-Kinshasa, Egypt, Gabon, Guinea-Bissau, Madagascar, Mauritania, São Tomé and Príncipe, Senegal
To save life of woman	Côte d'Ivoire, Libya, Malawi, Mali (a,b), Nigeria, Somalia, South Sudan, Sudan (a), Tanzania, Uganda
To save life of woman/preserve physical health*	Benin (a,b,c), Burkina Faso (a,b,c), Burundi, Cameroon (a), Cen. African Republic (a,b,c), Chad (c), Comoros, Djibouti, Equatorial Guinea (d,e), Ethiopia (a,b,c), Guinea (a,b,c), Kenya, Lesotho (a,b,c), Morocco (e), Niger (c), Rwanda (a,b,c), Togo (a,b,c), Zimbabwe (a,b,c)
To save life of woman/preserve physical or mental health	Algeria, Botswana (a,b,c), Eritrea (a,b), Gambia, Ghana (a,b,c), Liberia (a,b,c), Mauritius (a,b,c,d), Mozambique (a,b,c), Namibia (a,b,c), Seychelles (a,b,c), Sierra Leone, Swaziland (a,b,c)
To save life of woman/preserve physical or mental health/socio-economic reasons	Zambia (c)
Without restriction as to reason	Cape Verde, South Africa, Tunisia

*Includes countries with laws that refer simply to "health" or "therapeutic" indications, which may be interpreted more broadly than physical health. *Notes:* Some countries also allow abortion in cases of (a) rape, (b) incest, (c) fetal anomaly. Some restrict abortion by requiring (d) parental or (e) spousal authorization. Countries that allow abortion without restriction as to reason have gestational age limits (generally the first trimester); for legal abortions in categories 2 through 5, gestational age limits differ by prescribed grounds.

Source: showing reasons for legal abortion in African countries ¹⁰⁶

Annex 5: Magnitude of HIV infection averted through condom use

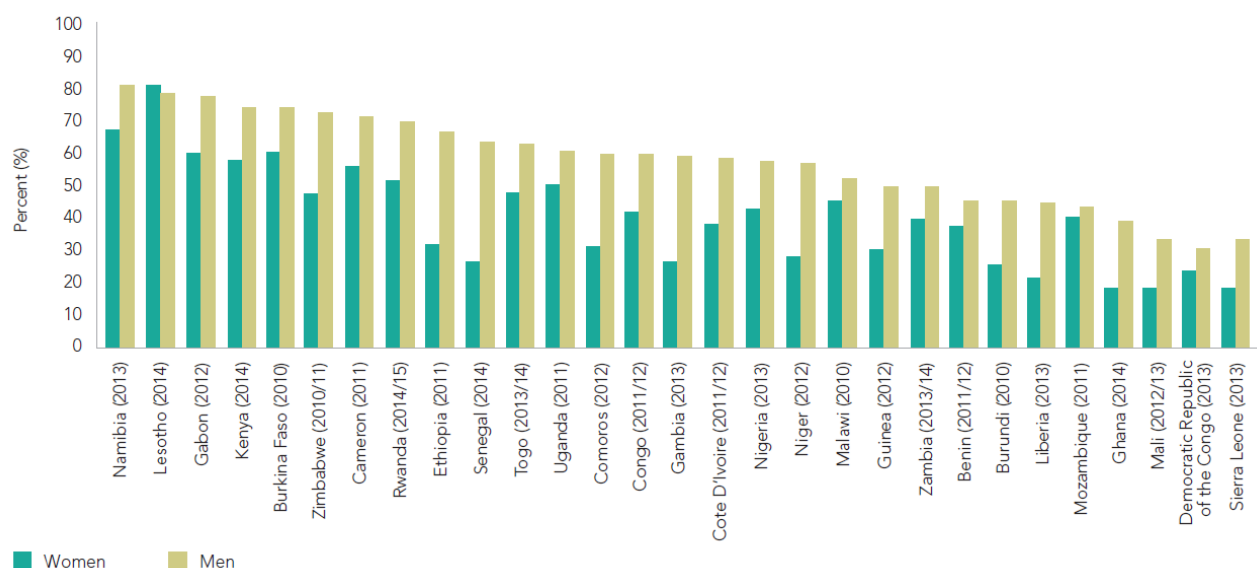
NUMBER OF HIV INFECTIONS AVERTED THROUGH CONDOM USE, GLOBAL, 1990–2015



Source: UNAIDS Prevention gap report 2016¹⁰⁸

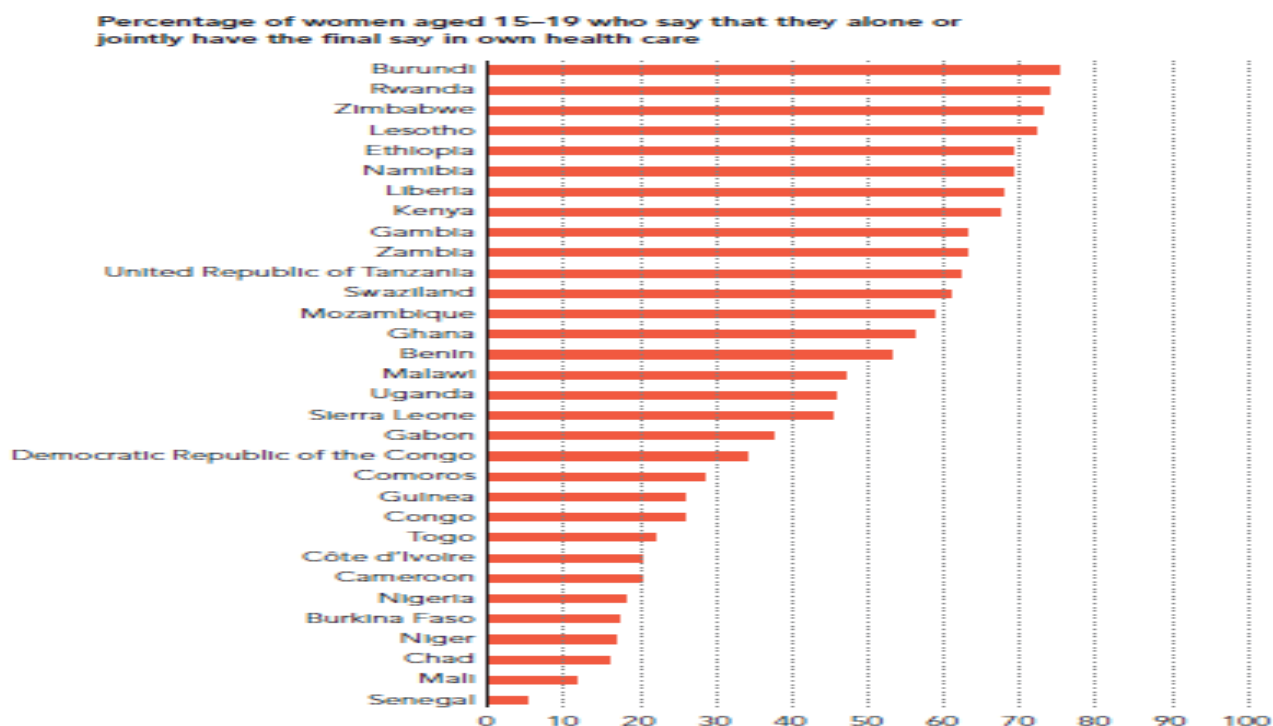
Annex 6: Percentage of self-reported condom use in youths in sub-Saharan Africa 2010 - 2015

Percent of young women and men (aged 15–24 years) reporting use of a condom at last sexual intercourse with a non-regular partner in the 12 months prior to the survey, sub-Saharan Africa, 2010–2015



Source: UNAIDS Prevention gap report 2016¹⁰⁸

Annex 7: Percentage of female adolescents (15-19 years) who have a say in their health in SSA



Source: UNAIDS report "When Women Leads change happens" 104