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SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

DETERMINANTS OF CONTRACEPTIVE USE AMONG SEXUALLY ACTIVE ADOLESCENTS AGED 15-19 YEARS IN SIERRA LEONE: AN ANALYSIS OF THE SIERRA LEONE DEMOGRAPHIC AND HEALTH SURVEYS 2008 - 2019

BY

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DECLARATION

I, Hawanatu Assanatu Barrie, hereby certify that this submission is my original work and that it does not contain, to the best of my knowledge, any previously published material or material that has been accepted for the award of any degree at this University or elsewhere. I affirm that all the works of other researchers cited in this work have been duly acknowledged.

Hawanatu Assanatu Barrie Date …7th July 2022

(Student)

Dr Adom Manu Date 7th July 2022

(Supervisor)

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DEDICATION

I dedicate this work to my husband Anthony Maada Mansaray, our lovely kids Anthony Albert and Anthony Abraham M. Mansaray and my beloved mother Mrs Finda Musu M. Barrie.

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ACKNOWLEDGEMENTS

I am very much thankful to the Almighty God for the protection, provision, guidance and direction throughout this COVID-19 period whilst learning.

My sincere gratitude goes to my supervisor, Dr. Adom Manu, for his unfailing supervision together with the numerous efforts he put to ensure that my research is well done.

With a heart full of gratitude, I say a very big thank you to the School of Public Health staff, the University of Ghana for creating this learning platform of excellence.

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Special thanks to Professor Mohammed Samai for nominating me for the WHO/HRP Alliance Programme scholarship through the Ministry of Health and Sanitation (MoHS), Sierra Leone.

My sincere appreciation goes to my family, most especially, my husband Anthony M Mansaray, and my mother Mrs. Finda M M Barrie for their love and support, especially, taking care of our sons, while I was in school. To my beloved uncle and his wife (Mr and Mrs Lahai), I appreciate their efforts towards my education.

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ABSTRACT

Background: Low contraceptive use remains a public health challenge, especially in developing countries where over half (57%) of adolescent pregnancies occur annually. Sierra Leone has a sexually active youthful population with a high adolescent pregnancy rate of 21% and low contraceptive use (21.3%). The objectives of this study were to determine; knowledge and awareness of contraceptives, the prevalence of contraceptive use and the determinants of contraceptive use among sexually active adolescents (15-19 years) in Sierra Leone from 2008 to 2019.

Methods: The study was a secondary data analysis of the Sierra Leone Demographic and Health Surveys for the years 2008, 2013 and 2019. Relevant data were extracted, cleaned and recoded where appropriate. The extracted data were analysed using Stata SE version 16 after Complex survey setting of the DHS data was accounted for. Both binary and multivariate logistic regression model were applied to evaluate the association between contraceptive use and the independent variables. A *p*-value of 0.05 was used to determine statistical significance whilst odds ratios with their 95% confidence intervals were utilized to assess the strength of association.

Results: A total of 5,213 respondents were involved in this study with a mean age of 17.5 years (SD=1.31). The majority of them were Muslims (75.9%), single (70.1%) and had secondary school education (58.7%). The knowledge of contraceptive method was (93.9%) with a pooled contraceptive prevalence rate (CPR) of 31.7%. The significant variables during the bivariate analysis were further analysed in a multivariable logistic model. After adjusting for the covariates in the multivariable logistic regression, the determinants of contraceptive use identified were age group (AOR 2.13, 95% CI 1.41-3.22 $p < 0.001$), age at first birth (AOR 0.17, 95% CI 0.09-

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0.30,*p*<0.001), marital status (AOR 0.36, 95% CI 0.25-0.53, p<0.001), secondary level of education (AOR 2.70, 95% CI 1.70-4.29, p<0.001) and told of FP in health facility (AOR 1.51, 95% CI1.03 -2.22, p=0.034).

Conclusion: Contraceptive use among sexually active adolescents is low, however, it is noticed to increase with a higher level of education. Therefore, there is the need for improvement in sexual and reproductive health education. This will in turn optimize contraceptive use among adolescents in Sierra Leone.

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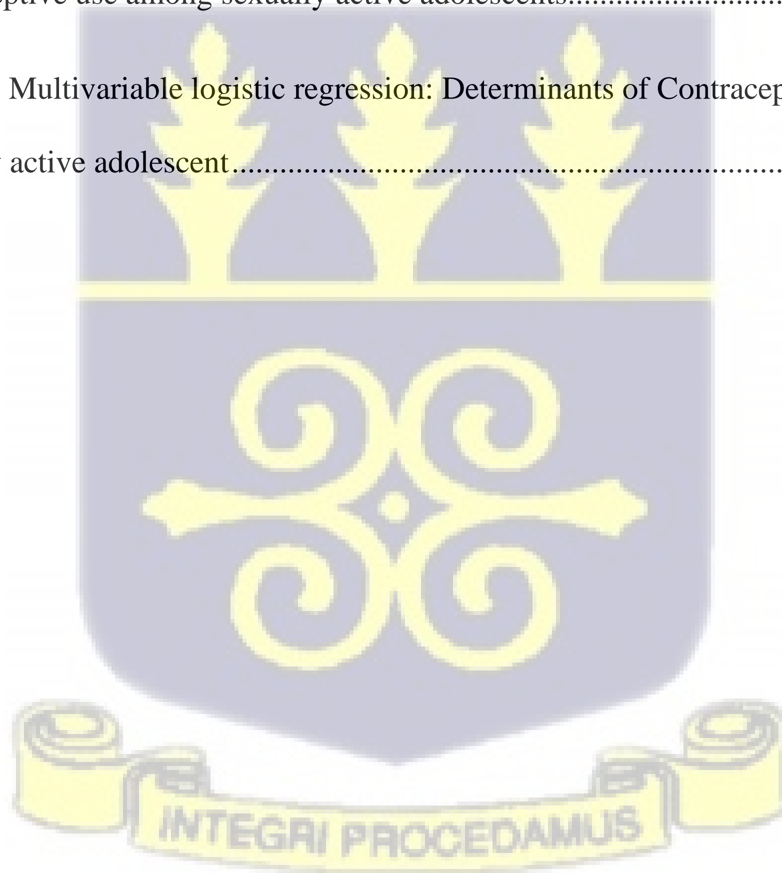

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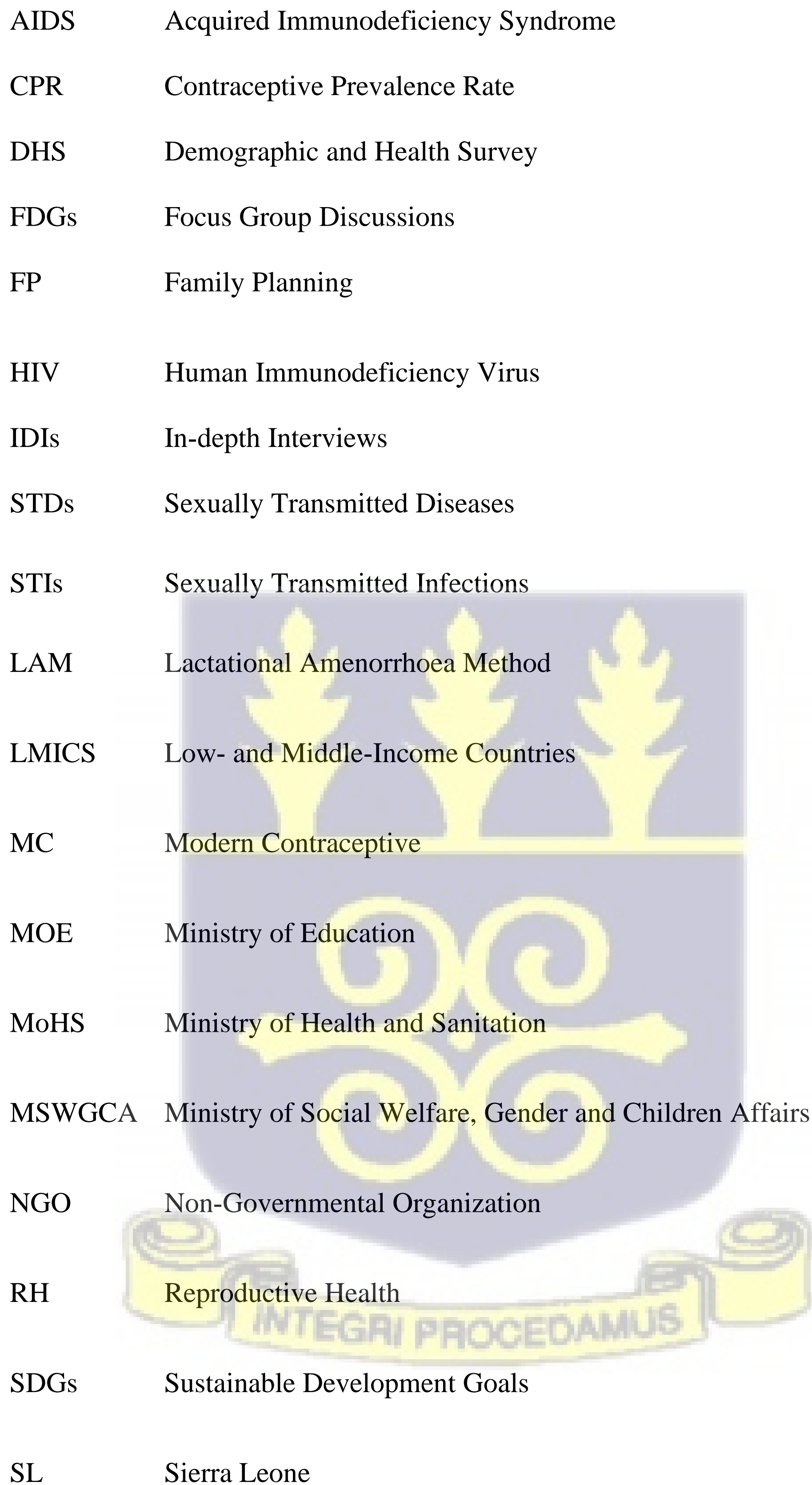

AIDS	Acquired Immunodeficiency Syndrome
CPR	Contraceptive Prevalence Rate
DHS	Demographic and Health Survey
FDGs	Focus Group Discussions
FP	Family Planning
HIV	Human Immunodeficiency Virus
IDIs	In-depth Interviews
STDs	Sexually Transmitted Diseases
STIs	Sexually Transmitted Infections
LAM	Lactational Amenorrhoea Method
LMICS	Low- and Middle-Income Countries
MC	Modern Contraceptive
MOE	Ministry of Education
MoHS	Ministry of Health and Sanitation
MSWGCA	Ministry of Social Welfare, Gender and Children Affairs
NGO	Non-Governmental Organization
RH	Reproductive Health
SDGs	Sustainable Development Goals
SL	Sierra Leone

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SLDHS	Sierra Leone Demographic and Health Survey
SRH	Sexual and Reproductive Health
UNDP	United Nations Development Fund
UNFPA	United Nations Population Fund
UNICEF	United Nations International Childrens Emergency Fund
WHO	World Health Organization

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Adolescence is the period of life when an individual transits from childhood to adulthood accompanied by social, bodily, and emotional changes (Melaku et al., 2014). The World Health Organization (WHO) describes adolescents as people aged 10- 19 years (WHO, 2020); who also falls within the young people age group (10-24) years and youths (15-24) years (Dehne et al., 2001). Global statistics indicate that adolescents (10-19 years) account for 1.2 billion of the world's population of which 86% resides in developing countries (UNICEF, 2019). Therefore, their health status is significant for the health and economic development of a nation (Dehne et al., 2001)

Globally, 21 million adolescent girls aged 15-19 years become pregnant every year with about 12 million residing in developing countries (WHO, 2020). In Sub-Saharan Africa (SSA), an estimate of about 2 million adolescent girls become mothers at a tender age (Woog et al., 2015). Majority of the unwanted adolescent pregnancies that occur could have been prevented by the use of modern contraceptives (Kwabena et al., 2019).

Contraceptives (modern types) are remarkably known for the prevention of unplanned pregnancies, unsafe abortion and its complications, as well as the aversion of sexually transmitted infections (STIs) including HIV and AIDS, which are a significant public health challenges of adolescent health (Muanda et al., 2018). Yet, modern contraceptive use is quite low among adolescents (Apanga et al., 2020; Sserwanja et al., 2021). For instance, the prevalence of modern contraceptive use among adolescents and young women aged 15-24 years in sub-Saharan Africa is 24.7% (Ahinkorah, Seidu, et al., 2020).

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Furthermore, a study from South-Western Nigeria, shows that almost 22% of young girls 15- 19 years have ever used a contraceptive during their last sexual contact. This is low as compared to over half of the United Kingdom adolescent populace, and about 39% of adolescents in the United State of America (Blackstone et al., 2017; French et al., 2018). The discrepancy in the prevalence rate of contraceptive use among adolescents in low, middle and high-income countries indicates a huge gap in the use of contraceptives (Sanchez et al., 2020).

Sierra Leone is a low-income country with a youthful population of 62.5% of its total populace being less than 25 years old but noted with very high risky sexual activity among them (Weekes & Bah, 2017). The median age of age at first sexual intercourse is 16.1 years between the ages of 15-19 years (Agbadi et al., 2020; Stats SL & ICF, 2019). Findings from the Sierra Leone demographic and health survey (SLDHS) indicate that modern contraceptives knowledge is universal among all women of reproductive age including sexually active adolescents in the country, however, the usage prevalence is only 21% (Stats SL & ICF, 2019). This corresponds to the results from a study in Ghana, which also shows that there is a significant gap between the knowledge and use of modern contraceptives among adolescents (Oppong et al., 2021).

Previous studies (Debelew & Habte, 2021; Johnson & Johnson, 2017; Kebede et al., 2020) have highlighted several factors that may account for an adolescent's informed decision whether to use or not to use contraceptives. These include, but are not limited to; the knowledge level of contraceptive usage, lack of access, disgrace, shame and fear of side effects of contraceptive methods (Chola et al., 2020). Also, Sserwanja et al., (2021) found that, age at first (1st) birth, marital status, wealth index and regions were

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determinants of contraceptive use among adolescents.

Consequently, the above determinants can interfere with the utilization of contraceptives by adolescents hence, leading to unwanted pregnancy that in turn affects the health of the mother and that of the baby (Muanda et al., 2018; Ngome & Odimegwu, 2014). Additionally, pregnancies that are unwanted lead to societal and financial constraints for both mother and the entire family (Crawford et al., 2021).

In an attempt to address the fertility and maternal mortality issues, numerous efforts have been initiated by the government of Sierra Leone, for example: commitment to family planning 2020, development of the Reproductive maternal, new born, child and adolescent health strategic policy and dissemination of the Adolescent and Youth Friendly health services standards (MOH SL, 2017). However, much is needed to be done in recognizing the central role of adolescents given their high representation of the population and risky sexual behaviours (Labat et al., 2018).

To date, very few studies have examined contraceptive usage among women in Sierra Leone (Agbadi et al., 2020; Labat et al., 2018). Presently, very little is known about adolescent contraceptive use. It is therefore imperative to examine contraceptive use among adolescents to ascertain the factors that determine contraceptive use. The findings will inform interventions geared towards improvement of adolescents' contraceptive utilization in Sierra Leone.

INTEGRI PROCEDAMUS

1.2 Problem statement

Underutilization of contraceptive among adolescents has raised concern globally in recent times (Atuhaire et al., 2021). Previous studies (Apanga et al., 2020; Chola et al., 2020; Li

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et al., 2020) have indicated that despite the dangers related with adolescent pregnancy, sexually active adolescents aged 15-19 years old, hardly ever use modern contraceptives. Also, there is available data indicating that sub- Saharan African region still records high prevalence of adolescent pregnancies of which almost more than a third is unplanned and are resulting in unsafe abortion (Sserwanja et al., 2021).

In Low- and middle-income countries (LMICs), existing literature shows that out of the 923 million of women reproductive age who want to avoid pregnancy but are not using any modern method of contraceptives unmet need (Sully et al., 2019) . Furthermore, amongst these women, the unmet need of modern contraceptives for adolescents aged 15-19 years is noted to be higher (43%) than for all women of reproductive age 15–49 years (24%).

Sierra Leone is one of the countries with the highest maternal mortality ratio of 1,165 deaths per 100,000 live births. Adolescents account for 40% of a maternal death in Sierra Leone (November & Sandall, 2018). This is said to be largely due to adolescent pregnancy resulting from risky sexual behaviours, limited knowledge on sexual and reproductive health including modern contraceptives use, inadequate assistance, and authority to bargain for safe sex (Labat et al., 2018; Seidu et al., 2020).

The unmet need of family planning (contraceptive) among all women aged 15-19 years in Sierra Leone is (13.9%) and (35.6%) for those sexually active unmarried ones aged 15-19 years (Stats SL & ICF, 2019). This is a grave public health concern because, between the ages of 15-19 years, 21% of these adolescents have either started childbearing or are pregnant, which are mostly unintended (Stats SL & ICF, 2019).

Apparently, the unmet need for contraception exposes adolescents to a greater risk of early pregnancy which then predisposes them to school dropout, labor complications,

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unsafe abortion, and its consequences (Chola et al., 2018; Sanchez et al., 2020). Age, marital status, region, economic status, lack of access to quality adolescence-friendly health services, and accurate information on contraceptive use have been identified as factors that influence theuse of modern contraceptives among adolescents in Sub-Saharan Africa (Ahinkorah, et al.,2020).

Given the dearth of information on contraceptive utilization among adolescents in Sierra Leone, this study seeks to examine contraceptive use and its determinants among adolescents aged 15-19 years using the data from Sierra Leone Demographic Health Surveys 2008, 2013 and 2019.

1.3 Research objectives

1.3.1 General objective

To examine contraceptive use and determinants among sexually active adolescents 15-19 years in Sierra Leone from 2008 - 2019.

1.3.2 Specific objectives

The specific objectives of this study are:

1. To assess the knowledge and awareness of contraceptive among sexually active adolescents in Sierra Leone.
2. To determine the contraceptive prevalence rate among sexually active adolescents inSierra Leone.
3. To examine the determinants of contraceptive utilization among sexually active adolescents in Sierra Leone.

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1.4 Research Questions

This study sought to answer the following questions to address the study objectives:

1. What is the knowledge and awareness of contraceptive use among sexually active adolescents in Sierra Leone?
2. What is the contraceptive prevalence rate of sexually active adolescents in Sierra Leone?
3. What are the factors that determine contraceptive use among sexually active adolescents in Sierra Leone?

1.5 Justification

In current times, contraception, which includes the sexual behaviour of adolescents has become a prominent discourse in the global debate on fertility control. The use of modern contraceptives is an important component of the Sustainable Development Goals 3 (SDG 3), to which many developing countries including Sierra Leone encourage among the populace.

The sexual behaviours of adolescents which include modern contraceptive utilization has been less researched in Sierra Leone. Contraceptive study among adolescents is imperative in that it partly serves as a way for controlling fertility with implications on total fertility rate, population growth and spread of infections (sexually transmitted infections).

Also, public health issues like unplanned adolescent pregnancy, unsafe abortion, maternal morbidity, mortality and child morbidity have been attributed to repercussions of sexually active adolescents' non-use of contraceptives (Li et al., 2020).

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Notwithstanding that, there are also findings that have shown that, contraception lowers the costs of teenage pregnancy, maternal mortality and improves the health of adolescent mothers and their infants (Chandra-Mouli et al., 2017).

Therefore, understanding the determinants of contraceptive utilization among this population age group (15-19 years) is necessary. The findings of this study will potentially guide in identifying the challenges with contraceptive utilization among adolescents.

The result will inform decision-making in designing interventions that will address the negative determinants and promote the positive ones. Also, the findings would guide in policy making and add up to the existing literature on contraception among adolescents in Sierra Leone.

Additionally, the results would provide relevant suggestions for future research on the subject area since the dataset being used is a nationwide representation.

1.6 Narrative of conceptual framework

The conceptual framework shown below in Fig 1.1 is a diagrammatic representation of the relationship between the independent variables (knowledge, sociodemographic, sociocultural and health system factors) and the dependent variable (contraceptive use). These independent variables were informed based on reviews from related studies of contraceptives use or non-use (Blackstone et al., 2017; Debelew & Habte, 2021; Nsanya et al., 2019; Sidibé et al., 2020).

This study embraces the theory of Reasoned Actions and Planned Behaviour which was propounded by Ajzen and Fishbein in the year 1980. They are common models used to explain the behavioural intentions of one to perform a desired behaviour. It holds the

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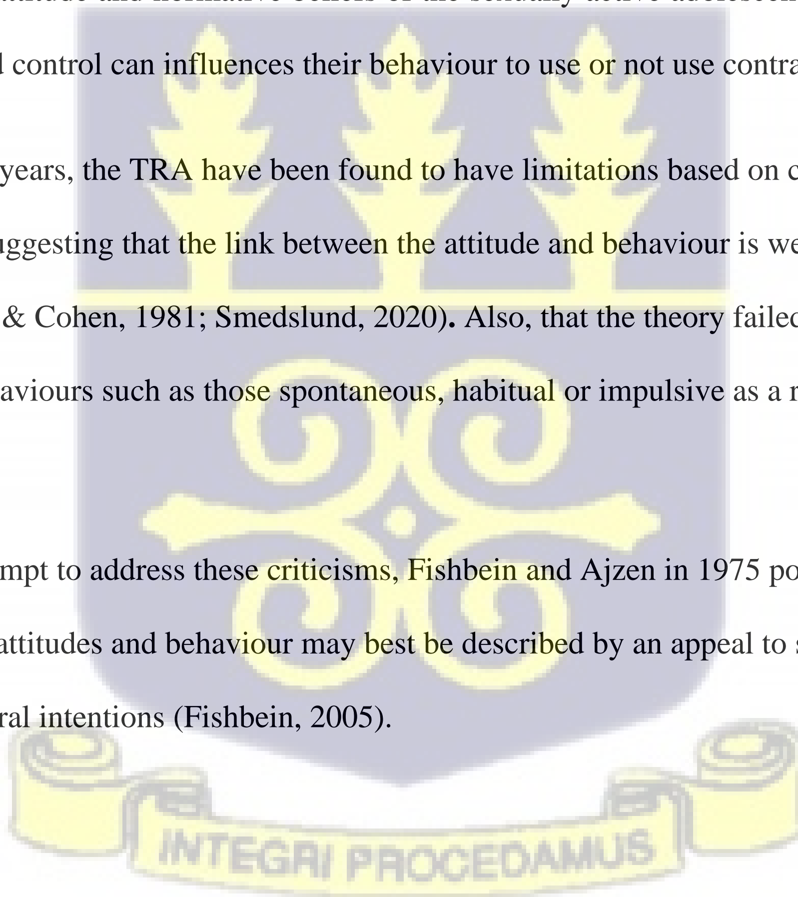
view that, volitional behaviour involves the interplay of key characters which includes, the attitude, norms, perceived control, and the behavioural intentions (Fishbein & Ajzen, 2007).

The attitude of an individual towards a behaviour mostly dependent on their belief strength and evaluation (Ajzen & Fishbein, 1977). Adolescents are mostly considered to be dependent on their surroundings, therefore the norms (normative and subjective) they are exposed to will have an impact on their behavioural intentions (Fishbein, 2005).
In this context, the use of the theory of reasoned action and planned behaviour implies that, the attitude and normative beliefs of the sexually active adolescents along with their perceived control can influences their behaviour to use or not use contraceptives.

Over the years, the TRA have been found to have limitations based on contradicting studies suggesting that the link between the attitude and behaviour is weak and not linear (Miniard & Cohen, 1981; Smedslund, 2020). Also, that the theory failed to account for other behaviours such as those spontaneous, habitual or impulsive as a result of cravings or fear.

In an attempt to address these criticisms, Fishbein and Ajzen in 1975 posited that the link between attitudes and behaviour may best be described by an appeal to specific behavioural intentions (Fishbein, 2005).



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Knowledge factor

Knowledge of methods

Sociodemographic factors

Age Education

Marital Status

level of education

Wealth index

Sociocultural factors

Religion

Culture

Taboos

Health system factors

Availability of commodities

Health worker attitude

Adolescent intention

Use of Contraceptives

Figure 1: Conceptual framework of the determinants of contraceptive use among adolescents (Fishbein & Ajzen, 2007)

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CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter explains the concept of adolescent at risk, the knowledge of contraceptives and the prevalence among sexually active adolescents. The literature also reviews socio-demographic factors, socio- cultural factors and health system factors that are considered to influence the utilization of contraceptives among adolescents. Also, it gives information on the attempt made by government of Sierra Leone in addressing the unmet contraceptive needs of adolescents.

2.2 Adolescent at Risk

Adolescents are individuals aged 10-19 years who undergo an intermediate growth and changes ensuing childhood (WHO, 2020). Worldwide, the number of younger people has been on the increase (Thin Zaw et al., 2013).

Adolescence is a period of physical and psychological changes which can predispose them to risky behaviours that can cause disability and death (Rodham et al., 2006). It is a unique stage of human development and a critical period for setting the groundwork for optimal health.

It is sufficed to say that, adolescence is the period when adolescents become inquisitive about exploring issues pertaining to their sexuality and experience new acts of sex (Thin Zaw et al., 2013). Also, Yazdi-Feyzabadi et al (2019) reference that risky behaviour poses harm to the individual's health and endanger prosperity.

The age at which risk is thought to be taken differs significantly, however on a collective basis, adolescents are the ones who get more involved in risky behaviours as compared to

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their adult counterparts (Balocchini et al., 2013).

Risky sexual act, examples early sexual intercourse, multiple sexual partners, premarital sex and unprotected sex affect adolescents health (Alamrew et al., 2013) affect adolescent's health. These lifestyles occur due to various factors such as; age of the adolescent, sex, family structure, level of education, socio-economic status among others (Fatusi & Blum, 2008). Exposure to such entities without guidance and knowledge will lead to adverse outcomes among adolescent population (Girmay & Mariye, 2019).

Across the world, the number of adolescents who engage in sexual acts prior to marriage has been noted to be on the rise (Doku, 2012), contributing to high number of pregnancies among adolescent population (Nash et al., 2019). Adolescent girls are the most affected persons with regards to sexual and reproductive health issues. This poses adverse health outcomes to their health and social wellbeing especially, those living in low- and middle-income countries (Yakubu & Salisu, 2018).

Frost et al., (2012) suggests that pregnancy among adolescent girls aged (15-19) years coupled with it complications is one of the leading causes of death among adolescents together with substance abuse (alcohol, tobacco, illegal drugs) (WHO, 2020). Unplanned pregnancy has also been observed to be a common health threat among the sexually active adolescent population (Jumbe et al., 2021).

INTEGRI PROCEDAMUS

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2.3 Knowledge of contraceptive and its importance to adolescents

Modern contraception which is the most used and recommended contraceptive method for sexually active adolescents: is a means by which pregnancy can be prevented by way of interfering in the process of ovulation, fertilization and implantation. It can be categorized into two broad types namely, hormonal and non-hormonal contraceptives. Hormonal contraceptives include pills, Depo Provera, implants and Inter Uterine Device (IUD) whereas, the non-hormonal contraceptives include condoms (male and female), tubal ligation (WHO, 20). Similarly, modern contraception is a way of providing a means to avoid pregnancy that helps to regulate the number of children that would be born to an individual (Tolefac et al., 2018).

Adolescents are a subset of women of reproductive age in Sub-Saharan Africa with growing knowledge of Contraceptives and family planning, however the uptake of modern contraceptive is still low with high rate of unmet needs (Blackstone et al., 2017).

There is therefore the need to improve on the use of modern contraception among adolescents, to reduce the high unmet need for contraception among them. This may go a long way to help achieve the overarching aim of Sustainable Development Goal 3, which seeks for the general wellbeing of all persons in a way to help ensure equality among the gender group (Crawford et al., 2021; Nsanya et al., 2019).

Again, following the International Conference on Population and Development in Cairo in the year 1994, reproductive needs of persons have included the equal right of both males and females to have adequate access to contraceptives that is potent, effective, and easily accepted in a way to help regulate childbearing (Tolefac et al., 2018).

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Modern contraceptives are a key to safe motherhood Vipul, (2011). As it has been hinted by Ahinkorah et al., (2020), every year about 21 million adolescent girls become pregnant throughout the world due to unmet need of contraceptives to which a large proportion can be seen in sub- Saharan Africa (Sserwanja et al., 2021).

A study conducted in the United States of America by Asut et al., (2018) revealed that among university students aged 18 years and above, about 80% of them have high incidence of unintended pregnancies due to failure and non-use of contraceptives, thus leading to unsafe abortion (Patra, 2016). Since, majority of pregnancies among adolescent aged 15-19 years are unwanted, the awareness and knowledge of contraceptives is very important (Krugu et al., 2016).

Knowledge of contraceptives is essential given that its absence can lead to non-use which can expose sexually active adolescents to sexually transmitted infections, unplanned pregnancies resulting in complications and unsafe abortions (Kyilleh et al., 2018; Muanda et al., 2018).

According to Krugu et al. (2016), the possible factors contributing to non-use of contraceptives among adolescent population include lack of knowledge on contraceptive and sex, low bargaining power for safe sex, inadequate education, healthcare service provision, societal norms regarding premarital sex, undecisive attitude with respect to sex, effectiveness and side effectsof contraceptives.

Inaccessibility to contraceptives, including lack of information, have also been identified as challenges to contraceptive use among adolescents (Ahinkorah et al., 2019). However, elsewhere in Mexico, access to modern contraceptive has been made legal among the general population including adolescents (Küng et al., 2021).

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Over the years, it is observed that, despite the increase in the knowledge of contraceptives among adolescents, utilization continues to remain low especially in developing countries (Nsanya et al., 2019). Yakubu (2018) shared a similar view revealing that, countries in Africa continue to have leading cases of teenage pregnancies, with Niger recording a total of 203,604 births per 100,000 young girls, followed by Mali with 175,4438, then Guinea, with a total of 141,6722 births per 100,000 young girls.

The importance of contraception goes way beyond reducing the number of children born by an individual, it also includes; lowering the rate of infant deaths, maternal mortality, prevention of infections such as AIDS and slowing the rate of population growth (Tolefac et al., 2018). It is therefore necessary to promote contraceptive knowledge and use among adolescents who are a key population.

2.4 Prevalence of contraceptive usage among adolescents

The prevalence of contraceptive which is measured as contraceptive prevalence rate (CPR) is a measure of women and girls who are using contraceptives at a specific time. The utilization of contraceptive is essential in that it enables women and partners to meet their fertility goals (Abdulai et al., 2020).

The prevalence of contraceptives varies among countries, some have gone high whilst others are still low. In the year 2020, it was observed that the prevalence of contraceptive among women of reproductive age from 20 African countries which included Sierra Leone, Ghana, Sudan, Mali, Kenya etc, varied, with the least prevalence observed in Guinea with 6% while the highest in Zimbabwe with 62% (Apanga et al., 2020). Apanga et al. (2020) explained that the variation in the prevalence of modern contraceptive by

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country could have resulted from the reflection of the difference in the culture, religion and family planning service delivery among these African countries.

According to Kantorová et al. (2021) in their Bayesian hierarchical modelling study of contraceptive use and needs among adolescents aged 15-19, gave global estimate of 5.9% and 10.2% as prevalence of at least a method of contraceptive from the years 1990 to 2019. The highest proportions of adolescents using contraception were from Northern America and Europe. Compared with Sub-Saharan Africa, contraceptive use among married adolescent in the developed countries was more than three times higher 17.9% vs 71.4%.

Subsequently the diversity in the prevalence of contraceptive can also occur among different population age groups. In Malawi, it was observed that adolescents aged 15-19 where less likely to use modern contraceptive methods compared with women aged 20 years and older (Hazel et al., 2021).

This agrees with the findings from the Sierra Leone Demographic and health survey which reports 29.9% prevalence of contraceptive use among women aged 20-24 as against 21.0% among adolescents aged 15-19 years (Stats SL & ICF, 2019). The higher prevalence in those aged 20-24 would have occurred because they are much older and maybe more educated than the younger ones, since contraceptive prevalence is seen to be increase with higher education.

Contraceptive methods are usually classified as Modern (pill, IUD, injection, vaginal methods, condom, female sterilization, male sterilization, and implants) and traditional methods (periodic abstinence, withdrawal and lactational amenorrhea) (WHO, 2020).

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Since the advent of modern methods, traditional methods are seen to be declining even though they persist. In Bertrand et al (2021) Study across 83 low and middle income countries, it was observed that use of modern contraceptive methods was way higher (43.7%) than that of the traditional methods (6.6%). They suggested the reasons associated with such high prevalence of modern methods to be due to the improvement in exposure, education and access to modern contraceptives.

Furthermore, traditional types of contraception are considered to be less effective than the modern type, hence the use of modern contraceptive continues to be the most common especially among adolescents (Akamike et al., 2020). Contrary to these findings, in South west Nigeria, it was observed women of reproductive age chose to use more tradition forms of contraception rather than modern methods. This was said to be so because of the myths and fear of side effects of modern contraceptive methods (Ajayi et al., 2018).

Literatures from several studies (Lasong et al., 2020; Wulifan et al., 2016) have identified both positive and negative factors that influence the use of contraceptives. These determinants range from individual level through to public levels (Ahinkorah, 2020; Ankomah et al., 2011; Bajoga et al., 2015; Ngome & Odimegwu, 2014). Examples of the determinants include: the knowledge of contraceptive methods, education, marital status, desire for children, partners approval, religious and cultural beliefs, availability and affordability of contraceptive health services.

2.5 Factors influencing the utilization of contraceptives among adolescents

The factors influencing contraceptives utilization among adolescents are discussed under three categories: sociodemographic factors, sociocultural factors and health system factors.

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2.5.1 Socio-demographic factors that influence the uptake of contraceptive among adolescents

Socio-demographic factors namely; age, level of education, place of residence among others cannot be neglected as far as issues of adolescent contraceptive needs are concerned (Ahinkorah, Ameyaw, et al., 2020). It is because, socio demographic variables have shown to influence contraceptive use among sexually active persons (Abdulai et al., 2020).

Age: Age has been recorded as one of key factors of contraceptive use among female adolescents (Mandiwa et al., 2018). Findings from a multiple analysis study on the trends and factors of contraceptive use among adolescent girls in Zambia, revealed that older adolescent girls were more likely to use contraceptives compared to the younger ones (Chola et al., 2020).

Similarly in Ghana, Nyarko (2015) had also highlighted that adolescent girls aged 18-19 years used contraceptive more than those aged 15-17 years. He further explained that younger adolescents are mostly immature, lack information on the types of contraceptive methods available and are less likely to engaged in sexual activities.

Recently, Oppong et al., (2021) also shared similar views while assessing contraceptive use among young people in Ghana. They stated that the prevalence of contraceptive increased with age, as could be seen that adolescents aged 15-19 years had a lower prevalence of 36% as against 49% among those aged 20 years and older.

Education – Education among other factors have also been identified to enhance

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contraceptives use among adolescents (Blackstone et al., 2017; Cheedalla et al., 2020). It was shown that, secondary level education or higher increases the likelihood of the use of contraceptive.

Apanga et al., (2020) agrees with this view. They further explained that the higher the level of education, the more comprehensive knowledge adolescents have on contraceptive information, thereby enhancing sound judgment to regulate childbirth. Also, adolescents who are educated are more likely to appreciate the advantages of having fewer children and how this can positively impact their own economic productivity and the well-being of their children.

Place of residence: The place of residence is also one factor that has shown to be associated with contraceptive use mainly because of limitations in access to contraceptive facilities (Strasser et al., 2016). Access to contraceptive could be due to the distance to and from the health facility and the availability and affordability of contraceptive commodities.

In line with the above statement, findings from the Guinea National Institute of Statistics shows that the use of contraceptives was higher among adolescents residing in urban areas compared to those in rural settings (Sidibé et al., 2020). This is because urban adolescents have more (24.8%) access to contraceptives than those in (16.1%) the rural areas.

Marital status: Marital status has shown to have a significant relationship with contraceptive use among female adolescents. In rural Dembia District, northwest Ethiopia Debebe et al., (2017), used logistic regression models (bivariate and multivariable) to

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obtain the association between marital status and contraceptive use among women of reproductive age. Contrary to the findings, Johnson & Johnson (2017) in Nigeria did not find any relationship between marital status and modern contraceptive use among females.

Usually, it is of the view that married female adolescents are more likely to use contraceptives because they may be older and more capable to afford contraceptives with the support of their partners. However, in Ghana it was observed that unmarried female adolescents use more contraceptives to avoid getting pregnant because of stigmatization in the society (Awusabo-asare et al., 2006).

Additionally, unplanned adolescent pregnancies are considered to bring disgrace to the young girl and her family. These perceptions among others may also be parts of the reason for the less utilization of modern contraceptive among adolescent aged 15-19 years as opposed to their older counterparts (Gebreyesus et al., 2019).

Subsequently, the intolerance of sex outside marriage in communities also have an effect on sexually active unmarried adolescents, subjecting them to the use of more contraceptives compared to their married counterparts (Coll et al., 2019).

Economic Status: The economic background of the adolescents have also been identified as a pioneer of contraceptive use (Tigabu et al., 2018). The income level of an individual or family may affect their access to contraceptives. This could be in the form of access to education, transportation to and from health facilities and available resources to obtain contraceptive services in areas where it they are not free.

This also corroborate with findings from Nketiah-Amponsah et al., (2012) study, which

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confirms that the higher the socioeconomic status of the individual , the more willing one is to use contraceptives.

2.5.2 Socio-cultural factors influencing the uptake of contraceptive among adolescents.

Socio-cultural factors which include religion, cultural norms, practices and taboos have been found to limit contraceptive use among adolescents (Moyo & Rusinga, 2017). This is because of the difference in the beliefs regarding sex, marriage and contraception coupled with myths within communities.

Community contraceptive prevalence rate has been found to have an influence on adolescent's modern contraceptive use. The higher the community contraceptive prevalence rate, the higher the use of modern contraceptive by adolescent women (Ngome & Odimegwu, 2014).

Religion: Religious affiliation has been identified to have a diverse relationship with contraceptive use. In a multilevel analysis study in Zimbabwe religion was found not to have any significant influence on contraceptive use (Ngome & Odimegwu, 2014). However, Olika et al. (2021) shared from their findings that, irrespective of the type of religion, it serves as one of the major barriers to contraceptive uptake among sexually active female adolescents.

Wulifan et al. (2016) from their study in Guatemala, suggested that the use of contraceptive is perceived as an immoral act and therefore is being forbidden by the Christian community. Also, Tigabu et al., (2018) stated that children are considered as blessing from the creator and thus, it is an act of sin to avert the chance of becoming pregnant.

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Contrary to the above statements, it was observed in Malawi that young female Christians were more likely to use contraceptives compared to their Muslim counterparts (Mandiwa et al., 2018). This can be attributed to the differences in the teachings concerning contraception among the different religious groups (Ahinkorah, 2020).

Subsequently, Abdi et al (2020) from a series of focus group discussions (FDGs) and in-dept interviews (IDI) in two predominant Muslim communities of Lamu and Wajir counties in Kenya, found that contraceptive use is likely influenced by the misinterpretation of some Islamic teaching on contraception.

***Culture*:** According to Lebese et al (2013) study, communities which are deeply rooted in culture coupled with illiteracy are said to prohibit parents from discussing issues relating to sex with their children. They are of the view that exposure of adolescents to sexual and reproductive health information will lead them to early sex and promiscuity**.** Hence, adolescents are subjected to seek sex information elsewhere which may predispose them to misinformation on contraceptives and engagement in risky sexual activities.

Abdi et al. (2020), in their findings mentioned that cultural factors affect the utilization of contraceptives (modern). They went on further to state that factors including non-approval by the opposite sex, inadequate communication among spouse, different beliefs and norms can also influence the uptake of contraceptive greatly.

***Taboos and myths*:** In developing part of the world, adolescents are often faced with a lot of challenges with regards to modern contraceptive usage. Outstanding of such are taboos which infringes on sex outside marriage coupled with the social norms that has to deal with use of contraceptive among adolescent (Rehnström Loi et al., 2019). These tends to

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affect the wellbeing of adolescents greatly.

In Kenya, it is said that, myths surrounding the use of contraceptive are usually from friends and sexual partners of the adolescents (Ochako et al., 2015). Consequently, misinformation surrounding the effectiveness of contraceptives (condoms) for example the reduction of sexual gratification contributed in lowering the use of condom (Mbachu et al., 2020) among adolescents Ebonyi state, Nigeria.

Subsequently, in Freetown the capital of Sierra-Leone, a survey carried out by November & Sandall, (2018) showed that implant which is referred to as "captain band" is under-utilize among the adolescent populace due to myths and taboo regarding the usage of contraceptives.

Additionally, in Tamale the Northern part of Ghana, per a study carried out by Abdulai et al (2020), the participants stated that the powers of the dead do not allow the living to use modern contraceptives. This is because of the belief that the use of contraceptive triggers the wrath of their ancestors, thus instilling fear among the adolescent resulting in avoidance and non-use of contraceptives (Blumenberg et al., 2020).

2.5.3 Health system factors that influence the uptake of contraceptive among adolescents

Health system generally includes all persons and resources involved in the provision of healthcare services. Also, from a local perspective, the health system is composed of a group of actors providing health services to members of a given community (Silumbwe et al., 2018).

Over the years, adolescent girls have been noticed to be more vulnerable to unsafe

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abortion and consequences associated with labour, however access to health services has been identified as a challenge for them (Thomée et al., 2016). These challenges could be as a result of, the distance to and from the health facility, inadequate medical equipment, unavailable health personnel and lack of trust in health care providers.

The attitude and views expressed by the healthcare personnel has also been shown to discourage adolescents from acquiring contraceptive services (Coll et al., 2019). In Uganda, it was recorded that some health care workers were not willing to provide contraceptive services to adolescents (Cover et al., 2018), reasons being they wanted to protect them from promiscuous life style.

According to Silumbwe et al. (2018), some health care providers usually ignore adolescent's contraceptive needs because they are of the opinion that, adolescents are not expected to engage in sexual affairs at their age. Subsequently, in the eastern part of Ethiopia, it was observed that the negative attitude of healthcare workers towards unmarried adolescents contributedto the low use of contraceptives (Habtu et al., 2021).

Additionally, a study from the urban part of Senegal revealed that about half of the facilities responsible for providing public health services have set an age limit to which modern contraceptives such as injectables and oral contraceptive pills could be offered to clients (Cavallaro et al., 2017).

This in turn limits the access of contraceptive choices among adolescents in health facilities. Even though there are practically no restrictive laws on contraceptive use among adolescents, it is observed that there are informal deterring laws preventing them from accessing contraceptive services (Coll et al., 2019). Hence, this serves as an obstacle

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for adolescents in their quest of obtaining contraceptives from health facilities.

In order to address the challenges faced by adolescents while seeking reproductive health care, public health programs have been developed by health ministries and advocates to make health services available and adolescent friendly (Habtu et al., 2021). This venture is expected to improve on contraceptive utilization and reduction in maternal deaths attributed to adolescent pregnancy (Rios-Zertuche et al., 2017).

2.6 Attempts by government of Sierra Leone in addressing contraceptive needs of adolescents.

Owing to the global health agenda, unmet contraceptive needs have become an important issue in the policy discourse including; Global strategy on every woman, every child and health of adolescent (2016-2030) and 2030 Agenda on Sustainable Development (Onono et al., 2019).

In pursuit of this, a lot of nations within the African continent are spearheading the need of tackling the unmet needs of modern contraceptive among its populace not only in the quest to reach the Sustainable Development Goals by the year 2030, but also to help achieve economic benefit with reference to its demographic dividend (Onono et al., 2019).

Nonetheless, there is still lack of political will and prioritization of meeting the unmet contraceptive needs among some member states within Sub- Saharan African region Onono et al., (2019), even though it is well established that modern contraceptive programs are usually the most cost- effective developmental interventions. These interventions can increase the uptake of modern contraceptive from 10%-60%, thereby reducing unplanned pregnancies and its associated atrocities (Silumbwe et al., 2018).

In 2017, the Sierra Leone government through the ministry of health and other partners,

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developed the National Reproductive, Maternal, New-born, Child and Adolescent health (RMNCAH) policy. This is with the view of increasing access evidence driven RMNCAH strategies at all spheres of the health delivery system, and to see to it that all hindrances to modern contraceptive (which is the major type of contraceptive used in Sierra Leone) utilization are resolved (MOH SL, 2017).

Subsequently, the government of Sierra Leone affirmed it commitment in increasing the budgetary allocation to the health sector from 9.6% in the year 2016 to 15% by the end of 2020 by allocating the necessary resources to programs geared towards contraceptive utilization in the countries (SL, 2017).

The targets of the Sierra Leone RMNCAH are to;

1. Lessen the ratio of maternal death which stand at 1165 per 100,000 live births to 650 per 100,000 live births by the end of 2021.
2. Decrease neonatal death which stand at 39 per 100 live births to 23 per 1000 live births by the end of 2021.
3. Lessen under-five mortality from 165 per 1000 live births to71per 1,000 live birthsby the end of 2021.
4. Lower the rate of still birth which stand at 24 per 1,000live births to 18per 1,000live birth before the end of 2021.
5. Lower the rate of birth among adolescent age 15-19 years from 125.1 to 74 per 1,000women by the end of 2021.

Subsequently, it is hoped that, by the end of 2022, modern contraceptive utilization will rise from 23% to 37% (SL, 2017).

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Thus therefore, it is necessary to study the determinants and their associated burden on contraceptive utilization among adolescent (15-19) years in order to achieve this goal.

2.7 Summary

From the literatures reviewed, it can clearly be seen that majority of the literatures cited were studies in other regions of the developed and middle-income countries. Also, it is noticed that the determining factors of modern contraceptives utilization among adolescents are similar in most settings. Therefore, it is obvious that, addressing these factors will lead to an increase in the uptake of contraceptives.

Thus, this study is important in adding to existing literature and may offer feasible solutions to the unmet contraceptive needs among sexually active adolescents in Sierra Leone and Sub- Saharan Africa.

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CHAPTER THREE

3.0 METHODS

3.1 Introduction

This section highlights the methods employed in this study to address the research objectives. It includes the type of study, data source, overview of Sierra Leone Demographic and Health Survey (SLDHS), data extraction procedures and sample, data management, analysis, variables, ethical consideration and others used as far as the conduct of this study is concerned.

3.2 Type of study

This was a secondary data analysis of the 2008, 2013 and 2019 Sierra Leone Demographic and Health Survey (SLDHS). The SLDHS is nationally representative survey conducted every five years to provide up-to-date demographic and health information on women, men and children. Details about the SLDHS is discussed in Section 3.3.1.

The SLDHS provides an opportunity to inform policy and provide data for planning, implementation, monitoring, and evaluation of national health programmes. It is designed to provide up to-date information on health indicators, including nutritional status of children, early childhood and maternal mortality, maternal and child health, fertility levels, nuptiality, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, awareness and behaviours regarding HIV/AIDS and other sexually transmitted infections, and prevalence of HIV.

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3.3 Source of Data for the Study

The 2008, 2013 and 2019 Sierra Leone Demographic and Health Surveys (SLDHS) were the main source of data used in this study.

3.3.1 Overview of the Sierra Leone Demographic and Health Survey

Figure 2: The map of The Republic of Sierra Leone

Sierra Leone has had three rounds of demographic and health surveys in the country. The first DHS was conducted in 2008 followed by the 2013 DHS, and the 2019 DHS which is the most recent in the series carried out by Statistics Sierra Leone (SSL) with technical support from ICF through the DHS Program.

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The surveys used a two-stage stratified cluster sampling design. In the first stage, enumeration areas (EAs) derived from the 2004 and 2015 population and housing census lists were selected as sampling unit with probability proportional to size. The second stage selection of households used systematic sampling approach after a complete listing of households in the selected enumeration areas.

The data is in a form of a questionnaire-based interview on the standard Demographic and Health Survey (DHS) program model which is often updated when new information is being collected. The surveys collect data from both men and women. The sample thus comprises of all persons within the reproductive age 15-49 years women and 15-59 years men with the aim of providing up-to-date evidenceon fertility, marriage, sexual behaviour, sexual activity, behaviour towards family planningand others.

For the purposes of the present study, data relating to women were used, with emphasis on contraceptive use among adolescents aged 15-19 years.

3.4 Study Population

Sexually active adolescents aged 15-19 years who the 2008, 2013 and 2019 Sierra Leone Demographic and Health Surveys captured.

3.5 Data extraction procedures and Sample

Data were extracted from the 2008, 2013 and 2019 Sierra Leone Demographic and Health Surveys (SLDHS). The total population of women of reproductive age for the year 2008, 2013 and 2019 SDHS was 39,606, distributed among the various years as follows: 2008 (7,374), 2013 (16,658) and 2019 (15,574).

Out of the total sample population, adolescents aged 15-19 years accounted for 8774.

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However, sexually active adolescents who are the target group constituted about 5,374 of that population, representing 804, 2623 and 1947 in the 2008, 2013 and 2019 SDHS respectively. This was obtained after the data was cleaned, and survey set applied to account for stratification and clustering. Weighting of the data was done to corrects the disproportionality of the sample. The data was weighted by dividing the sample weight by 1000000 which gave the total sample size of 5213.

3.6 Inclusion Criteria

To be included in the analysis, the following criteria were applied:

1. The participants must be a female adolescent aged 15-19 years across the three survey rounds of Sierra Leone Demographic and Health Surveys of 2008, 2013 and 2019.
2. The adolescent must be sexually active.

3.7 Exclusion Criteria

Participants were excluded from the sample if they:

1. Were currently pregnant at the time of any of the surveys.
2. Had incomplete information.

3.8 Study Variables and their measurements

The variables used in this study are categorized into dependent and independent variables.

3.8.1 Dependent variable

The dependent variable was "contraceptive use," and it was measured as a dichotomous variable. The response was dichotomized to represent use and non-use and answered in the form of 'Yes' or 'NO' with a score of '1' and '0' respectively.

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The term 'Contraceptive' in this study refers to all forms of contraceptive methods. This included; traditional, folkloric and modern methods. The modern methods were a) pill (oral contraceptives) b) intrauterine contraceptive device (IUD) c) injectables (Depo-Provera) d) implants (Norplant) d) male and female condom (prophylactic, rubber) e) emergency contraception and f) lactational amenorrhea method (LAM).

The types of contraceptive method were categorized into modern and other methods (traditional & folkloric).

3.8.2 Independent variable

Fourteen independent variables were selected for this study. They were grouped into the following groups for analysis.

- Socio – demographic characteristics – These included questions on: age, region, residence (urban & rural), level of education, marital status, religion and wealth index.
- Knowledge and awareness characteristics – They encompass the following questions, knowledge of any contraceptive method, told of family planning (FP) at health facility, sources of information on FP and sources of contraceptives.
- Sexual and reproductive health characteristics – the following questions were answered: knowledge on ovulatory cycle, age at first sexual intercourse and age at firstbirth.

These factors have been found to influence the uptake of contraceptives among adolescent aged (15-19 years) in previous literature (Agbadi et al., 2020; Stiegler, 2016).

Below is a tabular presentation of the full description of the individual independent variables used in for this research.

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Table 3.1: Description of variables used in the study

Variables	**Description of Variables**
Age group	Respondents age group categorization; Middle adolescents (15-17 years) and Late adolescents (18-19 years)
Contraceptive Use	Respondents current use of contraceptives
Awareness of contraceptive	Answering Yes to the following questions: -heard of family planning information on radio, television, newspaper and text messages - told of family planning at health facility
Contraceptive Knowledge	Knowledge on any type of contraceptive; Modern and others (traditional and folkloric)
Place of Residence	Respondents' place of residence: Urban, Rural
Region	Respondents' region of residence from the five (5) administrative regions in Sierra Leone (Eastern, Northern, Northwest, Southern and Western.
Religion	Respondents' religion; Christianity, Islam
Level of Education	Respondents' educational attainment; no education, Primary education and Secondary education.
Marital Status	Respondents' Marital status; Single, Married
Wealth Index	Respondents' wealth index; Poorest, Poorer, Middle, Richer and Richest)
Knowledge of ovulatory cycle	Respondents' knowledge on the likely period of getting pregnant when not using contraceptives. The responses to the questions asked where; during her period, after period ended, in the middle of the cycle, before period begins, at any time and

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	others. The correct answer was 'in the middle of the cycle'. This variable was recoded as Yes (correct) and No (incorrect) based on those who measured the correct answer 'middle of the cycle' slated for this study.
Age at 1st Sexual intercourse	Age at which respondents had their first sexual intercourse
Age at first Birth	Age at which respondents gave birth to their first child
Heard of family Planning from the media	Respondents' source of family planning information; heard of FP messages in the last few months via Radio, Television, Newspaper/magazine and SMS/Text messages
Told of FP at Health facility	Respondents told of Family Planning (contraceptive) at Health facility

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3.9 Data management procedures

The three rounds of the SLDHS data were merged and cleaned thoroughly. All incomplete data were deleted. The final sample size was weighted, and the proportion weights were calculated using the population weighted denominator. In the analysis, survey settings were used to account for the DHS complex survey design. Summary statistics of the raw data were used to observe the suitable variables for further analysis. Additionally, some variables were merged and other were recoded to make them meaningful to the objectives of the study and enhance data analysis.

3.10 Data analysis

The data were analysed using Stata SE Version 16. Two forms of statistical analyses were utilized in this research, these are: descriptive statistics and inferential statistical analysis. The descriptive statistics were computed for the background characteristics and presented in frequencies, percentages, means, and standard deviation. These were either displayed in tables or figures.

Binary and multivariable logistic regression models were employed for the inferential statistical analysis. The binary logistic regression model was used to examine association between each independent variable and contraceptive use which is the dependent variable.

Upon obtaining the results from the binary logistic regression model, all the variables that proved to be significant were put into a multivariable logistic regression model. This was to obtain the strength of the association of the significant variables. The Rao-Scott Chi-square test[1] was used to assess bivariate association between the dependent and the

[1] The Rao-Scott chi-square test is a design-adjusted version of the ordinary Pearson's chi-square test, which takes into account the differences between observed and expected frequencies. In a complex survey sample like the DHS, the use of the standard Pearson chi-square test is not appropriate because of possible correlation

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independent variables. In the multivariable analysis, the multiple logistic regression model was used with adjustment for cofounding. The significant variables with the strongest associations were identified as the determinants of contraceptive use among sexually active adolescents in Sierra Leone. In all analyses, a *p*-value of 0.05 was used to determine statistical significance. Quality Odds ratio and their 95% confidence intervals (CI) were used to assess the strength of association.

3.11 Ethical Issues

Permission was officially sought from the MEASURE DHS program to use Sierra Leone demographic and health surveys data. This was done through submission of an application letter specifying the study objectives and topic of interest.

The data set was only shared with my supervisor in order to maintain confidentiality and ensure data security.

3.12 Quality Control Measures

The data was used as obtained from the DHS program website. The variables used in the study was discussed and verified by my supervisor. Also, records of the do files and logfiles were shared and discussed with my supervisor.

among variables within the same cluster. Thus, the Rao-Scott chi-square test, which uses a design effect to adjust the usual Pearson chi-squared test statistic is recommended for the complex survey design.

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CHAPTER FOUR

4.0 RESULTS

4.1 Background Characteristics of Respondents

4.1.1 Socio-demographic characteristics

Table 4.1 presents results of the background information of the 5,213 sexually active adolescents aged 15-19 years. The mean age of the adolescents was 17.5 years (SD=1.31). The minimum and maximum ages where 15 and 19 years respectively. The background information of the sexually active adolescents was divided into two categories: Socio demographic characteristics and sexual and reproductive health characteristics. Among the age groups, majority (57.3%) of the respondents were in their late adolescences (18-19 years).Also, about 7 out of 10 adolescents were single (70.1%) with 29.9% married. The most dominant religion was Islam (76%). In this context, more than half of the Sierra Leonian adolescents (58.7%) had secondary school education, 17.4% with primary education and 23.9% had no formal education. It was also noted that a little over half of the adolescents (59.2%) resided in the rural areas (Table 4.1).

Table 4.1: Socio demographic Characteristics (n=5213)

Variables	Weighted Frequency	Percent %
Mean age, SD		17.49 (1.31)
Age, In years		
15	565	10.8
16	714	13.7
17	945	18.1
18	1584	30.4
19	1404	26.9
Age, In years		
15-17	2225	42.7
18-19	2988	57.3

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Marital Status		
Single	3655	70.1
Married	1558	29.9
Religion		
Christianity	1249	24.0
Islam	3964	76.0
Level of education		
No education	1244	23.9
Primary	909	17.4
Secondary	3060	58.7
Wealth Index		
Poorest	856	16.4
Poorer	913	17.5
Middle	1074	20.6
Richer	1240	23.8
Richest	1130	21.7
Region		
Eastern	1007	19.3
Northern	1837	35.2
Southern	1092	20.9
Western	932	17.9
Northwest	345	6.6
Place of residence		
Urban	2129	40.8
Rural	3084	59.2

Source (SDHS 2008, 2013 & 2019)

4.1.2 Sexual and Reproductive Health Characteristics

Adolescents sexual and reproductive health characteristics showed that, majority (70.8%) of the adolescents had no knowledge of ovulatory cycles. A higher percentage (59.2%) of the adolescents had their first sexual intercourse during middle adolescence (15 to 17 years) with the rest experiencing it at an earlier age (<15 years) 27.7% and late adolescence 18 - 19 years) 13.1%. Among the sexually active adolescents, most (65.3%) had never given birth, whilst 34.7% had given birth. Further analysis revealed that majority of those who had given birth (59.8%) did so between the ages of 15 to 17 years. These findings are displayed in the Table 4.2 below.

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Table 4.2: Sexual and Reproductive Health Characteristics

Characteristics	Weighted Frequency	Percent %
Knowledge of Ovulation		
No	3690	70.8
Yes	1522	29.2
Age of first sexual intercourse		
< 15	1444	27.7
15-17	3088	59.2
18-19	680	13.1
Ever given birth		
No	3405	65.3
Yes	1808	34.7
Age at first birth		
< 15	299	16.5
15-17	1082	59.8
18-19	427	23.6

Source (SLDHS 2008, 2013 & 2019)

4.1.3 Contraceptive knowledge and Awareness Characteristics

Table 4.3 presents the findings on the knowledge and awareness of contraceptives among sexually active adolescents.

The assessment shows that almost all (93.9%) the sexually active adolescent have knowledge of at least one contraceptive method although only 31.7% use them. Among those who were aware of family planning, their main source of information was from the media (radio, television, newspapers and SMS/text messages) and the health facilities as could be seen in the table below.

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Table 4.3: Contraceptive knowledge and Awareness Characteristics

Variables	Weighted Frequency	Percent %
Knowledge of any contraceptive method		
No	318	6.1
Yes	4895	93.9
Source family Planning Information*		
Radio	2281	43.8
Television	396	7.6
Newspaper/Magazines	178	3.4
SMS/Text messages	85	4.4
Told of Family Planning at health facility		
No	756	31.9
Yes	1617	68.1
Contraceptive Use		
Non-User	3558	68.3
User	1655	31.7
Contraceptive method		
Modern method	1581	95.5
Other methods[1]	74	4.5
Last source of conceptive		
Gov't health facility	1140	73.4
Private health facility	361	23.3
Other sources	51	3.3

(SDHS 2008, 2013 & 2019); *Multiple Response

4.2 Prevalence of Contraceptive Use among Sexually Active Adolescents

Table 4.4 presents the distribution of the prevalence of contraceptive use against the background characteristics of the study participants. The results show a substantial increase in the contraceptive prevalence rate (CPR) from 2008 to 2019. For instance, in 2008, the CPR among adolescents was 12.8%, but this increased to 33.5 % in 2013, and then 37.1% in 2019.However, the pooled CPR from 2008 to 2019 is 31.7%. The percentage increase of the CPR from 2008 to 2019 is 148 which is highly significant increase.

[1] Other sources of contraceptive methods refer to: Traditional & Folkloric

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Regarding the prevalence of contraceptive use among the different age groups, there has been fluctuations in the age groups since 2008 to 2019. However, the pooled prevalence of contraceptive use indicated a higher percentage of 33.6%, CI (30.8-36.6) among adolescents aged 15-17 years as compared to those in their late adolescences 30.3%, CI (28.1-32.7).

Throughout the period 2008 to 2019, the distribution of contraceptive prevalence rate has consistently been of higher percentage [41.7%, CI (39.2-44.3)] among the single adolescents relative to their married counterparts 8.3%, CI (6.8-10.1). Similarly, the result also displays a higher percentage trend with Christianity 39.4%, CI (34.9-44.0) against those with an Islamic faith 29.4%, CI (27.4-31.3).

With respect to the level of education, the prevalence of contraceptive use is observed to be increasing with higher level of education among the adolescents. For example, while the CPR among those with no education was 10.6%, CI (8.6-12.9), it was highest [44.2%], (41.5-46.9) among secondary school adolescents. Furthermore, adolescents from the richest wealth index utilized contraceptives more than 39.2%, CI (34.4-44.2) their companions in the poorest quantile 23.3%, CI (19.2-28.0).

The results also reveals that sexually active adolescents whose place of residence was in the urban areas where more likely 39.1%, CI (35.9-42.4) to use contraceptives relative to those residing in the rural areas 26.7%, CI (24.0-29.5).

Based on the findings on the knowledge of ovulatory cycle, the prevalence of contraceptive use was found to be higher 40.4%, CI (37.1-43.8) among those with knowledge, compared to the ones with no knowledge of their ovulation 28.2%, CI (25.9-

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30.5).

The results also, indicate that majority of the sexually active adolescents who experienced their first sexual intercourse between the ages of 15 -17 years had the highest percentage 35.1%, CI (32.5-37.8) of contraceptive use. Among the adolescents who had given birth, the highest prevalence 26.3%, CI (21.0-32.4) was recorded from those less than 15 years of age compared to their younger and older counterparts.

Lastly, the prevalence of contraceptive use among sexually active adolescents who had knowledge on any contraceptive method was 33.8%, CI (31.7-36.0). Also, the prevalence of contraceptive use among adolescents who were told about family planning at a health facility is 38%, CI(35.0-41.3).

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Table 4.4: Weighted Percentage Distribution of Prevalence of Contraceptive Use among Sexually active adolescents

	2008		2013		2019		2008 - 2019	
Characteristics	**N**	**Prevalence [95% CI]**	**N**	**Prevalence [95% CI]**	**N**	**Prevalence [95% CI]**	**Total**	**Prevalence [95% CI]**
Age, In years								
15-17	297	12.5 [8.6-18.0]	1122	34.7 [30.5-39.3]	805	39.9 [35.3-44.7]	2225	33.6 [30.8-36.6]
18-19	486	12.9 [10.1-16.4]	1377	32.6 [28.8-36.5]	1125	35.1 [31.9-38.5]	2988	30.3 [28.1-32.7]
Marital Status								
Single	425	22.6 [18.1-27.8]	1775	44.1 [40.0-48.2]	1455	44.5 [41.1-48.0]	3655	41.7 [39.2-44.3]
Married	359	1.2 [0.3-4.3]	725	7.8 [5.8-10.4]	475	14.5 [11.2-18.5]	1558	8.3 [6.8-10.1]
Religion								
Christianity	197	19.5 [13.6-27.1]	606	44.9 [37.3-52.9]	446	40.5 [35.2-46.1]	1249	39.4 [34.9-44.0]
Islam	586	10.5 [7.7-14.2]	1894	29.9 [27.0-33.0]	1484	36.1 [33.0-39.3]	3964	29.4 [27.4-31.3]
Level of education								
No Education	330	0.6 [0.2-2.0]	584	12.3 [9.2-16.2]	330	17.5 [13.3-22.8]	1244	10.6 [8.6-12.9]
Primary	187	14.5 [9.1-22.4]	416	17.0 [13.1-21.8]	306	23.9 [18.6-30.1]	909	18.8 [15.9-22.1]
Secondary	266	26.6 [20.0-34.5]	1500	46.4 [42.2-50.7]	1294	45.3 [41.7-48.9]	3060	44.2 [41.5-46.9]
Wealth Index								
Poorest	132	3.0 [1.2-7.0]	433	25.7 [20.6-31.5]	291	29.1 [20.8-39.0]	856	23.3 [19.2-28.0]
Poorer	137	1.6 [0.4-5.5]	420	27.0 [20.2-35.1]	357	34.4 [29.1-40.0]	913	26.1 [22.1-30.5]
Middle	152	9.4 [5.3-16.1]	493	25.7 [20.3-32.0]	429	37.3 [32.5-42.2]	1074	28 [24.7-31.6]
Richer	176	17.1 [10.9-25.8]	580	37.8 [33.1-42.8]	485	46.3 [41.4-51.3]	1240	38.2 [35.1-41.5]
Richest	187	26.5 [19.5-35.0]	574	46.6 [38.8-54.6]	369	33.9 [27.3-41.3]	1130	39.2 [34.4-44.2]
Region								
Eastern	156	7.8 [4.1-14.2]	470	29.9 [23.5-37.1]	381	35.4 [30.4-40.7]	1007	28.5 [24.8-32.5]
Northern	338	12.5 [8.0-19.1]	1054	34.6 [29.2-40.4]	446	47.2 [40.3-54.3]	1837	33.6 [29.8-37.6]
Southern	161	11.7 [7.6-17.5]	544	30.1 [25.2-35.5]	387	33.6 [28.3-39.2]	1092	28.6 [25.4-32.1]
Western	129	20.9 [14.0-30.0]	432	39.2 [29.4-50.0]	371	36.0 [30.3-42.0]	932	35.4 [30.1-41.1]
Northwest					345	31.2 [23.9-39.6]	345	31.2 [23.9-39.6]
Place of residence								
Urban	314	21.9 [16.8-27.9]	927	43.7 [38.0-49.5]	888	40.5 [36.4-44.6]	2129	39.1 [35.9-42.4]
Rural	469	6.7 [4.3-10.1]	1573	27.6 [23.5-32.1]	1042	34.3 [30.3-38.6]	3084	26.7 [24.0-29.5]
Knowledge of ovulation								
No	679	10.0 [7.4-13.4]	1714	28.5 [24.9-32.6]	1298	37.2 [33.7-40.8]	3691	28.2 [25.9-30.5]

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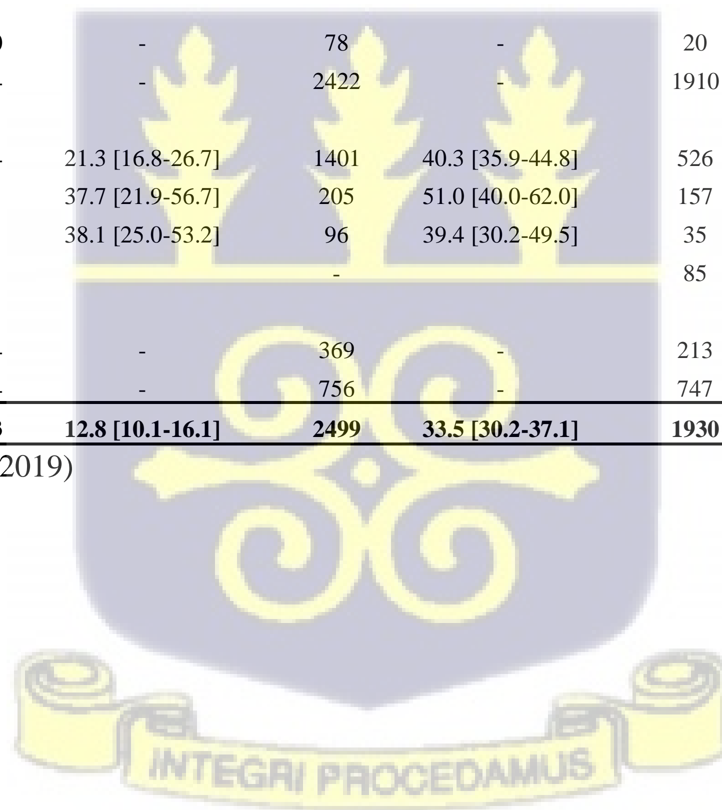
Yes	104	30.6 [20.7-42.6]	786	44.4 [39.3-49.7]	632	37.0 [32.9-41.4]	1522	40.4 [37.1-43.8]
Age of first sexual intercourse								
< 15	234	14.4 [9.4-21.4]	638	31.5 [27.1-36.3]	573	41.0 [35.7-46.5]	1444	32.5 [29.4-35.8]
15-17	414	14.2 [10.7-18.5]	1433	40.4 [36.0-45.0]	1241	35.8 [32.6-39.2]	3088	35.1 [32.5-37.8]
18-19	45	5.7 [2.1-14.4]	122	13.4 [9.7-18.4]	116	32.3 [24.1-41.7]	284	15.1 [12.0-18.8]
Ever given birth								
No	451	17.2 [13.4-21.8]	1633	40.6 [36.4-45.0]	1322	43.9 [40.2-47.7]	3405	38.8 [36.2-41.5]
Yes	333	6.8 [4.0-11.3]	867	20.2 [17.1-23.7]	609	22.4 [18.9-26.4]	1808	18.5 [16.4-20.7]
Age at first birth								
< 15	68	12.2 [4.8-27.8]	144	23.8 [16.9-32.5]	88	41.2 [30.1-53.3]	299	26.3 [21.0-32.4]
15-17	201	6.1 [3.2-11.5]	524	23.1 [18.9-27.8]	357	25.1 [20.6-30.2]	1082	20.6 [17.9-23.6]
18-19	64	3.1 [0.8-11.9]	200	10.0 [5.9-16.4]	164	6.5 [3.1-13.1]	427	7.6 [5.1-11.3]
Knowledge of any contra. method								
No	220	-	78	-	20	0.0 [0.0-0.0]	318	0.0 [0.0-0.0]
Yes	564	-	2422	-	1910	37.5 [34.6-40.5]	4895	33.8 [31.7-36.0]
Source of FP Information								
Radio	354	21.3 [16.8-26.7]	1401	40.3 [35.9-44.8]	526	43.5 [37.5-49.8]	2281	38.1 [34.9-41.3]
Television	34	37.7 [21.9-56.7]	205	51.0 [40.0-62.0]	157	35.9 [26.5-46.5]	396	43.9 [36.6-51.5]
Newspaper/Magazines	48	38.1 [25.0-53.2]	96	39.4 [30.2-49.5]	35	38.5 [19.4-62.0]	178	38.9 [31.4-47.0]
SMS/Text messages	-		-		85		85	60.4 [44.2-74.5]
Told of FP at health facility								
No	174	-	369	-	213	19.2 [14.5-24.9]	756	20.3 [17.1-23.9]
Yes	114	-	756	-	747	42.0 [37.6-46.6]	1617	38.1 [35.0-41.3]
Total	**783**	**12.8 [10.1-16.1]**	**2499**	**33.5 [30.2-37.1]**	**1930**	**37.1 [34.3-40.1]**	**5213**	**31.7 [29.7-33.8]**

Source: SLDHS (2008, 2013 & 2019)



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4.3 Association between background characteristics and contraceptive use

Table 4.5 presents results from the Rao-Scott Chi-square test of independence, conducted to determine the association between the respondents' background characteristics and contraceptive use among the sexually active adolescents. The results show that, majority of the variables; adolescents' marital status, religion, level of education, wealth index, place of residence, knowledge of ovulatory cycle, age of first sexual intercourse, knowledge on any contraceptive method, ever given birth, age at first birth, source of FP (radio and television), and told of FP at health facility, were highly significantly associated with contraceptive use $p<0.001$).

Table 4.5: Bivariate analysis: Association between background characteristics and contraceptive use among sexually active adolescents

Variables	Weighted N = 5213 (%)	Contraceptive use Non-User (%)	User (%)	Rao-Scott X^2 (p-value)
Age groups, In years				
15-17	2225 (42.7)	1476 (41.5)	749 (45.2)	6.65 (0.037)
18-19	2988 (57.3)	2082 (58.5)	906 (54.8)	
Marital Status				
Single	3655 (70.1)	2129 (59.8)	1525 (92.2)	580.75 (<0.001)
Married	1558 (29.9)	1428 (40.2)	129 (7.8)	
Religion				
Christianity	1249 (24.0)	757 (21.3)	491 (29.7)	45.16 (<0.001)
Islam	3964 (76.0)	2801 (78.7)	1164 (70.3)	
Level of education				
No education	1244 (23.9)	1112 (31.3)	132 (8)	562.96 (<0.001)
Primary	909 (17.4)	738 (20.8)	171 (10.3)	
Secondary	3060 (58.7)	1708 (48.0)	1352 (81.7)	
Wealth Index				
Poorest	856 (16.4)	656 (18.4)	200 (12.1)	104.17 (<0.001)
Poorer	913 (17.5)	675 (19.0)	238 (14.4)	
Middle	1074 (20.6)	773 (21.7)	301 (18.2)	
Richer	1240 (23.8)	766 (21.5)	474 (28.6)	
Richest	1130 (21.7)	687 (19.3)	442 (26.7)	
Region				
Eastern	1007 (19.3)	720 (20.2)	287 (17.4)	18.96 (0.120)
Northern	1837 (35.2)	1220 (34.3)	618 (37.3)	
Southern	1092 (20.9)	779 (21.9)	313 (18.9)	
Western	932 (17.9)	602 (16.9)	330 (19.9)	
Northwest	345 (6.6)	237 (6.7)	108 (6.5)	

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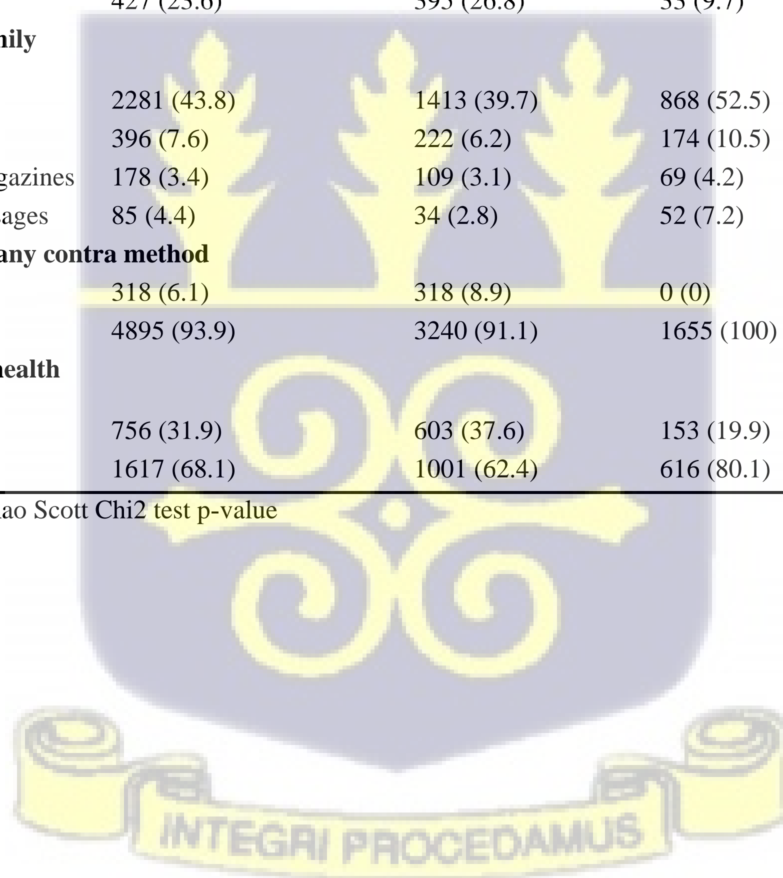
Place of residence				
Urban	2129 (40.8)	1296 (36.4)	832 (50.3)	92.63 (<0.001)
Rural	3084 (59.2)	2261 (63.6)	823 (49.7)	
Knowledge of ovulation				
No	3690 (70.8)	2651 (74.5)	1040 (62.8)	76.75 (<0.001)
Yes	1522 (29.2)	907 (25.5)	615 (37.2)	
Age of first sexual intercourse				
< 15	1444 (27.7)	975 (27.4)	469 (28.4)	158.33 (<0.001)
15-17	3088 (59.2)	2005 (56.4)	1083 (65.4)	
18-19	284 (5.4)	198 (5.6)	85 (5.2)	
At first union	397 (7.6)	379 (10.7)	17 (1.0)	
Ever given birth				
No	3405 (65.3)	2084 (58.6)	1321 (79.8)	232.34 (<0.001)
Yes	1808 (34.7)	1474 (41.4)	334 (20.2)	
Age at first birth				
< 15	299 (16.5)	220 (15)	79 (23.6)	49.26 (<0.001)
15-17	1082 (59.8)	859 (58.3)	223 (66.7)	
18-19	427 (23.6)	395 (26.8)	33 (9.7)	
Sources of Family planning Info.				
Radio	2281 (43.8)	1413 (39.7)	868 (52.5)	77.13 (<0.001)
Television	396 (7.6)	222 (6.2)	174 (10.5)	30.02 (<0.001)
Newspaper/Magazines	178 (3.4)	109 (3.1)	69 (4.2)	4.49 (0.062)
SMS/Text messages	85 (4.4)	34 (2.8)	52 (7.2)	20.81 (0.002)
Knowledge of any contra method				
No	318 (6.1)	318 (8.9)	0 (0)	162.18 (<0.001)
Yes	4895 (93.9)	3240 (91.1)	1655 (100)	
Told of FP at health facility				
No	756 (31.9)	603 (37.6)	153 (19.9)	76.54 (<0.001)
Yes	1617 (68.1)	1001 (62.4)	616 (80.1)	

Design-based Rao Scott Chi2 test p-value



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4.4 Multivariable Logistic Regression Examining the Determinants of Contraceptive Use among Sexually Active adolescents

Table 4.6 displays the results from the multivariable analysis examining the determinants of contraceptive use. After adjusting for all the cofounders, the results shows that the adolescents age, marital status, level of education, age at first birth and told of family planning (FP) in health facility had the strongest association with contraceptive use.

The odds of contraceptive use were 2.13 times more likely among adolescents aged 18-19 years relative to the middle adolescents aged 15-17 years [AOR= 2.13 (95% CI: 1.41, 3.22), p<0.001]. Also, adolescents who were married were 64% less likely to use contraceptive as compared to adolescents who were single [AOR = 0.36 (95% CI: 0.25, 0.53), p<0.001].

The findings also revealed that, higher level of education has a very strong association withcontraceptive use. It is seen that the odds of contraceptive use increases with the level of education. Sexually active adolescents who attained secondary school level education where 2.70 times more likely to use contraceptives compared to those who had no education [AOR =2.70 (95% CI =1.70, 4.29), p<0.001].

The study also revealed that, the age at first birth was significantly associated with contraceptive use. Adolescents whose age at first birth was in the late adolescence (18 to 19 years) were 94% less likely to use contraceptives as compared to those who had their first birth in early adolescents (< 15 years) [AOR =0.16 (95% CI =0.09, 0.30), p<0.001].

Lastly, the odds of contraceptive use were found to be higher among respondents who were told about FP during health visit at the facilities compared to those not told [AOR = 1.51 (95% CI =1.03, 2.22), p=0.034].

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Table 4.6: Multivariable logistic regression: Determinants of Contraceptive use among sexually active adolescents

Variables	Contraceptive Use	
	AOR [95% CI]	P-value
Age, In years		
15-17	1.00	
18-19	2.13 [1.41, 3.22]	**<0.001**
Marital Status		
Single	1.00	
Married	0.36 [0.25, 0.53]	**<0.001**
Religion		
Christianity	1.00	
Islam	1.02 [0.69, 1.50]	0.938
Level of education		
No education	1.00	
Primary	1.70 [1.01, 2.88]	**0.047**
Secondary	2.70 [1.70, 4.29]	**<0.001**
Wealth Index		
Poorest	1.00	
Poorer	1.18 [0.68, 2.06]	0.547
Middle	1.00 [0.58, 1.75]	0.988
Richer	1.32 [0.73, 2.36]	0.355
Richest	1.39 [0.66, 2.92]	0.384
Region		
Eastern	1.00	
Northern	1.05 [0.67, 1.65]	0.838
Southern	1.00 [0.60, 1.67]	0.994
Western	1.34 [0.79, 2.24]	0.274
Northwest	0.66 [0.30, 1.45]	0.297
Place of residence		
Urban	1.00	
Rural	0.88 [0.56, 1.40]	0.603
Knowledge of ovulation		
No	1.00	
Yes	1.33 [0.94, 1.88]	0.110
Age of first sexual intercourse		
< 15	1.00	
15-17	0.86 [0.59, 1.27]	0.458
18-19	0.57 [0.13, 2.54]	0.464
At first union	0.57 [0.26, 1.25]	0.161
Age at first birth		
< 15	1.00	
15-17	0.58 [0.37, 0.91]	**0.019**
18-19	0.16 [0.09, 0.30]	**<0.001**
Told of FP at healthcare facility		
No	1.00	
Yes	1.51 [1.03, 2.22]	**0.034**

Note: Source of family planning information and knowledge of contraceptive methods were omitted from the model due to inadequate frequencies.

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CHAPTER FIVE

5.0 Discussion

5.1 Introduction

This section highlights the discussion of the findings from this study. It is based on the objectives of this study which are; The knowledge and awareness of contraceptive use among sexually active adolescents, prevalence of contraceptive and the determinants of contraceptive use among sexually active adolescents in Sierra Leone from the year 2008 to 2019 during the 3 consecutive DHS (2008, 2013 & 2019).

Out of the 5213 sexually active respondents analysed in this study, 93.9% of them were aware and had knowledge on at least one contraceptive method. However, this does not align with the use (CPR=31.7%), despite the gradual increase in the prevalence over the last 11 years (2008–2019). However, the factors found to determine the use of contraceptives among the sexually active adolescents in Sierra Leone were; the age group of the adolescent, educational level, marital status, age at first birth and told of family planning at health facility.

5.2 Contraceptive Knowledge and awareness among sexually active adolescents

Awareness and knowledge of contraceptive improves once there is understanding on the importance of contraceptives and the different kinds of methods available (Cavallaro et al., 2017). This study shows that majority (93.9%) of sexually active adolescents, were aware and had knowledge on at least one type of contraceptive method. The findings is similar to the national report on the knowledge of contraceptive among women of reproductive age (97.6%) in Sierra Leone (Stats SL & ICF, 2019)

Raising awareness through mass media on contraceptive is one strategy to improve on

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the knowledge of contraceptive, hence promotes it use. Since the inception of modern contraceptives, mass media has played a key role in the sensitization and advertisement on the various commodities that comes with it (Yeboah et al., 2017).

Among the sexually active adolescents in this study, the most popular source of contraceptive information was from the radio (43,8%) whereas the least (3.4%) was from the newspapers/magazines. This agrees with findings from the Melaku et al., (2014) cross sectional study on contraceptive awareness among female students in Ethiopia. The radio among others was found to be the most common source of family planning (contraception) information.

Additionally, Tabong et al., (2018) from their findings mentioned that, out of school adolescents in west the Gonja district Northern Ghana largely depended on their school going friends and mass media (radio, television & social media) for information regarding contraceptive. This emphasis the need for the disseminated of appropriate family planning information on mass media and in schools to avoid misinformation on contraception which may be misleading to adolescents.

Notwithstanding the above, Yeboah et al., (2017) had an opposing perspective of media exposure and the use of contraceptives. They stated that exposure of adolescents to media messages on contraceptive does not reflect on the decision to use it. This corroborates with the findings from a multiple country analysis on contraceptives use among young women in Low- and Middle-Income country by (Mutumba et al., 2018). They indicated that increased exposure to mass media does not have any positive influence on contraceptive use.

However, Chandra-mouli et al., (2014) posit that in this modern times, evolving data suggest that mobile phones and social media are promising means of increasing contraceptive use among adolescents.

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Although the knowledge of contraceptive among adolescents is important, it has been proven that an increase on the knowledge of contraceptive does not signify improved contraceptive use. This can be seen from this current study where in the knowledge of contraceptive is 93.9% yet only a little over a third (31.7%) of the adolescent population use it. This confirms observations made by Krugu et al., (2016) study in Ghana, who showed that almost 80% of adolescent girls do not use contraceptives despite their knowledge on contraception.

5.3 Prevalence of contraceptive use among sexually active adolescents'

Contraceptive use is a vital approach for reduction of morbidity and mortality through abortion and ensuring prevention of unwanted pregnancy in adolescence (Ahinkorah, 2020). In this study, the pooled contraceptive prevalence rate (CPR) among the 5213 sexually active adolescents is 31.7%. This prevalence is lower compared to the 39.6% obtained from (Olika et al., 2021) study in Ethiopia which assessed the contraceptive use among sexually active female adolescents using national DHS 2000-2016.

Notwithstanding, the low pooled CPR, observed from the study, the prevalence rate of contraceptive use among sexually active adolescents in Sierra Leone has increased tremendously over the last eleven years from 12.8% in 2008 to 37.1% in 2019. This may have occurred due to the positive impact of the FP2020 commitment for Morden contraceptives to which Sierra Leone successfully exceeded the pre- FP2020 expectation as observed by (Cahill et al., 2018).

A similar trend of rise in contraceptive use among adolescents was also noticed in Zambia, Ethiopia and Nepal (Chola et al., 2020; Subedi et al., 2018; Worku et al., 2021). Contrary to this growth pattern of contraceptive use among adolescents, Appiah et al., (2020) findings in Ghana showed a gradual decline from 22.1% in 2003

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to 20.4% in 2014.

Among the single sexually active adolescents who used contraceptive in this study, the prevalence was 41.7%. This is slightly lower compared to their counterparts in south of Nigeria (45.3%) and Ghana (43%) according to (Crawford et al., 2021; Oppong et al., 2021). Nonetheless, findings of the study show a higher (41.7% vs 8.3%) prevalence of contraceptive use among the single sexually active adolescents compared to those married. Generally, an overall increase in prevalence was observed among both single (22.6%-44.1%) and married (1.2%-14.5%) adolescents.

This finding confirms a similar observation from the Ngome & Odimegwu (2014) study in a national representative study in Zimbabwe in the years 1999-2001. They stated that contraceptives use among adolescents who were married increased from 13% to 18.5% as against their counterparts who are not married with contraceptives prevalence rate of 41% and 53% from the year 1990-2001 respectively.

Among sexually active young women, adolescents are found to have the least prevalence of contraceptive use (Ahinkorah, 2020). This may be due to lack of access to information and the contraceptives. Hazel et al. (2021) study highlighted that elsewhere in Malawi, contraceptive use among adolescents continues to be low compared with adult counterparts aged 20 years and older. Oppong et al. (2021) study also shared the similar views. They went further to state that in their study in Ghana, a sharp increase in the unmet needs of contraceptives among the adolescent's sub-population was observed.

In this study, the prevalence of contraceptive use among adolescents living in urban setting was higher than those residing in the rural arears. This agrees with a study by Sibedi et al., (2020), who highlighted that, adolescents who live in urban areas have more access to modern contraceptive methods compared to their counterparts living in

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the rural settings. This may have occurred due to contextual factors like geographic and financial disposition accounting for the variation in access to contraceptives (Cavallaro et al., 2017).

The study also revealed that among the adolescents who used contraceptives, majority (95.5%) used modern methods of contraception as compared to only (4.5%) of them using traditional and folkloric methods. Similarly in Ghana it was also noticed that over the years traditional contraceptive methods have been less used as opposed to with modern methods (Appiah et al., 2020).

Additionally, this confer with the observation made by Tolefac et al., (2018), who highlighted that following the International Confederation on Population and Health in Cairo in the year 1994, there has been a wake up for improved access to modern contraceptives that is effective, potent, and easily accepted by the populace.

5.4 Determinants of contraceptive use among Sexually Active Adolescents

After adjusting for the covariates in this study, the determinants identified to influence the use of contraceptives among sexually active adolescents in Sierra Leone are: Age group, marital status, level of education, the adolescent's age at first birth and told of family planning in health facility.

Age group: The age category to which the adolescents belong, have been found to affect the use of contraceptives. Like most African settings, individuals in middle adolescence (15- 17 years) usually lack access and understanding to sexual and reproductive health issues, including contraceptives (Dioubaté et al., 2021; Ofosu & Sam, 2020). This gap can prevent them from understanding the need for the use of contraceptives.

The result from this current study shows that, the odds of contraceptive use among

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Sexually active adolescents is higher among late adolescents (18-19 years) than those in middle adolescence (15-17 years). This may have occurred due to limitations in access to information and availability of various kinds of contraceptive methods. Also, young people aged 18-19 years are mostly considered matured than their younger counterparts (Keto et al., 2020; Moyo & Rusinga, 2017). Older adolescents (18-19 years) are also said to be more engaged in sexual activities and are likely to be more aware of contraceptive methods, hence higher use.

The finding is also consistent with Nyarko (2015) study on prevalence and correlates of contraceptives use among female adolescent in Ghana. He explained that the lower use of contraceptives among adolescents aged 15 -17 years than the others is because they are more likely to be single, less educated and lack access to contraceptive services.

Marital Status: this study, demonstrates that the marital status of the sexually active adolescents influences contraceptive use. The odds of using contraceptive among married adolescent was 64% lower compared to those unmarried. This corroborates with studies by Seidu, Ahinkorah, Agbaglo, et al., (2020) and Grindlay et al (2019), which also shows that single adolescents are more likely to use contraceptives to prevent unintended pregnancies. On the other hand married adolescents are pressured to give birth soon after marriage, thus exposing them to pregnancy even if they had the intention to delay it (Ahinkorah, Ameyaw, et al., 2020).

According to Coll et al. (2019), sex in most settings is considered legitimate within the confinement of marriage. Therefore, based on this perception, unmarried adolescents utilized contraceptive more in order to prevent the stigma of been exposed to sexual acts involvement.

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Level of Education: additionally, the findings of this study shows that the odds of using contraceptive methods increased significantly with the level of education of the adolescents. Among the sexually active adolescents in Sierra Leone, it is seen that the higher the level of education, so was the likelihood of contraceptive use. Adolescents with secondary school education were found to be two times 2.13 likely to use contraceptives as compared to those with primary and no education.

The high use of contraceptives among adolescents with secondary education compared with those in primary and no education can be attributed to how knowledgeable they are about the benefits of contraceptive use. This can be a good indicator for the improvement of comprehensive sexuality education which includes contraceptive awareness in schools. Similarly, Oppong et al., (2021) posit that higher education among adolescent is a positive influence for contraceptive use, given that education empowers one to make better decisions concerning their reproductive health.

The low use of contraceptives among the adolescents with primary and no formal education is a public health concern. This is because sexually active adolescents with primary or no education are usually younger or may come from a low economic background, hence are exposed to early pregnancy and its complications, STIs & STDs, sometimes early marriage and school dropout (Grindlay et al., 2019).

Adolescents in primary school levels are usually younger, also those with no education maybe come from low economic background. Educational interventions has been found to help increase knowledge of available contraceptive methods, thus enabling individuals to make informed decisions and use contraception more effectively (Pazol et al., 2016)

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Age at first birth: Age at first birth denotes the age of a mother when she gave birth to her first child. It has a direct effect on fertility and indicates the start of maternal and childcare responsibilities. In this study, the age at first birth was identified as one of the determinants of contraceptive use among sexually active adolescents in Sierra Leone. This resonates with (Blanc et al., 2009; Kabagenyi et al., 2016; Sserwanja et al., 2021) studies which also found that the age at first birth had an influential effect on adolescents contraceptive use.

The odds of contraceptive use among adolescents aged 18-19 years was 96% lower than those whose age at first birth was younger. This agrees with findings from Kabagenyi et al., (2016) study among young females in Uganda. They revealed that young women who gave birth at the age 15 years and younger had higher chances of using contraceptives. This is said to occur because of the behavioural changes and experiences adolescents face after birth. Additionally Sserwanja et al. (2021) mentioned that age at first birth amongst others is an influential factor for contraceptive use among sexually active adolescents.

Told of family planning in health facility: Health facilities are key sources for contraceptives. This is because they provide both the information and the different types of contraceptive methods. This study shows that adolescents who were told about FP during health visits had greater odds of using contraceptives contrary to those not told. It is very likely that these results were as a result of the government efforts to improve on the awareness of family planning in the country, through the Sierra Leone Reproductive, Maternal, New-born, Child and Adolescent Health strategy implementation.

These findings aligned with Habtu et al (2021), who stated that over the years programmes relating to health have been developed in the public health institutions to

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help address issues relating to contraceptives utilization among adolescents. Also, in Ethiopia, it was found that adolescents who were told about contraceptives during health facility visit were more likely to use contraceptives (Olika et al., 2021).

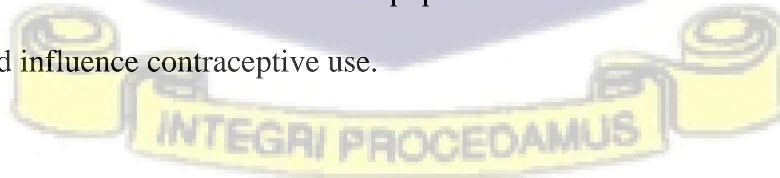
5.6 Strength and limitations of the study

Strengths of the study

- This is the first known study to explore the determinants of contraceptive use specifically among sexually active adolescents in Sierra Leone, using nationally representative data.
- The data used in this study is a national representative of all sexually active adolescents who were interviewed during the series of the Sierra Leone demographic and health surveys from 2008, 2103 & 2019.

Limitations of the study

- The findings of this study did not include sexually active adolescents who were pregnant at the time of the demographic and health surveys.
- Given that the demographic and health surveys used in this study are secondary data, the views and experiences of the adolescents was lacking.
- The study covers an extensive time period (2008 to 2019), there might be some bias due to the difference in the population size and trends of activities which could influence contraceptive use.



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CHAPTER SIX

6.0 Conclusions and Recommendations

6.1 Introduction

This section highlights the importance of the study and suggest plausible recommendations which will help inform decision making on contraceptive use and its determinants among adolescents aged 15-19 years thus, the need to institute measures to help improve the utilization of contraceptives among this population sub-group in Sierra Leone.

6.2 Conclusions

The following conclusions are made based on the objectives of the study.

1. Prevalence of contraceptive use among Sierra Leonean adolescents has tremendously improved over the last eleven years. However, the pooled prevalence is quite low compared to the other countries in the subregions.
2. The result indicates that a higher percentage of sexually active adolescents have good knowledge on contraceptives, however this does not align with its use.
3. The determinants of contraceptive use among adolescents are: the age of the adolescents, educational level, marital status, age at first birth and told of family planning in health facilities.

6.3 Recommendations

Addressing the knowledge, prevalence and determinants of contraceptive use among adolescents in Sierra Leone requires a multisectoral approach in homes and communities. This should include all stakeholders involve in adolescents' health and education. They include but are not limited to the Ministry of Health and Sanitation, Ministry of Education, Ministry of Social Welfare, Gender and Children's

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Affairs (MSWGCA), Civil Society Movements, Non-Governmental Organizations (NGO), parents, teachers and community leaders.

Based on the findings of the study, the following specific recommendations are made:

1. The Ministry of Health and Sanitation in collaboration with other health partners should intensify public health education on contraceptive methods among adolescents nationwide, especially in schools and health facilities.
2. The findings of this study show that, higher level of educational improves contraceptive use among sexually active adolescents in Sierra Leone. Therefore, it is recommended that the Ministry of Education together with the Ministry of Health and Sanitation improves on adolescents' education and promote comprehensive sexuality education at all levels in schools.
3. The government and human rights organization should continue to advocate against early marriage among adolescents. This is to reduce early sexual debut and compulsory childbirth associated with marriage.
4. Additionally, further studies are required to investigate other factors which could affect the contraceptive use but were not captured in the demographic and health survey.

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APPENDIX

Data access confirmation letter

Mar 16, 2021

Hawanatu Barrie
University of Ghana
Ghana
Phone: + 233 241851887
Email: habarrie001@st.ug.edu.gh
Request Date: 03/15/2021

Dear Hawanatu Barrie:

This is to confirm that you are approved to use the following Survey Datasets for your registered research paper titled: "Assessment of modern Contraceptive use among adolescent girls before and after the intervention/implementation of the Adolescent and Young people friendly health services in the Western Arear Rural, M":

Sierra Leone

To access the datasets, please login at: https://www.dhsprogram.com/data/dataset_admin/login_main.cfm. The user name is the registered email address, and the password is the one selected during registration.

The IRB-approved procedures for DHS public-use datasets do not in any way allow respondents, households, or sample communities to be identified. There are no names of individuals or household addresses in the data files. The geographic identifiers only go down to the regional level (where regions are typically very large geographical areas encompassing several states/provinces). Each enumeration area (Primary Sampling Unit) has a PSU number in the data file, but the PSU numbers do not have any labels to indicate their names or locations. In surveys that collect GIS coordinates in the field, the coordinates are only for the enumeration area (EA) as a whole, and not for individual households, and the measured coordinates are randomly displaced within a large geographic area so that specific enumeration areas cannot be identified.

The DHS Data may be used only for the purpose of statistical reporting and analysis, and only for your registered research. To use the data for another purpose, a new research project must be registered. All DHS data should be treated as confidential, and no effort should be made to identify any household or individual respondent interviewed in the survey. Also, be aware that re-distribution of any DHS micro-level data, either directly or within any tool/dashboard, is not permitted. Please reference the complete terms of use at: https://dhsprogram.com/Data/terms-of-use.cfm.

The data must not be passed on to other researchers without the written consent of DHS. However, if you have coresearchers registered in your account for this research paper, you are authorized to share the data with them. All data users are required to submit an electronic copy (pdf) of any reports/publications resulting from using the DHS data files to: references@dhsprogram.com.

Sincerely,

Bridgette Wellington

Bridgette Wellington
Data Archivist
The Demographic and Health Surveys (DHS) Program

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