

ENSIGN GLOBAL COLLEGE, KPONG

DEPARTMENT OF COMMUNITY HEALTH

A RESEARCH PROPOSAL FOR A DISSERTATION

ON

KNOWLEDGE AND UTILISATION OF MODERN CONTRACEPTION METHODS

AMONG WOMEN OF REPRODUCTIVE AGE (15-49 YEARS) IN GHANA

BY

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DECLARATION

I, KEREN-HAPPUCH TURKSON hereby declare that with the exception of the references made to other people's work which I duly acknowledged, this research submitted to the Department of Community Health, Ensign Global College is my original work and has neither in whole nor in part been presented to the College or elsewhere for another degree.

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DEDICATION

I dedicate this work to my husband and kids, my parents, my late mom Mrs. Marian Turkson and Mr. Anthony K. Turkson and my siblings for their immense support and prayers throughout the period of my studies. I am forever grateful. God bless them all.

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ABBREVIATION/ACRONYMS

AIDS	Acquired Immunodeficiency Virus
CDC	Centre for Disease Control and Prevention
CSM	Contraceptive Social Marketing
DHS	Demographic and Health Survey
DMPA	Depot medroxyprogesterone acetate
FPH	Family Planning and Health Programme
GDHS	Ghana Demographic and Health Survey
GFPCIP	Ghana Family Planning Costed Implementation Plan
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
IGWG	Interagency Gender Working Group
IUD	Intrauterine devices
LAM	Lactational Amenorrhea Method
MDGs	Millennium Development Goals
MICS	Multiple Indicator Cluster Surveys
NET-EN	Norethisterone enanthate
NGO	Non-governmental Organization
NHS	National Health Service
NICHD	National Institute of Child Health and Human Development
PMDD	Premenstrual Dysphoric Disorder
SDGs	Sustainable Development Goals
SDM	Standard Day Method
STIs	Sexually Transmitted Infection
UN	United Nations
UNFPA	United Nations Fund for Population Activities
USAID	United States Agency for International Development
WHO	World Health Organization

ABSTRACT

Background: In recent years, uptake of modern contraceptives in Ghana appears to be increasing and family planning services have become even more available. However, a substantial number of married and unmarried women still report having unmet need for modern contraceptives. This study assessed the level of knowledge and utilisation of modern contraception methods among women of reproductive age (15-49 years) in Ghana.

Research Methodology: The study analysed the 2022 Ghana Demographic and Health Survey data, within the framework of a quantitative cross-sectional research design. The study employed a sample of 15,014 women in their reproductive age (15-49 years) who were selected across the country. The study employed descriptive statistics (percentages) and cross-tabulation analysis to assess the data. Also, the study estimated a logistic regression model to determine the factors influencing the respondents' use of modern contraceptives. Stata version 15 was used to carry out the data analysis.

Results: The findings indicate that knowledge of modern contraceptives among the respondents is very high (98.5%). However, only about 23.05% of the respondents are users of modern contraceptives. Thus, the modern contraceptive prevalence rate among the respondents is low. The most widely used types of modern contraceptives among the respondents are implants (27.04%), injections (27%), pills (14.3%), emergency contraception (10%), condoms (9.5%), and female sterilization (6.8%). The findings also indicate that the majority of modern contraceptive users are between 20-39 years old, married, urban dwellers, educated, the wealthy, or the poor. The logistic regression estimation results showed respondents' use of modern contraceptives is influenced by; age (20-24 years, OR=2.2, $p<0.001$; 25-29 years, OR=1.9, $p<0.001$; 30-34 years, OR=1.4, $p<0.001$; 45-49 years, OR=0.5, $p<0.001$); marital status (women living with their partner, OR=1.3, $p<0.001$; separated, OR=1.2, $p<0.001$; widowed, OR=0.5, $p<0.001$); education (primary, OR=1.4, $p<0.001$; secondary, OR=1.7,

p<0.001; higher, OR=2, p<0.001); employment status (Yes, OR=1.4, p<0.001); number of children (OR=1.3, p<0.001); and wealth status (poorer and middle, OR=1.3, p<0.001; richer, OR=1.4, p<0.001).

Conclusion: The use of modern contraceptives among the respondents is low despite high knowledge about the various methods. The study recommends that public awareness creation programmes on modern contraceptives. In addition, women empowerment interventions like opportunities for higher education and employment, and community-based programmes should be intensified to encourage the utilization of modern contraceptives.

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CHAPTER ONE

INTRODUCTION

1.0 Background

In both low- and middle-income countries (LMICs), unmet need for modern contraceptives still remains very high (Coulson, Sharma and Wen, 2023). Hubacher and Trussel (2015) defines modern contraceptives as medical procedures or technological products that interfere with natural reproduction. The Demographic and Health Survey (DHS) categorizes women with unmet need for modern contraceptives as proportion of women who meet the following criteria; (i) those who are fertile, not pregnant and not experiencing postpartum amenorrhoea, and have the desire to delay their next birth for at least 2 years or have desire to stop giving birth but are not using any contraceptive method (ii) have unplanned or mistimed current pregnancy; and (iii) postpartum amenorrhoeic and who have had a mistimed or unplanned birth last birth in the last 2 years (Ghana Statistical Service and Inner City Fund International, 2023). It is expected that by assisting women to prevent unintended pregnancies, countries or their family planning programmes can reduce unsafe abortions and enhance maternal and child health.

Ensuring universal accessibility to sexual and reproductive rights, particularly is key for the achievement of the Sustainable Development Goal (SDG) goals of ensuring improvement in well-being across all age groups (goal 3) and gender equality (goal 5). Particularly, target 3.7 under the SDG goal 3 focuses on expanding access to sexual and reproductive healthcare services including increasing access to family planning education and information. Target 5.6 under goal 5 seeks to achieve universal access to reproductive health and rights (United Nations Department of Economic and Social Affairs Population Division, 2019). SDG goals 3 and 5 represent a reaffirmation of commitments made under the Programme of Action of the International Conference on Population and Development (ICPD) in 1994. The ICPD sought

to promote the fundamental rights of all individuals (including couples) to; make their own decisions regarding the number, timing and spacing of their children; have access to information and resources to take decisions regarding their reproductive and sexual health; and enhance the quality of their reproductive and sexual health (United Nations Department of Economic and Social Affairs Population Division, 2019).

In measuring progress towards achievement of the SDG targets 3.7 and 5.6, three indicators are employed. For target 3.7, the indicator is “the proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods of contraception” (United Nations Department of Economic and Social Affairs, 2022, p.1). For target 5.6, two indicators are used: the percentage of women of reproductive age (15-49 years) who are able to make educated decisions about their sexual encounters, the use of contraception techniques, and reproductive health care. and the number of countries having rules and legal systems that protect both genders (aged at least 15 years) have full and equal access to reproductive and sexual health care, education and information (United Nations Fund for Population Activities, UNFPA, 2020). Together, these indicators provide a comprehensive picture of how women should be empowered with information and education to freely make the decisions regarding their sexual and reproductive health. They also help to assess the commitment of governments and policymakers to creating an enabling environment that empowers women and girls.

Over the period from 1990 to 2021, there was an increase in the number of women of reproductive age globally, from 1.3 billion to 1.9 billion, representing an increase of about 46% (United Nations Department of Economic and Social Affairs, 2022). Furthermore, over the same period, need for family planning among women of reproductive age also witnessed an even larger increase of about 62%, from 0.7 billion to 1.1 billion. In addition, unmet need

for family planning among women of reproductive age increased 147 million in 1990 to 164 million in 2021. The statistics also show that more women of reproductive age are increasingly opting for modern contraception methods to satisfy their family planning needs. Over the period from 1990 to 2021, use of modern contraceptive use among women of reproductive age increased from 467 million to 874 million. Use of traditional contraceptive methods also increased from 84 million to 92 million over the period from 1990 to 2021. When it comes to regional dynamics, data spanning 2007-2018 show some disparities in the number of women who make their own decision on the use of contraception, from 94.3% in eastern and south-eastern Asia, 94.4% in America and Europe, 91.2% in Latin America and the Caribbean, and 89.6% in sub-Saharan Africa (United Nations Fund for Population Activities, UNFPA, 2020). Sub-Saharan Africa recorded the largest increase in modern contraceptive use from 24% in 1990 to 56% in 2021.

Ghana's family planning landscape has witnessed tremendous evolution since 1969 (Alliance for Reproductive Health Rights, 2023). Available data from the Ghana Statistical Service (GSS) indicate that 31% of married women and 38% of sexually active unmarried women in Ghana, all of reproductive age, use contraception (Ghana Statistical Service, Ghana Health Service and Inner-City Fund International, 2018). In addition, data from Multiple Indicator Cluster Surveys (MICS), Demographic and Health Surveys (DHS), and other national surveys conducted over the period from 2007-2018 revealed that 82% of women in Ghana make their own sexual and reproductive healthcare decisions and 90% decide on their own to use contraceptives (United Nations Fund for Population Activities, UNFPA, 2020). Ghana has implemented several programmes and strategies to promote the sexual and reproductive health of women and children. The first national programme on family planning, under the auspices of the Ministry of Finance and Economic Planning, was launched in 1970 to provide essential reproductive and sexual health care services and support to individuals and couples (Ameyaw et al., 2017).

In 2015, the Ministry of Health announced the Ghana Family Planning Costed Implementation Plan (GFPCIP) intending to increase the prevalence of modern contraception to 30% among married women and 40% among sexually active unmarried women. (Government of Ghana, 2015). In 2022, the government of Ghana expanded the National Insurance Scheme to include the provision of long-term modern contraception methods. Also, access to family planning services and support has increased following the construction of more district, regional, and teaching hospitals. Under the Family Planning 2030 commitments, Ghana has also pledged to ensure that all persons of reproductive age in the country have quality family planning information, commodities, and services, in a timely and equitable manner.

1.1 Problem Statement

In Ghana, there are still more girls and women (married and unmarried) having unmet needs for family planning, despite the increase in demand for modern contraceptives in recent years (11.9% to 29.2% over the period from 2000 to 2019) (United Nations Department of Economic and Social Affairs Population Division, 2019). Over the period 1993-2014, unmet need for family planning among married and unmarried women increased by about 30% and 42% respectively (Ghana Statistical Service and Inner-City Fund International, 2023).

Ghana's youthful demographic landscape representing about 38.2% of the population may also present a number of challenges to achieving comprehensive family planning. Young people face a variety of sexual and reproductive health issues, including unplanned pregnancy, unsafe abortion, sexual abuse, rape, and early marriage. (Apanga et al., 2020). This makes them susceptible to contracting sexually transmitted infections, adverse pregnancy outcomes, and pregnancy-related mortalities (Frimpong-Manso et al., 2021). Unwanted pregnancy among young women is higher than older women in Ghana. Also, available statistics from the Ghana Statistical Service indicate young adolescent women account for 30% of pregnancies and birth (Boamah et al., 2014; Ghana Statistical Service, Ghana Health Service and Inner-City Fund

International, 2015) . Research indicates that young adults (aged 18-24 years) in Ghana are more likely to use modern contraceptives inconsistently, face method failure, discontinue the use of effective methods, or abstain from using effective contraceptive methods (Alliance for Reproductive Health Rights, 2023). This has been blamed on inadequate information and awareness about contraceptive methods, false beliefs about the health issues associated with contraceptive use, misconceptions about the side effects, and stigmatization of users of family planning (Alliance for Reproductive Health Rights, 2023).

Currently, the country is not on the path to meeting its family planning objectives for 2020-2025 and the commitments it made for the agenda for 2030 (Alliance for Reproductive Health Rights, 2023). The country stands to miss its goal of reducing the unmet need for family planning among women from 32% to 16% over the period from 2018 to 2025. Similarly, the target to increase demand for modern contraceptives and further increase prevalence rate of modern contraceptives from 25% in 2018 to 39% by 2025 and 44.4% by 2030, appears challenged considering the rate achieved in 2023 was 31.2% (Alliance for Reproductive Health Rights, 2023). Following the current developments in modern contraceptive usage in the country in relation to the objectives established for 2020-2025 and 2030, this study attempts to assess the degree of awareness and utilisation of modern contraceptive techniques among women of reproductive age (15-49 years) in Ghana.

1.2 Rationale for the Study

This study is justified in the following regard. First, the study will add to the literature, current developments relating to the knowledge and utilisation of modern contraceptives in Ghana using recent data. Secondly, this study will provide valuable insight into the state of modern contraceptive uptake post-COVID-19, especially considering that studies have shown the pandemic impacted sexual and reproductive health in diverse ways. Third, the findings of the study will help to inform policy formulation and implementation on family planning toward

the achievement of Ghana's family planning targets for 2025 and 2030. This is very important especially when current indicators suggest these targets may be missed. Finally, the study's findings and consequent policy recommendations will provide valuable insights into how modern contraceptive prevalence rate in Ghana could be increased to address sexual and reproductive health issues including unsafe abortions, which have been found to be a proximate cause of maternal mortality in the country.

1.3 Conceptual Framework

The theory underpinning the study is the Knowledge-Attitude-Practice (KAP) theory which is widely used in the field of public health as a model for human health behaviour. The theory posits that human health behavioural change can be achieved when the knowledge that an individual acquires affect his attitudes and practices. Thus, the theory highlights the relationship between knowledge, attitudes, and practices in three successive processes (Vandamme, 2009). Within the context of this study, the KAP theory posits that an individual's knowledge of available modern contraception methods, their functions and effectiveness, is expected to influence their attitude and level of utilisation of modern contraceptives. Also, the social demographic features such as marital status, level of education, religion affiliation, income level, employment status and location also influence the individual's knowledge, attitude and practice or use of modern contraception methods.

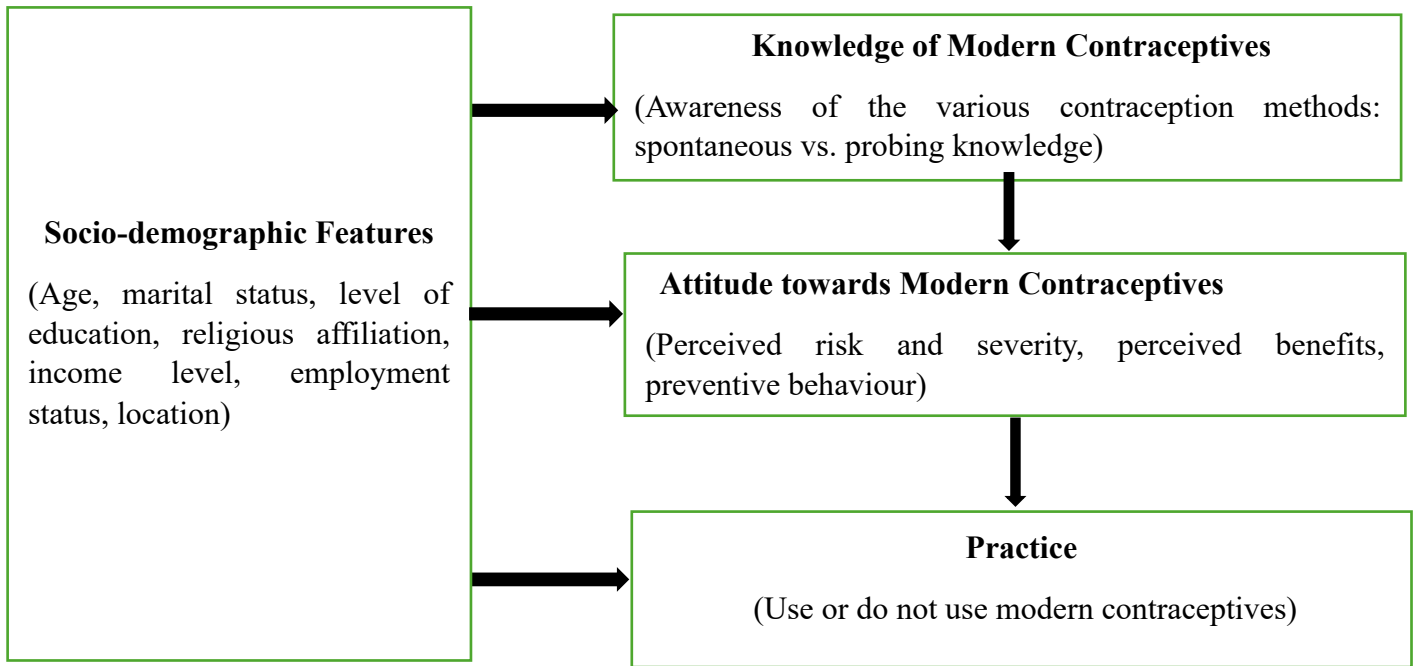


Figure 1.1: A Modified Conceptual Framework from Andersen (1995).

1.4 Research Questions

- What is the level of knowledge of modern contraceptive methods among women of reproductive age (15-49 years) in Ghana?
- What is the level of utilisation of modern contraception methods among women of reproductive age (15-49 years) in Ghana?
- What are the factors influencing utilisation of modern contraception methods among women of reproductive age (15-49 years) in Ghana?

1.5 Objectives

1.5.1 General Objective

The study's main purpose is to investigate the degree of awareness and use of contemporary contraceptive techniques among women of reproductive age (15-49 years) in Ghana.\

1.5.2 Specific Objectives

Specifically, the study seeks to;

- I. This study aims to evaluate current contraception knowledge among Ghanaian women aged 15-49 years.
- II. This study aims to assess the use of contemporary contraception among women aged 15-49 in Ghana.
- III. Identify characteristics impacting contemporary contraception use among Ghanaian women aged 15-49 years.

1.6 Profile of Study Area

The is a quantitative cross-sectional study which focuses on women in Ghana who are in their reproductive age (15-49 years). Ghana is a country located in Africa, specifically West Africa. Ghana sits on the Atlantic Ocean at a latitude of 7.9465° North and longitude of 1.0232° West. The country has a total land area of 238,533 kilometres squared and a total coastline of 539 km (Ghana Statistical Service, 2023). The country's total land area comprises 69% of agricultural land (World Bank, 2021). Ghana is surrounded by Burkina Faso to the north, Cote D'Ivoire to the west, Togo to the east, and the Atlantic Ocean in the south. The country has 16 geographical regions with Accra being its capital city. Each region is sub-divided for administrative purposes into a number of districts totalling 261. The districts include 149 ordinary districts, while 109 and 6 have municipal and metropolitan status respectively.

The total population of Ghana as of 2021 is estimated at 30,832,019 comprising 15,631,579 females and 15,200,440 males. The country has a youthful and urbanized population estimated at 11,777,831 (38.2%) and 17,472,530 (56.7%) respectively (Ghana Statistical Service, 2021a). More females (8,961,329) than males (8,511,201) reside in urban areas. However, more males are in rural areas (6,689,239) than females (6,670,250). Average household size according to

the 2021 housing and population census is 3.6. As of 2021, one in five persons in Ghana (20.8%) who are 3 years and older had never attended school. The country has more females who are uneducated (24.4%) than males (17%). With the 38% of the total population who have attended school before, 41.8% are males and 37.8% are females. As of 2021, the country's total labour force was 11,541,355 (representing 58.1% of persons 15 years and above) comprising 9,990,237 employed and 1,551,118 unemployed. The male population are more economically active than their female counterparts (63.5% males as compared to 53% females) (GSS, 2021b). The fertility rate in Ghana as at 2021 is estimated at 3.1%. Fertility rate in the rural areas (3.8%) is higher compared to the urban (2.7%) areas. As of 2021, the rate peak at 25-29 years was the highest. Women in rural Ghana give birth at a younger age (21) than their urban counterparts (23) (Ghana Statistical Service, 2022).



Map 1.1: Ghana Map

Source: <https://i1.wp.com/ghstudents.com/wp-content/uploads/2019/05/Ghana-Regions.jpg?fit=540%2C700&ssl=1>

1.7 Scope of the Study

The study employs the 2022 Ghana Demographic and Health Survey (GDHS), particularly the sections on knowledge and utilization of modern contraception, to achieve its objectives. The data is nationally representative in nature, capturing various health indicators on women, men and children. The sample used for the study were women in their reproductive (15-49 years) in Ghana. From the datasets employed, the study analysed respondents' knowledge of current contraceptive techniques and how this differs by socio-demographic characteristics. It also determined the prevalence of contemporary contraceptive techniques among the studied population. Furthermore, the study explored the factors impacting contemporary contraception usage among the studied population. The selection of the factors which were investigated was informed by the empirical literature.

1.8 Organization of the Study

The study is divided into six chapters. The first chapter includes the study's history, problem statement, rationale, conceptual framework, research questions, study goals, study area profile, study scope, and study organisation. The second chapter reviews the relevant theoretical and empirical literature on the knowledge and use of contemporary contraception among women of reproductive age (15-49 years). In particular, the empirical literature examines research that used prior rounds of the GDHS. The study approach is detailed in Chapter 3. Chapter three focusses on the research design, study population and sample, research instrument, data gathering procedure, and data analysis. The data analysis and findings are provided in Chapter 4. Chapter five focuses on the discussion of the study's findings. Chapter six includes a summary of the investigation, the conclusion, and suggestions based on the findings.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews the theoretical and empirical research on the degree of awareness and use of contemporary contraceptives among women of reproductive age (15-49 years) in Ghana.

2.1 Theoretical Literature

2.1.1 Definition of Modern Contraceptives

Contraceptives are generally a subset or form of family planning- the deliberate use of artificial methods or other practices to limit or space pregnancies (Menning and Schindler, 2022). Family planning encompasses infertility treatment, procedures, devices, policies, behaviours or attitudes, information, as well as contraceptive methods (Menning and Schindler, 2022). Family planning methods are designed for women, men, couples, and adolescents. Modern contraception has been identified as the most commonly used family planning method (Nimandi *et al.*, 2023).

Hubacher and Trussell (2015) define modern contraceptives as “a product or medical procedure that interferes with reproduction from acts of sexual intercourse” (Hubacher & Trussell, 2015, p.12). Their definition and classification of contraceptives into modern and non-modern methods does not take into consideration, the effectiveness and efficacy of the concepts of contraception. Specifically, the authors did not necessarily equate their use of the word “modern” with higher efficacy. They explained that some “modern” methods are demonstrably inferior to some of the “non-modern”, and there are some “non-modern” methods whose effectiveness can be improved with technology. Health Think (2022) defines modern contraception as the use of hormonal and non-hormonal products or medical

procedures to hinder or prevent reproduction from sexual intercourse. The hormonal methods contain either progestin only or estrogen plus progestin (Kaunitz, 2024). The non-hormonal products are the ones that do not have any effect on the woman's hormones. According to the WHO, contemporary contraceptives apply to family planning techniques such as hormone therapy, lactational amenorrhoea, intrauterine devices, condoms, and sterilisation (WHO, 2018).

Several issues have been raised concerning the use of the word "modern" to qualify contraceptives (Hubacher and Trussell, 2015). While some researchers and family planning experts have argued that the word "modern" is misleading and arbitrary, others have suggested the term should be abandoned for other clearer terms (Cates, Stanback and Maggwa, 2014; López del Burgo and De Irala, 2016). A technical consultation organised by the World Health Organisation Department of Reproductive Health and Research and the United States Agency for International Development (USAID) in 2015 considered and discussed several definitions but none of them was found to be consistent when applied to the variety of available contraceptives. The consultation agreed on the following characteristics of modern contraceptive methods: (1) The technique must have a solid basis in reproductive biology; (2) a detailed protocol to guide and instruct correct usage; and (3) existing data to serve as proof that the approach has been evaluated in well-designed studies to assess the efficacy of the method under varied situations. Resolving the confusion and ambiguity surrounding the use of the word "modern" is very important to ensuring a consistent classification of contraceptives, particularly, within the context of the conventional dichotomy (traditional/modern) classification system.

The inconsistencies in the definition of "modern contraceptives" has relevant implications for the criteria employed for classifying contraceptive methods, the measurement of key family

planning indicators, and support for programmes and client choice. With regards to the classification of contraceptives, some organizations and countries classify contraceptive methods like the Lactational Amenorrhea Method (LAM), the Standard Days Method (SDM), and the Two-Day Method as modern contraceptives whilst others classify them as traditional methods (Festin et al., 2016). Also, even though condoms have existed since the 1850s, they are yet classified as modern contraceptives (Amy and Thiery, 2015). Thus, the current classification system does not reflect the temporal or historical context of the words “modern” and “traditional”. In addition, with the inconsistencies in the definition and classification of methods, the calculation of key indicators such as unmet need and contraceptive prevalence rate, becomes difficult. The results of such computations could sometimes be erroneous or misleading. For instance, recent calculations of unmet needs focused on only modern contraceptives, regarding the use of traditional methods as non-use (Westoff, 2012; Festin et al., 2016). Other methods for preventing unwanted pregnancies like emergency contraceptives even though considered a modern method, are presently not captured in reports on the utilization of contraceptives, partly due to difficulties in measuring and estimating coverage of use (Festin et al., 2016).

Furthermore, the more the difficulty encountered in the definition and classification of contraceptives has created a situation where traditional and modern are erroneously linked to the effectiveness and efficacy of methods. In the current classification regime, traditional and modern are not consistently applied to indicate the level of effectiveness of contraceptive methods. For instance, withdrawal is considered a traditional method although it is as effective as condoms which is a modern method (WHO, 2015). This inconsistency implies that people rely on value judgments which makes them more likely to associate “good” with “modern” and “bad” with “traditional” (Festin *et al.*, 2016). Consequently, this current classification regime makes people often believe that “modern methods” are more effective than “traditional

methods”. This creates a situation that makes family planning programme managers and decision-makers commit more resources to the provision of modern methods (Festin et al., 2016). Even in situations where some methods can be highly effective (for example, with the help of technology) but are classified as “traditional”, programme managers may be less likely to include them in their programmes. To a large extent, this funding and decision-making regime determines what methods would be made available in local pharmacies and clinics and the options available for the client to choose from (Festin et al., 2016).

Given the difficulty in defining “modern” methods of contraceptives and appropriately delineating the conventional dichotomy (traditional and modern) classification system, several other classification regimes have been recommended. These include classifications according to features such as level of effectiveness, presence of hormones, need for programme support, reversibility, mode of action, and duration of labelled use among others (Festin et al., 2016; López del Burgo and De Irala, 2016).

2.2 Types of Modern Contraceptive Methods According to the DHS

According to the Demographic and Health Survey (DHS), modern contraceptives include the oral contraceptive pill, male and female sterilisation, intrauterine devices (IUD), injectables, implants, male and female condoms, diaphragm, emergency contraception, lactational amenorrhoea method, and the standard day method.

2.2.1 Oral Contraceptive Pills

There are two forms of oral contraceptive pills: the combination pill, which contains both oestrogen and progesterone, and the progestin-only pill, commonly known as the mini-pill. The drugs inhibit the release of eggs from the ovaries, thicken the cervical mucus, and alter tubal motility. (HealthThink, 2022; Rakhi and Sumathi, 2012). They are to be prescribed after a

medical examination or check-up. Oral contraceptives are easy and convenient methods and they are women-controlled. They do not interfere with sexual activity. The use of the pills is usually accompanied by a regular monthly cycle with reduced bleeding and pain. The pills are most effective if taken regularly. They are not effective when used later than 12 hours. Oral contraceptive tablets are not suggested for women over 35 years old or those with a medical history of liver illness, hypertension, heart disease, diabetes, and unexplained vaginal bleeding (Rakhi and Sumathi, 2012).

2.2.2 Sterilization

This is a permanent form of contraception suitable for persons who are certain they do not want any more children or who have never wanted to have children. The procedure comprises removing the body's capacity to reproduce by open or limited invasive surgery (Abrah, 2021). This method is available for both women and men. The sterilization procedure for women is known as tubal ligation. The process involves cutting, sealing, or tying the ends of the fallopian tube to prevent eggs from reaching the uterus at all. It is a reliable method that can be performed anytime (Rakhi and Sumathi, 2012). Though it is a permanent method, the procedure can be reversed, however, the reversal may not always be successful (Rakhi and Sumathi, 2012). Male sterilization, also known as vasectomy, is the cutting of the vas deferens to prevent the transport of mature sperm to the urethra in preparation for ejaculation. Although, safe, reliable, and highly effective, vasectomy is not common in Ghana due to the level of awareness (Adu et al., 2018).

2.2.3. Intrauterine Devices (IUD)

Globally, the IUD technique is one of the most widely used forms of contraception. The technique is considered a contemporary long-acting reversible contraceptive method that may be used by any reproductive-aged woman (WHO, 2016). IUDs are small flexible plastic devices containing copper sleeves or wires that are implanted into the womb (HealthThink,

2022). The insertion and removal of the device is done by a healthcare provider. The insertion can be done at any point of the mensural cycle (Whiteman et al., 2013; Heijden et al., 2016). The inserted device prevents fertilized eggs from settling in the uterus. Sometimes, the device can loosen and detach from the uterus so it is advised that it should be checked periodically. The method is almost one hundred percent effective and does not interfere with sexual intercourse. It can be removed when the woman wants to get pregnant. While some women using IUDs may experience heavy bleeding, others, especially those infected with STIs, may have pelvic inflammation (Gbagbo and Kayi, 2018; Rakhi and Sumathi, 2012; Steenland et al., 2013).

2.2.4. Injectables

These hormonal methods of contraception comprise either a mix of the progestin and oestrogen hormones or the progestin hormone only. In Ghana, three contraceptive injectable contraceptives are administered in both public and private health facilities. These are the Norigynon contraceptive which contains the progestin and the oestrogen hormones, and Depot medroxyprogesterone acetate (DMPA) or Depo Provera and norethisterone enanthate (NET-EN) progestin-only injectables (Asante, 2013). The Norigynon injectable contraceptive is administered to the user every month and the Depo Provera or the NET-EN is given every two to three months (Asante, 2013). Injectable contraceptives are administered either by intramuscular injection (through the muscles) or by subcutaneous injection (under the skin). The injectables inhibit pregnancy by preventing ovulation, thickening cervical mucous, and changing the endometrial lining, all of which prevent implantation of the eggs in the uterus. Injectable contraceptives are easy to administer, very effective, and suitable during lactation (Rakhi and Sumathi, 2012). They also have non-contraceptive benefits which include a decline in incidents of ovarian cysts or breast lumps. However, while using the injectables, some women may experience irregular or spotting menstrual flow or a cease of flow altogether

(Rakhi and Sumathi, 2012). Others may experience weight gain (Abrah, 2021; Rakhi & Sumathi, 2012). Injectables are effective when administered regularly so where an injection is missed, the woman might get pregnant (Abrah, 2021).

2.2.5 Implants

These are small flexible matchstick-like rods or capsules that are surgically fixed under the skin of the upper arm. When the rods are implanted, they are left there for several years. They release progestin hormones, similar to the natural hormone progesterone found in a woman's body, which provides long-term protection against any unwanted pregnancy. Implants typically have a five-year lifespan, depending on the kind (Abrah, 2021; Rakhi and Sumathi, 2012). Implants function by suppressing ovulation, forming thick cervical mucus that inhibits sperms from accessing the cervix, and producing a thin atrophic endometrial lining. The approach is appropriate for ladies seeking continuous contraception (Rakhi and Sumathi, 2012).

In Ghana, three brands of contraceptive implants have been approved: the Jadelle (two flexible levonorgestrel with silicone rods that last for five years), the Implanon (one flexible etonogestrel with a plastic rod that can be used for three years), and the Sino Implant (with two flexible levonorgestrel and silicone rods that can be used for four years). (Population Council, 2014; United Nations Population Fund, 2017). Fertility is restored in 2-4 months when the capsule or rod is removed by a minor surgery (Rakhi and Sumathi, 2012). The insertion and removal of the implants must be done by a trained healthcare provider. The woman must also visit the healthcare facility, at least 2-3 times a year, to under a periodic check-up (Rakhi and Sumathi, 2012). Some women who use implants may report bleeding changes but this may not be harmful. Most women may experience prolonged irregular bleeding for the first year, which will later become lighter, followed by regular episodes, and then subsequently infrequent or no bleeding (Abrah, 2021).

2.2.6 Condoms

A condom is a thin fitted tube which is worn over an erect penis or inserted into the vagina before sexual intercourse. While most condoms are made of latex rubber, others are made of other materials like polyisoprene, polyurethane, lambskin, and nitrile (Abrah, 2021). Condoms come in two varieties: the male and the female condom. Condoms generally are designed to prevent semen from entering through the vagina of the woman, it is mostly used by people of all age groups and does not require any prior medical examination to use. They are easily available, safe, and cheap, and offer both contraception advantages and protection against Sexually Transmitted Infections (STIs) (Rakhi and Sumathi, 2012; Aliyu, 2018; National Health Service (NHS), 2024). However, the effectiveness of condoms as a contraception method depends on proper use. Condoms may tear or slip if not properly worn or inserted. In addition, some women may find the size and hardness of the inner ring of the female condom very uncomfortable.

2.2.7 Diaphragm

This is a barrier method of modern contraception. It does not contain any hormone-altering chemicals. It is a soft rubber which is fitted into the vagina before sex. It is used only when one wants to have sex. It is left in place at least six hours after sex. The diaphragm can be washed and reused after removing it. It functions by physically blocking sperms at the cervix area so they cannot enter the uterus. Diaphragms are more effective when used together with spermicide- a material that comes in different forms, such as cream, foam, gel, and suppositories, which contain chemicals that stop sperm from getting to an egg. Diaphragms do not interfere with sexual intercourse and provide important additional benefits by offering protection against Sexually Transmitted Infections (STIs). Diaphragms are not designed to be kept in the vagina for longer than the duration recommended by the manufacturer as it may result in a risk of toxic shock syndrome (National Health Service (NHS), 2024).

2.2.8. Emergency Contraception

This method can prevent pregnancy after having unprotected sex, missing a pill, or a condom bursting. Emergency contraception comes in the form of pills which are taken in two doses separated by twelve-hour intervals and within three days of unprotected sex (National Institute of Child Health and Human Development (NICHD), 2017). Emergency contraceptive pills can prevent ovulation, fertilization, and fertilized egg implantation depending on the time of menstruation (Rakhi and Sumathi, 2012). They thicken the cervical mucus and interfere with the function of sperm (NICHD, 2017). Emergency contraceptive pills can be used to prevent pregnancy in the following instances; when condoms tear; oral pills are missed in succession; IUDs are removed and one fears having conception; when injectables are delayed by more than two weeks (Rakhi and Sumathi, 2012). Pregnancy may occur when the tablets are taken after ovulation or when a woman has unprotected intercourse in the same menstrual cycle (NICHD, 2017).

2.2.9. Lactational Amenorrhea Method

This is a temporary contraceptive strategy that relies on the natural effect of nursing on conception. This method of contraception is activated when there is no menstrual flow following birth and there is full breastfeeding day and night (Van der Wijden and Manion, 2015; Centre for Disease Control and Prevention (CDC), 2023). After giving birth, nursing mothers can secrete hormones that prevent pregnancy for approximately 6 months. The method can be used where the following three simultaneous conditions are satisfied; (1) the mother is still amenorrhoeic or there is still menstrual flow; (2) the baby is under 6 months; and (3) the mother practices exclusive or nearly exclusive breastfeeding day and night (Stewart et al., 2013). The method is not reliable considering that breastfeeding is irregular and most women start experiencing menstrual flow by the third month (Rakhi and Sumathi, 2012). In addition,

the method fails in the following situations; where the baby sleeps through the night; where there is a sores, cracked, or inverted nipple; and breast abscess (Rakhi and Sumathi, 2012).

2.2.10. Standard Day Method

This is a family planning method that is based on fertility awareness (Weis and Festin, 2020). It was developed by the Institute for Reproductive Health at Georgetown University Medical Centre with support from the U.S. Agency for International Development (USAID). The method is based on the physiology of women. The method requires that a woman avoid unprotected sexual intercourse during a fertile 12-day time interval in the mid-point of her menstrual cycle (8-19 days) (Lundgren, Karra and Yam, 2012).

2.3 Benefits of Contraception

Creating awareness of modern contraception and expanding access to it offers several benefits to women, couples, children, and society at large. This sub-section looks at the benefits of contraception from two perspectives: (a) benefits to women and girls and (b) benefits to society through the achievement of the SDGs.

2.3.1 Benefits of Contraception to Women and Girls

Reduces Adolescent Pregnancies

Expanding access to contraception helps to prevent unintended pregnancy and is key to enhancing the reproductive and sexual health, as well as the social and economic well-being of adolescents (Darroch et al., 2016). Adolescents who are pregnant are more likely to have low birth weight and preterm babies, and higher neonatal mortality. Mostly, such pregnant adolescent girls are compelled to leave school which also has some long-term on the girls, their families, and communities (UNFPA, 2014).

Reduces Unsafe Abortion from Unintended Pregnancies

A major challenge confronting most women around the world is the problem of unintended or unwanted pregnancies. Approximately 44% of all pregnancies globally are unintended and about 56% of these pregnancies are aborted (Bearak et al., 2018). Contraception helps to prevent unintended or unwanted pregnancies and reduces induced abortion. Contraception gives women the opportunity to decide on the appropriate and convenient time to have children. Thus, by preventing unintended pregnancy and abortion, contraception also protects women from the risks and dangers of abortion.

Reducing pregnancy-related morbidity and mortality

The prevention of pregnancy with the use of contraceptives helps to reduce the number of births a woman experiences and pregnancy and birth-related morbidity and mortality. For women who are at or near the end of their reproductive age, this benefit is key considering that pregnancy at that stage is met with a lot of complications and elevated co-morbidities (Kavanaugh and Anderson, 2013). For women with underlying medical conditions, unintended pregnancy could present a lot of complications, some of which are worsened by the pregnancy (Kavanaugh and Anderson, 2013). Medications taken to manage some of these underlying conditions, when combined with pregnancy, may result in elevated maternal morbidities and mortalities. Therefore, contraception provides women with these underlying medical conditions the opportunity to prevent unintended pregnancies and to put in place measures to manage their condition if and when they decide to become pregnant (Kavanaugh and Anderson, 2013).

Women Empowerment

The use of contraception provides women the opportunity to make informed decisions about their reproductive and sexual health. This in turn creates an opportunity for women to prioritize their development and achievement of their life aspirations which may include acquiring

education and training or getting paid employment. Contraception can help married women and sexually active unmarried women to have uninterrupted access to education, learn a trade, start and manage a business, or pursue career goals (WHO, 2019). The ability of women to pursue these endeavours may be hindered when there is an unintended pregnancy.

Dual Protection

Some modern contraception methods like condoms give double protection against unintended pregnancy and STIs including HIV. Others also provide relief from menstrual-related conditions, heavy bleeding, premenstrual dysphoric disorder (PMDD), migraines, and acne (Kavanaugh and Anderson, 2013). Research has also shown that the use of hormonal contraceptives reduces the risk of developing certain cancers like endometrial cancer (Gierisch et al., 2013; Collaborative Group on Epidemiological Studies on Endometrial Cancer, 2015; Iversen et al., 2017; Michels et al., 2018), ovarian cancer (Havrilesky et al., 2013; Wentzensen et al., 2016) and colorectal cancer (Gierisch et al., 2013; Luan et al., 2015; Iversen et al., 2017; Murphy et al., 2017).

2.3.2 Family Planning, Contraception Use and Achievement of the SDGs

Family planning is viewed as a method for accelerating progress towards the SDGs' five themes of people, planet, prosperity, peace, and cooperation. Starbird, Norton, and Marcus (2016) analysed the role of family planning in achieving the SDGs in three broad areas: (1) family planning's link to human rights, gender equality, and empowerment; (2) the impact of family planning on maternal, newborn, child, and adolescent health; and (3) the role of family planning in shaping economic development and environmental and political futures.. The ensuing section focuses on the role of family planning in the achievement of the 17 SDGs.

SDG Goal 1: “End Poverty in all its forms Everywhere”

Family planning helps to reduce poverty in a number of ways. First, it helps to control rapid population growth, a development which is regarded as a major hindrance to the eradication of poverty and inequality and improvement in the provision of basic services (United Nations (UN), 2015). Through its role in the creation of human capital, family planning can contribute significantly to poverty reduction. Family planning helps women to be more engaged in daily life thereby empowering them and helping to develop their human capital potential (Al Tuwajri and Saadat, 2018). Where there are fewer children in a given household, more economic resources are made available to cater for each child (Bailey, Malkova and Norling, 2014). This should lead to a reduction in poverty as it will be difficult to find such households falling below the poverty threshold. Also, family planning may directly increase household income as the availability of cheaper contraceptives helps to reduce the immediate and expected costs of deferring childbirth. This frees up resources which can be invested in parents’ human capital.

SDG Goal 2: “End hunger, achieve food security and improved nutrition, and promote Sustainable Agriculture”

The Lactational Amenorrhea Method of family planning can influence the nutritional status of newborns and infants since it provides all the nutritional benefits of exclusive breastfeeding (Starbird, Norton and Marcus, 2016). The use of contraception allows for more time and space throughout pregnancy, which contributes to healthy, favourable nutritional results. For example, spacing pregnancies at least two years apart (equivalent to three years between births) has been demonstrated to minimise malnutrition among children under the age of five (Rutstein and Winter, 2014). Also spacing pregnancies gives mothers more time, resources and energy to breastfeed their infants. Where breastfeeding is done for longer periods, breastfeeding

practices are observed to improve and this in turn leads to improved nutrition (Hromi-Fiedler A. J. and Pe ´rez-Escamilla, 2006; Yalçın, Yalçın and Kurtuluş-Yiğit, 2014; Naik and Smith, 2015).

Goal 3: “Ensure Healthy Lives and Promote Well Being at All Ages”

Family planning saves the lives of both mothers and children (Starbird, Norton, & Marcus, 2016). According to research, family planning might have saved around 7 million under-five deaths and 450,000 maternal deaths in 22 USAID priority countries (USAID, 2014). Family planning minimises the frequency of high-risk births, which occur at an early or late age in the mother's life and are closely spaced, increasing the risk of morbidity or mortality (Starbird, Norton, and Marcus, 2016). By minimising pregnancy-related health risks, family planning also helps to avoid or minimise the number of unplanned pregnancies and births, as well as the attendant challenges to society. In addition, family planning helps to reduce HIV/AIDS infections, unintended pregnancies in women with HIV infection and the possible transmission of the virus to newborns (Starbird, Norton and Marcus, 2016).

Goal 4: “Ensure Inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunities for All”

Family supports the education of women and girls by giving them the opportunity to stay in school while being mothers, married or having family so they can achieve their educational goals. It also helps adolescent girls to stay longer in school and this significantly leads to a greater impact on their lives, their families and the society. A number of case studies have revealed as fertility declines, the overall wellbeing of women and girls improve, especially in relation to educational attainment and workforce participation (Stoebenau, Pande and Malhotra, 2014). Furthermore, a research in Bangladesh discovered that family planning had a wide variety of beneficial effects on women's education and empowerment (Gribble and Voss,

2009). For example, the study found that daughters of households involved in a family planning program have a higher level of education than daughters of families that do not participate.

Goal 5: “Achieve Gender Equality and Empower All Women and Girls”

Gender equality refers to equal enjoyment of opportunities, rights, goods and services among women and men and empowerment refers to the expansion or enhancement of people’s capacity to make decisions and act on them (Interagency Gender Working Group (IGWG), 2017). Family planning ensures gender equality and empowerment by providing women access to their chosen contraceptive methods and the opportunity for them to negotiate how to use the method. Also, by giving women the opportunity to achieve their educational and career goals, family planning helps to ensure gender equality and women empowerment (Starbird, Norton and Marcus, 2016).

Goal 6: “Ensure Availability and Sustainable Management of Water and Sanitation for All”

Family planning helps to reduce poverty in several ways. First, it helps to control rapid population growth, a development that is regarded as a major hindrance to the eradication of poverty and inequality and improvement in the provision of basic services (United Nations (UN), 2015). Through its role in the creation of human capital, family planning can contribute significantly to poverty reduction. Family planning helps women to be more engaged in daily life thereby empowering them and helping to develop their human capital potential (Al Tuwajri and Saadat, 2018). Where there are fewer children in a given household, more economic resources are made available to cater to each child (Bailey, Malkova and Norling, 2014). This should lead to a reduction in poverty as it will be difficult to find such households falling below the poverty threshold. Also, family planning may directly increase household income as the availability of cheaper contraceptives helps to reduce the immediate and

expected costs of deferring childbirth. This frees up resources that can be invested in parents' human capital.

Goal 7: “Ensure Access to Affordable, Reliable, Sustainable, and Modern Energy for All Integrated Population, Health, and Environment Projects Can Expand Access to Clean and Renewable Energy”

Family planning is vital in achieving this aim since population expansion has a detrimental impact on access to and usage of renewable energy. Population expansion may reverse advances achieved in improving access to sustainable energy. This happens when the growth rate in population far outweighs growth in access to energy. Therefore, adopting integrated population, health, and environmental projects, which have family planning as one of its strategies, can help to expand access to clean and renewable energy (Starbird, Norton and Marcus, 2016).

Goal 8: “Promote Sustained, Inclusive, and Sustainable Economic Growth, Full and Productive Employment, and Decent Work for All”

Family planning promotes economic growth by altering the age structure of a country's population (Starbird, Norton, and Marcus, 2016). Family planning can help a country's dependence ratio (the ratio of dependents to income earners) by lowering fertility rates. This results in a bigger proportion of wage earners in the population and contributes to increased national savings. Family planning may offer a demographic dividend of economic growth when the correct socioeconomic policies are put in place and justice in society is prioritised. (Starbird, Norton and Marcus, 2016).

Goal 9: Build Resilient Infrastructure, Promote Inclusive and Sustainable Industrialization, and Foster Innovation

Resilience is the ability of households, communities, and nations to successfully adapt to and recover from shocks in a way that mitigates chronic vulnerability and assures equitable growth. (Bremner, 2015). The Sahel region has been described as one of the most vulnerable regions in the world (Bremner, 2015). The region, which comprises 10 countries and 100 million inhabitants and where four of the world's top ten countries with the highest total fertility rate are located, has been experiencing declining agricultural production owing to severe drought, low rainfall, food insecurity, civil unrest, and environmental degradation (Bremner, 2015; Starbird, Norton and Marcus, 2016). This development highlights the important role of family planning in helping to build resilient infrastructures to deal with shocks and stresses (Starbird, Norton and Marcus, 2016).

Goal 10: “Reduce Inequality Within and Among Countries”

The segment of the population that has limited resources and is least able to deal with the consequences of unintended pregnancy includes disadvantaged and vulnerable adolescents, urban slum and rural dwellers, the poor, displaced persons, and people living with HIV (Starbird, Norton and Marcus, 2016). The unmet need for contraception is observed to be very high amongst these population groups. As a result, expanding access to family planning amongst such groups is very important. It is expected that access to family planning by these groups will help to increase the incomes, savings, and assets of poor and vulnerable households (Joshi and Schultz, 2007; Gribble and Voss, 2009). Also, by having fewer children, families or households can increase their savings and investments in each child (Canning and Schultz, 2012).

Goal 11: “Make Cities and Human Settlements Inclusive, Safe, Resilient, and Sustainable”

Rapid urbanization has put pressure on infrastructures in the areas of health, education, water, and sanitation. The number of slum dwellers in cities of developing countries is fast increasing. Studies have shown that ensuring an increase in exposure to demand-generation activities among urban women and slum dwellers can help to increase access to modern contraceptives (Speizer et al., 2014). This can help to reduce the negative impact of rapid urbanization on the cities.

Goal 12: “Ensure Sustainable Consumption and Production Patterns”

Rapid population expansion is complicating the proper management of the planet's limited natural resources. According to the United Nations Environment Program, the proper management of the earth's resources is critical to ensuring the well-being of the whole human race, the environment, and the global economy (Starbird, Norton and Marcus, 2016).

Goal 13: “Take Urgent Action to Combat Climate Change and Its Impact”

A major driver of greenhouse gas emissions, which is the primary cause of climate change, is rapid population growth. Thus, when it comes to challenges and solutions to climate change, population has a key role to play. Rapid population growth worsens vulnerability to the negative effects of climate change and exposes more people to climate risk (Starbird, Norton and Marcus, 2016). According to the Intergovernmental Panel on Climate Change (IPCC), expanding access to reproductive health services will not only help to improve maternal and child health but also help to control population growth, energy demand, and consequent emissions which alter the climate over time (Smith et al., 2015).

Goal 14: “Conserve and Sustainably Use the Oceans, Seas, and Marine Resources for Sustainable Development”

Rapid population growth puts pressure on marine resources. Under intense population pressure, ocean resources are fast becoming extinct while global fishes are also declining (Starbird, Norton and Marcus, 2016). Therefore, controlling population growth by expanding access to family planning will help to protect the ocean ecosystem and contribute to a rebound of species in these water bodies.

Goal 15: “Protect, Restore, and Promote Sustainable Use of Terrestrial Ecosystems, Sustainably Manage Forests, Combat Desertification, and Halt and Reverse Land Degradation and Halt Biodiversity Loss”

Rapid population growth has led to increasing demand for food and forest products which has seen the use of forest areas for agriculture and commercial forestry. Encouraging the use of planning methods to tackle population growth will help to check population pressures on the environment like deforestation, land degradation, and desertification. Also, studies have found that increasing interaction between humans, animals, and wildlife, following increasing population density and land use change, is a contributor to the emergence of infectious diseases (Jones et al., 2008; Murray and Daszak, 2013). Therefore, controlling population growth through the promotion of the use of family planning methods will help to check the emergence and spread of some of these diseases.

Goal 16: “Promote Peaceful and Inclusive Societies for Sustainable Development, Provide Access to Justice for All, and Build Effective, Accountable, and Inclusive Institutions at All Levels”

Studies have shown that countries with very youthful populations are more likely to experience civil conflicts and other kinds of violence (Cincotta, 2011; Cincotta and Doces, 2012). Cincotta (2015) noted that the political environment has a significant impact on fertility decline. Studies have indicated that the likelihood of achieving and maintaining a liberalized democracy

increases as a country and its population age (Cincotta, 2015). It is advised that as part of efforts to deal with such negative consequences of a youthful population, countries should also adopt family planning to check the structure of the population (Potts, Mahmood and Graves, 2015).

Goal 17: “Strengthen the Means of Implementation and Revitalize the Global Partnership for Sustainable Development”

Global collaborations have contributed significantly to the promotion and strengthening of family planning programmes. These partnerships include the Family Planning 2020, the United Nations Commission on Life-Saving Commodities, the Millennium Development Goals (MDG) Health Alliance, and the Ouagadougou Partnership (Starbird, Norton and Marcus, 2016). For instance, the USAID is partnering with the global community (governments, NGOs, civil society, faith-based and community organizations, universities, private companies, etc) to encourage voluntary modern contraceptive use by individuals who want it and improve the lives of women and girls around the world (USAID, 2024).

2.4 Key Family Planning Indicators

Data from the Demographic and Health Survey (DHS) makes it possible to compute the following family planning indicators.

Contraceptive Prevalence

This refers to the percentage of women, made of up currently married women aged 15-49 years and sexually active unmarried women aged 15-49 years, who use any method of contraception.

Modern Contraceptive Methods

These methods include contraceptive pills, intrauterine devices (IUDs), male and female sterilization, injectables, emergency contraception, male and female condoms, lactational amenorrhea method, and the standard days method. This definition guides the computation of

other indicators, especially the ones relating to modern contraception. For instance, it provides information to compute the total number of women of reproductive age (15-49 years) who use modern methods of contraception or modern contraception prevalence rate.

Unmet Need for Family Planning

This is the proportion of women (currently married women and sexually active unmarried women) of reproductive age (15-49 years) who match the following criteria:

- • Those who are not pregnant or having postpartum amenorrhoea, are deemed fertile, and wish to postpone their next birth for at least 2 years or cease reproducing without using contraception.
- • Have a mistimed or unplanned current pregnancy.
- • Those with postpartum amenorrhoea and a previous mistimed or unplanned delivery within the past two years.

Met Need for Family Planning

This counts the number of presently married women and sexually active unmarried women of the reproductive age (15-49 years) who are currently using a contraceptive technique (any method).

Demand for Family Planning

The refers to the sum of unmet and met need (that is, current contraceptive use of any method) for family planning.

Proportion of Demand Satisfied

This is the ratio of current contraceptive use of any technique to the sum of unmet and satisfied needs for family planning.

Proportion of Demand Satisfied by Modern Methods

This refers to the ratio of current contraceptive use (any method) to the sum of unmet need and met need (that is, current contraceptive use of any method) for family planning.

2.5 Overview of Ghana's Family Planning Policies and Strategies

The government of Ghana's support for the family planning programme officially began in 1969 and a national family planning programme was established in 1970. This led to the establishment of various projects, including the Contraceptive Social Marketing (CSM) project (1987-1990), the Ghana Family Planning and Health Programme (FPHP) (1990-1996), and the Ghana Population and AIDS Project (GHANAPA) (1996-2000). The Contraceptive Social Marketing (CSM) project (1987-1990) focused on using social marketing strategies to increase demand for modern contraceptive methods (Hong, Chinbuah and Miller, 2005). The FPHP continued with the use of the social marketing strategy to increase the uptake of modern contraceptives and also worked on building the capacity of public and private sectors to offer family planning supplies, services, and information.

The findings of a 1993 Situation Analysis Study for Family Planning Services led to the development of protocols, standards, and guidelines and the training of more nurses to provide family planning services. Between 1993-1996, the focus of family planning programmes in the country was on expanding access to permanent (mini-laparotomies and vasectomies) or long-term (IUDs and implants) contraceptive methods (Hong, Chinbuah and Miller, 2005). In 1994, the National Population Council was established by an Act of Parliament (National Population Council, 1994, Act 485) to advise the government on the population and related issues. The Council was set up also to provide direction, coordination, monitoring, and evaluation (Agongo et al., 2018). In 1966, the monthly injectable and female condoms were introduced in both private and public facilities and nurses were given in-service training on how to administer

these methods, including emergency contraception. An NGO called EngenderHealth also trained medical officers, doctors, and nurses on how to conduct the vasectomy procedure. These developments increased the variety of contraceptive methods on offer at various facilities.

From 1996-2002, the focus of Ghana's family planning programme was to increase further, the variety of family planning services that were being offered to the public. Also, the programme sought to give users more choices in methods and develop strategies to reach special groups, such as men and adolescents (Hong, Chinbuah and Miller, 2005). Around this time the FPHP had undergone some modifications by giving users of contraception the right to decide on which method to opt for without necessarily getting the consent of their partners. Also, provisions were made in the case of individuals with mental disability or serious psychiatric who cannot make informed choices. In the case of adolescents, provisions were made for contraception to be provided in consultation with all relevant parties including trained service providers and persons in loco parentis (Hong, Chinbuah and Miller, 2005). Ghana initiated the Community-based Health Planning and Services (CHPS) project in 2000 to increase access to health and family planning services. Also, in the year 2000, Ghana signed onto the Millenium Development Goals (MDGs) which are also closely related to the objectives and strategies agreed on at the 1994 International Conference on Population and Development, of which also Ghana is signed unto (UNFPA, 2023).

In 2003, the country revised its comprehensive first edition of Reproductive Health Policy and Standards which was developed between 1994 and 1996 (Republic of Ghana, 2005; Ghana Health Service, 2007). Ghana's Growth and Poverty Reduction Strategy (2006-2009) also had provisions on population management as a major strategy (Republic of Ghana, 2005). In 2007, the Ghana Health Service developed a strategic plan which laid out the national strategic direction in reproductive health services and activities for the period 2007-2011. The strategic

plan was also intended to bring together both sentiments and documents on national reproductive health and population policies (Ghana Health Service, 2007). Also, the plan was designed to detail the implementation plans at the operational level. The country has also signed onto several global health and family planning initiatives which have been incorporated into national programmes. These include; the United Nations General Assembly Declaration, 2015; the Family Planning (FP) 2012 and 2020; the Global Strategy for Women's, Children's and Adolescent's Health 2010; and the WHO/AFRO/USAID 2008.

The Ghana Family Planning Costed Implementation Plan (GFPCIP) was developed in 2015 to serve as a guide for all Family Planning Programmes in the country. It was designed to; ensure that governments, development, and implementing partners follow a unified country strategy for family planning; outline key activities to be followed with defined targets well sequenced to deliver the results needed to achieve Ghana's family planning goals by 2020; provide estimates of the demographic, health, and economic impacts of family planning programme; details programme activity costs and commodity costs associated with the country's entire family planning programme; assist in the mobilization of resources for family planning programme and activities; provide a mechanism to measure the performance of the country's family planning programme and ensure coordination; outline a framework for inclusive participation in the country's family planning programme (Government of Ghana, 2015). The operational objectives of the GFPCIP 2015 were; (1) increase the modern contraceptive prevalence rate amongst married women from 22.2% in 2014 to 29.7% by 2020. In the case of unmarried sexually active women, the plan sought to increase the modern contraceptive prevalence rate from 31.7% in 2014 to 40% by 2020 (Government of Ghana, 2015).

Ghana has signed the Family Planning 2020 and 2030 projects. Under the former, the country pledged to raising the number of women who use modern contraception from 1.46 million in

2015 to 1.93 million by 2020. A commitment was also made by the country to make more funds available for the purchase of family planning commodities. With regards to FP 2030, the country has committed to ensuring that all persons of reproductive age have timely and equal access to quality family planning commodities, information, and services.

2.6 Empirical Literature

2.6.1 Knowledge of Modern Contraceptives

A number of studies have employed cross-sectional data to analyse the level of knowledge of modern contraceptives among different sub-groups of the female population in Ghana. Der and Tarkang (2023) collected data using self-administered questionnaire to assess level of knowledge of modern contraceptives among female senior high school students in the Kpando Municipality in the Volta Region. Results according to the descriptive statistics employed indicated that the respondents had sufficient knowledge of modern contraceptives (78.5%). Benson et al. (2018) examined the level of knowledge of modern contraceptives among women of reproductive age who live in densely populated urban areas in Ghana. The study conducted a cross-sectional, interviewer-based administered survey using a random sample of 27 women of reproductive age. The study's found high levels of knowledge and awareness (98%) of modern contraceptives.

Furthermore, Lumor et al. (2023) investigated the degree of awareness of contemporary contraceptives among 350 married people aged 20 to 58. The results of the study revealed almost all the participants (97.4%) had knowledge about modern contraceptives. Aryeetey et al. (2010) conducted a cross-sectional survey of 332 women aged 15-49 years to assess knowledge of modern contraceptives in the Ga East district of Ghana. The findings of the descriptive study revealed that awareness of contemporary contraceptives was nearly universal (97%), while knowledge of more than three methods was only 56%. Similarly, Yeboah and

Appai (2015) employed a sample of 180 females from three senior high schools in Ghana's Akuapem North Municipality to determine if awareness of contemporary contraception and STIs influences contraceptive usage. The findings reveal that respondents had a good level of knowledge about contemporary contraception.

2.6.2 Factors Influencing Use of Modern Contraceptives

This section examines several empirical research on the degree of use of contemporary contraceptives, as well as the factors that influence their usage among Ghanaian women of reproductive age (15–49 years). Specifically, the evaluation focusses on research that used data from prior rounds of the Ghana Demographic and Health Survey. Nonvignon and Nonvignon (2014) examined trends in the utilization of contraceptives among sexually active women of reproductive age in Ghana using data from the Ghana Demographic and Health Surveys 1988 – 2008. The results of the cross-tabulations revealed a low level of contraceptive use among the studied population, with usage changing across socioeconomic classes and geographies. The logistic regression used in the study found that enhancing education and reducing poverty are critical to increasing contraceptive usage in Ghana. Furthermore, the study discovered that increasing access to family planning services, improved financial and infrastructural access, child survival, and awareness of contraceptive techniques all lead to higher contraceptive usage.

Similarly, Aviisah et al. (2018) also analyzed three different Ghana Demographic and Health Survey data in Ghana (2003, 2008, and 2014) to assess trends and determine key drivers of modern contraceptive use among women of reproductive age in Ghana. The results of the study showed a decrease in the proportion of women using modern contraceptives from 18.75% in 2003 (out of a total of 2229 women) to 15.75% in 2008 (out of a total of 2356 women) and then increased to 21.53% in 2014 (out of a total of 4469 women). The multivariate Cox proportional hazards model study revealed that the woman's residency and level of education

were major variables influencing contemporary contraception usage in Ghana. Furthermore, the findings reveal that women in formal employment (professional, clerical, and services) are more likely to use contemporary contraception than their counterparts in less formal positions. Furthermore, women in rural regions are using contemporary contraception more frequently.

Appiah et al. (2020) investigated the patterns and factors of contraceptive usage in Ghana using Ghana Demographic and Health Survey data from 2003 to 2014, with a focus on teenagers aged 15 to 19 years. The findings suggest that contraceptive usage fell from 22.1% in 2003 to 20.4% in 2014. Furthermore, the data showed that teenagers who read newspapers or watched television at least once a week were more likely to use contemporary contraception than those who did not read newspapers or watch television at all.

Using data from the 2014 Ghana Demographic and Health Survey, Nketiah-Amponsah et al. (2022) employed both bivariate and multivariate methods to identify the socioeconomic determinants of contraceptive use and choice of contraceptive methods in Ghana. Results according to the logistic regression indicated that marital status is the most significant predictor of contraceptive use among women. Particularly, the results show women in monogamous unions are more likely to use modern contraceptives. The multinomial logistic regression techniques employed revealed that Muslim women were 0.25 more likely to opt for sterilization over SAC. The study also found women who ever tested for HIV are more likely to use the LAC method than the SAC method. Also, the findings show women who have had at most basic education are more likely to choose the LAC method over the SAC method as compared to those with tertiary education. In addition, rural women who have health insurance were found to be 0.75 times less likely to use modern contraceptives.

Furthermore, Nyarko (2020) used data from the 2014 Ghana Demographic and Health Survey as well as geographical data to investigate the influence of spatial and socioeconomic

determinants on contemporary contraception usage among Ghanaian women of reproductive age. The study used both the global and local Moran's I test to demonstrate spatial autocorrelation. It also used Bayesian multilevel models to determine the socioeconomic factors influencing contemporary contraception usage in Ghana. The findings revealed a low level of contemporary contraception usage in Ghana. The regional study revealed spatial clustering in the usage of contemporary contraceptives across the country. Regional disparities in modern contraceptive use were also observed. These disparities were found to favour regions located in the southern part of the country. Findings according to the Bayesian multilevel model estimation revealed modern contraceptive use in Ghana is influenced by socioeconomic factors such as educational attainment, age, marital status, work status, religious affiliation, and parity.

The availability of the 2022 Ghana Demographic and Health Survey (GDHS) makes it possible to assess current developments relating to the awareness and utilization of modern contraceptives in Ghana using recent data. So far, empirical studies have provided mixed findings using previous rounds of the survey. By employing the recent round of the GDHS, this study will help to assess the level of knowledge and utilization of modern contraceptives in Ghana post-COVID-19. This is especially important considering that studies have shown the pandemic impacted sexual and reproductive health in diverse ways (Fuseini et al., 2022). The findings will also help to assess Ghana's performance concerning the achievement of the family planning targets set for 2025 and 2030.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This section describes the study methods used to examine the degree of awareness and use of contemporary contraception among Ghanaian women of reproductive age. The section includes information on the study's design, demographic and sample, data collecting instruments and methodologies, data management, pretesting, and statistical analysis processes.

3.1 Study Design

The study's questions were investigated using a quantitative research technique. The study used a cross-sectional research methodology to investigate the degree of awareness and use of contemporary contraceptives among Ghanaian women of reproductive age (15–49 years). A cross-sectional study design collects data on several persons or units at a single moment in time. Cross-sectional studies are observational in nature and are most commonly referred to as descriptive research. The design is suited for population surveys, such as the Demographic and Health Survey. Cross-sectional studies are used to determine the prevalence of health outcomes and the factors that influence health. The design also helps to describe the features of a population. It is also usually faster and less expensive to conduct.

3.2 Study Population

The population of a study is the complete group of people, things, or events from whom the research sample is taken. The population of a research is determined by the investigation's aims and the specific qualities being experimentally studied. Following the study goals, the population of this study was classified as all women of reproductive age (15-49 years) living in Ghana's sixteen administrative regions as of 2022.

3.3 Inclusion and Exclusion Criteria

3.3.1 Inclusion criteria

The study focused on all women in Ghana in their reproductive age (15-49 years) who used or do not use modern contraceptives.

3.3.2 Exclusion criteria

Adolescent girls in Ghana who were less than 15 years were not be included in the study. Also, women who were above 49 years old were excluded from the study. This is because modern contraceptives are designed for women of reproductive age which is defined to range from 15-49 years.

3.4 Sampling Technique and Sample Size

The study employed secondary data from the 2022 Ghana Demographic and Health Survey (GDHS) which used a multistage sampling technique to sample 18,450 households in 618 clusters, out of which 15,014 women aged from 15-49 years were interviewed (Ghana Statistical Service and Inner City Fund International, 2023). The first stage of the sampling procedure involved using probability proportional to size (PPS) strategy for rural and urban areas in each region to select 618 target clusters (Ghana Statistical Service and Inner-City Fund

International, 2023). The targeted clusters were then chosen using equal probability systematic random selection of the clusters from the first phase for rural and urban areas. Following the selection of clusters, the second step included a list of households and map updates in all of the clusters. The second step produced a list of households for each cluster. The resulting household list served as a sampling frame for selecting the home sample.

3.5 Data Collection Procedure

The 2022 GDHS is the seventh round of a population-based survey which was implemented by the Ghana Statistical Service (GSS) to assess progress with health service management and utilisation in the country. The data were collected by 37 teams, each consisting of a supervisor, two female interviewers, one male interviewer, and two biomarker technologists. The data collection was done using the Computer-Assisted Personal Interview (CAPI) method where field workers enter responses from participants on a tablet.

3.6 Data Collection Methods and Tools

Four survey questionnaires were used to conduct the 2022 GDHS survey: questionnaire for men, women, the household, and fieldworkers (Ghana Statistical Service and Inner-City Fund International, 2023). Given the objectives of the study, the data generated from the women questionnaire, particularly the section on modern contraceptives, was used. The section contains information on the knowledge and utilisation of modern contraceptives, sources of modern contraceptives and family planning information among women of reproductive age (15-49 years). The questionnaire collected information from all adult women (15-49 years) identified as household residents or visitors who were staying with the household the night prior to the survey.

3.7 Pretesting

A total of 27 participants comprising 17 supervisor/interviewers and 10 biomarkers were taken through a pretest training for the 2022 Ghana Demographic and Health Survey (Ghana Statistical Service and Inner-City Fund International, 2023). The training session lasted over 4 weeks. The first two weeks of the session focused on the content of the questionnaires. Participants initially practised with the paper version of the questionnaires before they were trained on how to use the Computer-Assisted Personal Interview (CAPI) system. The pretest training session was facilitated by staff from the Demographic and Health Survey Program and the Ghana Statistical Service, and other consultants (Ghana Statistical Service and Inner-City Fund International, 2023). The training was organized in the form of mock interviews, interview practice in pairs, classroom lectures and discussion, in English and in Ghanaian local languages (Ghana Statistical Service and Inner-City Fund International, 2023). To identify gaps in the understanding of the questionnaires and monitor progress, tests and quizzes were conducted for participants throughout the training session. Field practice was conducted by biomarker technicians to enhance the skills learned during the pretest training session. In addition, the field practice provided an opportunity to create a simulated fieldwork experience to test survey materials. Hands-on practice was conducted with both adults and children. Also, four teams, comprising 2 female interviewers, 1 male interviewer, a supervisor, and 2 biomarker technicians conducted a data collection simulation exercise in three local communities which were selected in both rural and urban areas (Ghana Statistical Service and Inner-City Fund International, 2023). Each team was assigned a cluster, and they were expected to return to that same cluster each day. The teams were tasked to interview 16 households. Individuals and teams received feedback during the exercise and during the daily debriefs.

3.8 Data Handling

The study data was loaded into Stata version 18.0 for statistical and econometric analysis to be carried out. The data was scrutinized for missing observation, especially in relation to the variables which are relevant to the empirical investigation. For example, to determine the factors that influence modern contraceptive use among the sampled group, those who do not provide any response (yes or no) for the question seeking whether they use modern contraceptive were dropped. This is because the regression analysis required that all participants have responses (either yes or no) for that particular question since it is the outcome variable.

3.9 Statistical Analysis

The study employed descriptive statistics (frequency, chart and percentage), cross-tabulation analysis, Pearson chi-squared test, ANOVA and logistic regression analysis to assess the study data. The techniques were used in the following ways. First, to investigate the level of knowledge of modern contraceptives, the study used a bar chart, percentage, ANOVA and Pearson chi-squared test. Second, descriptive statistics (frequency and percentages) and cross-tabulation analysis were employed to determine the level of utilization of modern contraceptives among the respondents. To determine the factors that influence the use of contraceptives among the respondents, the study estimated a binary logistic regression model which expresses the probability that a respondent uses a contraceptive as a function of respondents' socio demographic characteristics including their level of wealth. Appendix 1 provides information on the variables that the study employed in the empirical investigation. Odds ratio were reported for the binary logistic regression.

The reported probability value (p-value) for each independent variable determined which factor is associated with or influences the utilization of modern contraceptives among the respondents. For this study, the p-value was set at 5%. Where the p-value of a variable is less than 5%, the conclusion is that the variable explains the dependent variable (in this case, the probability that a respondent uses modern contraceptives).

3.10 Ethical Considerations

The Ghana Statistical Service (GSS) which is responsible for undertaking the Ghana Demographic and Health Survey submitted the survey protocol to the Ethical Review Committee (ERC) of the Ghana Health Service for clearance and assurance that the data collection procedure was in accordance with the research ethical standards in Ghana. Also, the Inner City Fund (ICF), the organization which provided technical assistance for the 2022 Ghana Demographic and Health Survey, submitted the survey protocols to their Institutional Review Board (IRB) for ethical clearance to ensure that the survey procedures meet the USA and international ethical research standards. This study was also given approval for use and access to the data upon official request to the DHS.

3.11 Potential risk

This is not applicable to the study because secondary data was used to undertake the empirical investigation.

3.12 Benefits

This is not applicable to the study because secondary data was used to undertake the empirical investigation.

3.13 Confidentiality

The secondary data used for the analysis identifies each respondent or observation with a unique identification number and not the names of respondents.

3.14 Dissemination of Results

The findings of the study will be presented at a conference which will be attended by lecturers and students. Also, the findings will be published in a peer reviewed journal.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the empirical findings according to the research objectives and questions. The chapter is organized as follows. The first section presents the socio-demographic characteristics of the sampled group. The second part reports the results on the level of knowledge of modern contraceptives among the sampled group. The third section presents results on the level of utilization of modern contraceptives among the sampled group. The fourth section reports the findings on the factors influencing the uptake of modern contraceptives among women of reproductive age (15-49 years) in Ghana.

4.1 Socio-Demographic Features of Survey Respondents

Table 4.1 shows the demographic features of women of reproductive age (15-49 years) who were sampled for the 2022 Ghana Demographic and Health Survey. A total of 15,014 women of reproductive age participated in the survey. About 18.8% of the respondents belonged to the age group of 15-19 years, followed by those within the age group of 20-24 years (17.8%), 25-29 years (15.9%), 30-34 years (14.8%), 35-39 years (13.5%), 40-44 years (11%), and 45-49 years (8.2%), in that order. More than half of the women (54%) had received secondary-level education. Approximately 22.4% of them had no education. Those who had received tertiary-level education constituted about 8.7% of the total number of respondents. The residential location of the respondents indicated 51% of the respondents resided in rural areas and 49% were sampled from urban areas.

The respondents who were married and single, respectively, constituted about 45.9% and 32.7% of the total sample. According to the wealth quantile index, the respondents who were poor constituted about 46.8% of the total sample (constituting 22.4% who were poorer and 24.4% being the poorest), while those who belonged to the wealthier category comprised 17.9% who were richer and 15.2% representing the richest. Majority of the respondents (73.5%) were employed. On average, each woman had 2 children. The minimum and maximum number of children were 0 and 11, respectively.

Table 4. 1 Socio-demographic Features of the Respondents

Feature	Frequency	Percentage
Age (years)	(N)	(%)
15-19	2,835	18.9
20-24	2,669	17.8
25-29	2,386	15.9
30-34	2,228	14.8
35-39	2,021	13.5
40-44	1,646	11.0
45-49	1,229	8.2
Education		
No education	3,357	22.4
Primary	2,245	15.0
Secondary	8,111	54.0
Higher	1,301	8.7
Location		
Urban	7,362	49.0
Rural	7,652	51.0
Marital Status		
Never in union	4,916	32.7
Married	6,884	45.9
Living with partner	1,927	12.8
Widowed	327	2.2
Divorced	324	2.2
No longer together/separated	636	4.2
Wealth status		
Poorest	3,666	24.4
Poorer	3,366	22.4
Middle	3,008	20.0

Richer	2,686	17.9
Richest	2,288	15.2
Employment status		
No	3,978	26.5
Yes	11,036	73.5
Total/Feature	15,014	100

Source: Stata computation using study data.

Table 4.2 reports the distribution of the number of children respondents have. Majority of the respondents reported not having any children. This is followed by those with one (16.4%), two (13.6%), three (12.4%) and four (10.4%) children.

Table 4. 2 Distribution of Number of Children among Respondents

Number of children	Frequency	Percentage
0	4,732	31.5
1	2,459	16.4
2	2,039	13.6
3	1,855	12.4
4	1,560	10.4
5	1,133	7.6
6	627	4.2
7	355	2.4
8	169	1.1
9	59	0.4
10	22	0.2
11	4	0.03

Source: Stata computation using study data.

4.2 Knowledge of Modern Contraceptives

The majority of the respondents (98.51%) indicated they knew about modern contraceptives. This suggests that, generally, there is a high level of awareness of modern contraceptives among the respondents.

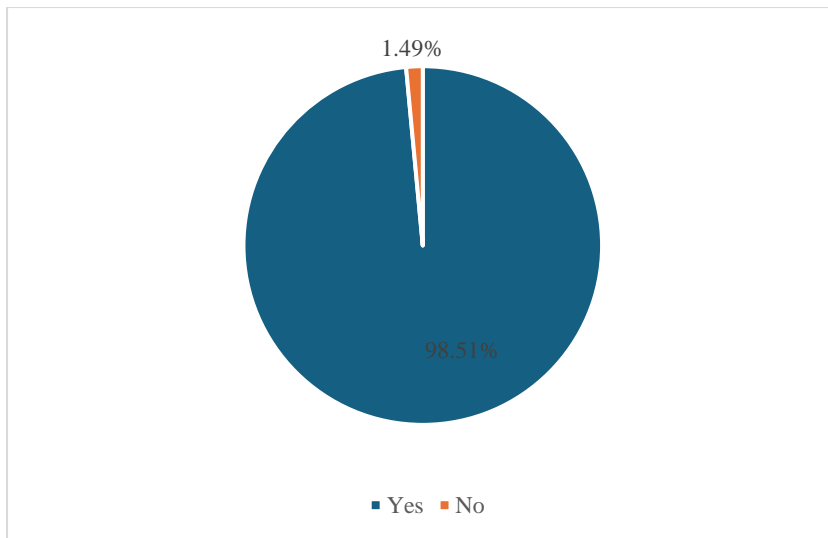


Figure 4. 1: Respondents Knowledge of Modern Contraceptives.

Table 4.3 displays the Pearson Chi-square test results which shows how respondents' knowledge of modern contraceptives varies across the various socio-demographic characteristics. The probability value of less than the conventional 5% significance level for all the variables indicates the level of knowledge of modern contraceptives among the respondents varies across the various socio-demographic features.

Table 4. 3 Variation of Level of Knowledge of Modern Contraceptives across Socio-demographic Features.

Variable	Pearson chi-square Statistic	Prob value
Age (years)	118.2682	0.01
Education	173.0889	0.01
Location	48.7278	0.01
Marital Status	31.7365	0.01
Wealth	207.8882	0.01
Employment status	40.3682	0.01

Source: Stata computation using study data.

The study also employs the Analysis of Variance Analysis (ANOVA) technique to test if the mean number of children was the same among respondents who knew about modern contraceptives and those who did not know of any modern method. The technique is

appropriate for this analysis given the continuous nature of the number of children variable. From the test result as displayed in Table 4.4, it can be concluded that there is a statistically significant difference in the mean number of children between respondents who knew about modern contraceptives and those who did not know of any modern method. This is indicated by the probability value of the F-statistics, which is less than the conventional 5% significance level.

Table 4. 4 Variation of Level of Knowledge of Modern Contraceptives across Number of Children

Analysis of Variance (Number of children Vs. Knowledge of Modern Contraceptives)					
Source	SS	df	MS	F	Prob>F
Between groups	21.2050902	1	21.2051	4.62	0.0316
Within groups	68896.7364	15012	4.5894		
Total	68917.9415	15013	4.5906		

Source: Stata computation using study data.

4.3 Level of Utilisation of Modern Contraceptives

Most of the respondents (approximately 70%) indicated they did not use any contraceptive method (Table 4.5). About 23.1% of the respondents used modern contraceptives, which indicates that utilization of modern contraceptives is low among the respondents.

Table 4. 5 Respondents' Utilization of Different Types Contraceptives

Current Contraceptive Use (Method Type)	Frequency	Percentage
No method	10,512	70.0
Folkloric method	136	0.9
Traditional method	905	6.0
Modern method	3461	23.1
Total	15,014	100

Source: Stata computation using study data

Table 4.6 shows the distribution of the types of modern contraceptives used by the respondents. The most widely used modern contraceptives were the implants (27.04%) and injections (26.98%). The pills, emergency contraception, condoms, follow with approximately 14.3%,

10%, and 9.5%, respectively. Those who use male and female sterilization constitute about 6.80% and 0.02% respectively. About 2.66% and 1.68% of the respondents used the LAM and the IUD methods, respectively.

Table 4. 6 Respondents' Utilization of Different Types of Modern Contraceptives

Current Modern Contraceptive Method Type	Frequency	Percentage
Pill	495	14.31
Intrauterine Device (IUD)	58	1.68
Injections	933	26.98
Condom	328	9.49
Female sterilization	235	6.80
Male sterilization	3	0.02
Implants/Norplant	935	27.04
Lactational amenorrhea (lam)	92	2.66
Emergency contraception	344	9.95
Standard days method (sdm)	31	0.90
Other modern method	7	0.20
Total	3,461	100

Source: Stata computation using study data

The distribution of modern contraceptive used according to types and across socio-demographic features indicates that usage of implants was high among women aged 30-34 years (5.81%) or married (15.66%). More women in rural areas (16.41%) than urban centres (10.60%) used the method. Also, implant usage was high among women who had secondary level education (12.77%), employed (21.99%), or poor (7.63% poorest and 7.8% poorer). Across age groups, the distribution indicates that women who were within the age group of 25-29 years mostly patronized the injection method.

Respondents who were employed (22.74%) or had secondary-level education (14.50%) patronized the injection method. Usage of the injection method was also common among women who were employed (22.74%), married (15.72%), or considered the poorest on the wealth quantile (7.37%). Women in rural areas (15.92%) used the injection method more than their urban counterparts (11.04%). The respondents who mostly used the IUD method were

those with secondary level education (0.87%), married (1.16%), living in urban areas (1.10%), or ranked highest (richest) on the wealth quantile (0.52%). Women within the age group of 35-39 years mostly used the pill (2.95%). Also, the pill is a method commonly used by women with secondary-level education (8.12%), married (7.89%), employed (22.74%), or located in urban areas (7.40%).

Utilisation of Modern Contraceptives (Any Method/Type)

Socio-Demographics Features	Pill	IUD	Injections	Condom	Female sterilization	Male sterilization	Implants /Norplant	LAM	Emergency contraception	SDM	Other modern method	Total
Age (years)												
15-19	0.9	0.03	1.33	2.37	0	0	2.02	0.14	2.02	0.03	0.03	8.87
20-24	2.17	0.2	5.58	3.03	0.03	0.04	4.94	0.38	4.02	0.03	0.06	20.46
25-29	3	0.14	6.91	1.85	0.14	0	4.91	0.75	1.7	0.17	0.06	19.65
30-34	2.72	0.35	5.55	1.21	0.64	0.04	5.81	0.58	1.04	0.29	0.03	18.23
35-39	2.95	0.43	3.9	0.61	1.36	0.05	4.62	0.52	0.72	0.26	0	15.4
40-44	1.88	0.23	2.4	0.29	2.69	0	3.32	0.26	0.29	0.09	0	11.44
45-49	0.69	0.29	1.3	0.12	1.94	0	1.39	0.03	0.14	0.03	0.03	5.95
Education												
No education	2.74	0.35	6.41	0.26	2.02	0.03	7.28	0.32	0.29	0	0.03	19.73
Primary	1.96	0.26	5.09	0.58	0.95	0	5.4	0.29	0.72	0.09	0	15.34
Secondary	8.12	0.87	14.5	6.3	3.06	0.02	12.77	1.68	7.57	0.58	0.14	55.65
Higher	1.47	0.2	0.95	2.34	0.75	0	1.56	0.38	1.36	0.23	0.03	9.27
Location												
Urban	7.4	1.1	11.04	6.33	3.55	0.01	10.6	1.21	5.87	0.64	0.17	47.93
Rural	6.91	0.58	15.92	3.15	3.24	0.03	16.41	1.44	4.07	0.26	0.03	52.07
Marital Status												
Never in union	2.8	0.06	3.7	6.15	0.12	0	3.76	0.09	6.76	0.17	0.03	23.63
Married	7.89	1.16	15.72	1.88	5.46	0.03	15.66	1.56	1.1	0.43	0.09	51
Living with partner	2.54	0.17	5.37	1.13	0.61	0.05	5.2	0.9	1.13	0.26	0.06	17.39
Widowed	0.23	0.03	0.14	0	0.23	0	0.35	0	0.06	0.03	0	1.07
Divorced	0.26	0.06	0.69	0.03	0.09	0	0.49	0.03	0.14	0	0	1.79

No longer together/separated	0.58	0.2	1.33	0.29	0.29	0	1.56	0.09	0.75	0	0.03	5.11
Wealth												
Poorest	2.83	0.26	7.37	1.04	1.04	0	7.63	0.4	1.18	0.09	0	21.84
Poorer	3.24	0.35	7.28	1.3	1.59	0.06	7.8	0.75	1.39	0.06	0.03	23.84
Middle	3.29	0.23	6.13	1.99	0.95	0.03	5	0.52	2.46	0.23	0.09	20.92
Richer	3	0.32	4.16	2.28	1.56	0	4.39	0.49	3.03	0.14	0.06	19.45
Richest	1.94	0.52	2.02	2.86	1.65	0	2.2	0.49	1.88	0.38	0.03	13.96
Employment status												
No	2.17	0.2	4.22	3.24	0.66	0	5.03	0.38	2.77	0.09	0.06	18.81
Yes	12.14	1.47	22.74	6.24	6.13	0.03	21.99	2.28	7.17	0.81	0.14	81.19
TOTAL	14.31	1.68	26.98	9.49	6.80	0.02	27.04	2.66	9.95	0.90	0.20	100

Table 4. 7 Respondents' Utilization of Types of Modern Contraceptives According to Socio-demographic Characteristics
Source: Stata computation using study data.

The use of condom and sterilization were common among women belonging to the age group of 20-24 years and 40-44 years, respectively. In addition, the use of condom was common among women with secondary level education (6.3%), the employed (6.24%), those living in urban areas (6.33%) or those ranked highest on the wealth quantile index (2.86%). Similarly, the sterilization method was often used by women who had secondary level education (3.06%), employed (6.13%), those living in urban areas (3.55%) or those ranked highest according to the wealth quantile index (1.65%). The male sterilization method was patronized by women aged between 35-39 years (0.05%). The method is also predominantly used by women with no formal education (0.03%) or rural dwellers (0.03%). Also, the majority of users of male sterilization are women living with their partners (0.05%), the employed (0.03%) or those in the poorer wealth quantile group (0.06%).

4.4 Factors Influencing Utilization of Modern Contraceptives

Table 4.8 displays the odds ratio from the logistic regression model estimation. The result indicates that women aged 20-24 years have higher odds (OR=2.22, $p<0.01$) of using modern contraceptives than those who are 15-19 years old. Similarly, those within the age group of 25-29 years and 30-34 years have higher odds (OR=1.89, $p<0.01$ and OR=1.43, $p<0.01$, respectively) of using modern contraceptives as compared to those aged 15-19 years. The odds of using modern contraceptives are lower (OR=0.52, $p<0.01$) among women aged 45-49 years relative to those within the 15-19 years age group.

Table 4. 8 Logistic Regression Estimates of the Determinants of Modern Contraceptive Use

Variable	Odds Ratio	Standard Error	Prob Value
Age			
15-19	Reference category		
20-24	2.226	0.179	0.01
25-29	1.896	0.172	0.01
30-34	1.438	0.146	0.01
35-39	1.080	0.119	0.48
40-44	0.847	0.101	0.16
45-49	0.521	0.069	0.01
Marital status			
Never in union	Reference category		
Married	1.044	0.069	0.51
Living with partner	1.306	0.096	0.01
Widowed	0.469	0.089	0.01
Divorced	0.903	0.142	0.51
No longer living together/Separated	1.229	0.130	0.05
Education			
No education	Reference category		
Primary	1.449	0.102	0.01
Secondary	1.745	0.108	0.01
Higher	1.960	0.189	0.01
Employment status			
No	Reference category		
Yes	1.400	0.074	0.01
Location			
Urban	Reference category		
Rural	1.068	0.052	0.18
Number of children	1.294	0.021	0.01
Wealth			
Poorer	1.298	0.080	0.01
Middle	1.273	0.089	0.01
Richer	1.371	0.104	0.01
Richest	1.150	0.100	0.11
Constant	0.049	0.005	0.01

Note: OR denote odds ratio and p represent the probability value of each independent variable.

The estimation results show the odds of using modern contraceptives among women who are living with their partner are higher (OR=1.31, $p<0.01$) compared to those who are not in any union. Women who are separated from their partners have higher odds (OR=1.23, $p<0.05$) of patronizing modern contraceptives than their unmarried counterparts. Also, compared to those who are unmarried or single, widows have lower odds (OR=0.47, $p<0.01$) of using modern contraceptives.

Generally, the findings show the odds of using modern contraceptives are higher among women who have had some level of education compared to their counterparts with no education at all. Specifically, the results suggest that women who have received primary (OR=1.45, $p<0.01$) and secondary (OR=1.75, $p<0.01$) level education are more likely to use modern contraceptives compared to those with no education. The odds of using modern contraceptives are higher among women with tertiary education (OR=1.96, $p<0.01$) than they are among those with no education.

As expected, the findings indicate that women who are employed have higher odds of using modern contraceptives (OR=1.40, $p<0.01$) compared to their unemployed counterparts. Furthermore, the results point to the odds of using modern contraceptives being higher with each additional child a woman has (OR=1.29, $p<0.01$). Also, women living in rural areas are found to have higher odds of using modern contraceptives (OR=1.07, $p<0.01$) as compared to their counterparts in urban areas.

The study found level of wealth has a significant effect on modern contraceptive use among the respondents. The results point to higher odds of using modern contraceptives among

women belonging to the poorer (OR=1.30, $p<0.01$), middle (OR=1.27, $p<0.01$), or richer (OR=1.37, $p<0.01$) wealth quantile group compared to those who are the poorest.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.0 Introduction

The chapter describes the study's conclusions based on the research objectives and questions. It is broken into four pieces. The first section summarises the respondents' sociodemographic characteristics. The second section examines the findings on the amount of awareness about contemporary contraception among the respondents. The third section discusses the results on the level of utilization of modern contraceptives and the fourth section focuses on the findings on the factors influencing utilization of modern contraceptives.

5.1 Socio-Demographic Features of Survey Respondents

The socio-demographic features give an insight into the nature and composition of the study sample. The sample is made up of 15,014 women. The age distribution of the respondents falls within the range of 15-49 years. Respondents aged 15-19 years old constitute a larger proportion of the sample. Those aged 45-49 years are the least represented in the sample, probably because they are at the latter stage of the reproductive age. Thus, largely, the sample reflects Ghana's youthful female population (Ghana Statistical Service, 2021b). The proportion of women who have received secondary-level education is about twice the proportion of women with no education at all. Respondents who have received tertiary-level education constitute about 14.95% and those with tertiary level education make up about 8.67% of the total sample. Thus, a greater percentage of the respondents are educated, although the level of education varies. The level of education of clients has significant implications on the acceptance and level of utilization of contraception.

The sample is fairly distributed across residential locations, which makes it possible to generalize the findings to the entire population. On average, each respondent has about two

children, suggesting fewer children per respondent. A greater proportion of the respondents are married. The next category is those unmarried, followed by those living with their partner, separated, widowed, or divorced. Thus, most of the respondents are either married or living with their partner. The majority of the respondents are poor according to the wealth index quantile. Also, the average number of children is two, suggesting a smaller family size per household.

5.2 Knowledge of Modern Contraceptives

The majority of respondents said they were familiar with one or more forms of contemporary contraception. This discovery might be linked to the different educational initiatives and social marketing techniques in the form of visual and auditory commercials undertaken by healthcare institutions and national (public and private) media channels (Hayat et al., 2013). Civil Society Organisations (CSOs) and Faith-Based Organisations (FBOs) play an important role in raising contraception knowledge in the country. For instance, advocacy activities and outreach programmes by the UNFPA have led to increased awareness among the public on sexual health rights (especially for people living with disability) and more media attention on adolescent access to sexual and reproductive health information and services (UNFPA, 2018).

Knowledge of modern contraceptives varies across socio-demographic features, although generally, it is high among the respondents. Specifically, the level of knowledge about modern contraceptives differs across various age groups, marital status, residential location, level of education, employment status, and level of wealth. This suggests some disparity in the level of modern contraceptive awareness and knowledge among the general population of women of reproductive age. To ensure an increase in utilization across the population, sexual and reproductive health information must be disseminated in a way that reaches all target groups of different socio-economic backgrounds. When information dissemination on modern contraceptives is tailored to the needs and peculiarities of sub-groups within the population, it

enhances understanding of the information disseminated and thus encourages uptake of family planning products and services.

5.3 Utilization of Modern Contraceptives

The findings indicated that the level of utilization of modern contraceptives among the respondents is low. This result is consistent with the findings of several studies whose estimation of modern contraceptive prevalence rate has usually ranged between 20%-30% (Ghana Statistical Service, Ghana Health Service and Inner City Fund International, 2015; Cahill et al., 2018; Ghana Statistical Service, Ghana Health Survey and Inner City Fund International, 2018; Aviisah et al., 2018). The data suggest a sluggish rise or advancement in the uptake of contemporary contraceptives among women of reproductive age in Ghana. The target to increase the modern contraceptive prevalence rate to 44.4% by 2030 may be difficult to achieve, given the current development. Another plausible reason for the slow growth could be issues with data. This may be the case especially when recent reports seem to suggest contraception prevalence rate is increasing. It is reported that women usually fail to report usage of some types of contraceptives, especially when their partners disapprove of such methods (Nketiah-Amponsah, Ampaw and Baffour, 2022). Also, underreporting of modern contraceptive use is high among women probably due to covert use (Ezeh and Mboup, 1997). Some women use contraceptives even without the knowledge of their spouses or partners. In such instances, they may be reluctant to reveal information regarding their use of contraceptives. Thus, the data may fail to capture the actual level of modern contraceptive utilisation among the sampled group. Apanga and Adam (2015) found partner's disapproval to be the primary reason for non-use of modern contraceptives among women of reproductive age in the Talensi district of the Upper East Region of Ghana. Research has also shown that young adults (aged 18-24 years) in Ghana are more likely to discontinue or abstain from the use of effective contraceptives due to; inadequate information and awareness about

contraceptive methods; false beliefs about the health issues associated with contraceptive use; misconceptions about the side effects; and stigmatization of users of family planning (Alliance for Reproductive Health Rights, 2023).

The most often used contemporary contraceptives among responders include implants, injections, tablets, emergency contraception, condoms, and female sterilisation. In their study of the 2014 Ghana Demographic and Health Survey, Nketiah-Amponsah et al. (2022) revealed that the most popular kinds of contemporary contraception used by women of reproductive age were injections, followed by implants and IUDs. Their findings also indicated that the pills were the most widely used method among the short-acting contraceptives, followed by the condom. Thus, the findings of the study based on the latest round of the GDHS survey data suggest that, largely, the types of modern contraceptives preferred by women in Ghana have not changed. A study by Rominski et al. (2017) found that family planning clients in urban areas mostly prefer long-lasting methods. In addition, women in Ghana have been found to have strong preference for injectables due to reasons including effectiveness, convenience, the possibility for covert use, and a relatively long duration between administrations (Teye J. K., 2013; Ghana Statistical Service, Ghana Health Service and Inner City Fund International, 2015; Laryea et al., 2016). Ghana, just like other Sub-Saharan African countries like Kenya, Tanzania, Nigeria and Uganda, have witnessed rapid uptake of implants in recent times. This has been attributed to a number of reasons including implants' offering many positive characteristics and revised protocols on who can use implants and when it can be administered which has made it possible for all eligible women to use it at any time (Centers for Disease Control and Prevention, 2013; Ali, Bahamondes and Bent Landoulsi, 2017; Salem et al., 2010).

5.4 Factors Influencing Utilization of Modern Contraceptives

The findings indicate that age is a significant determinant of modern contraceptive use in Ghana. This finding is consistent with Nyarko (2020) and Nketiah-Amponsah et al. (2022).

Modern contraceptives are often used by women in the following age groups: 15-19, 20-24, 25-29, 30-34, and 45-49 years. Given the significant age groups, the results suggest that modern contraceptive use is high among younger women and low for those at the latter stage of the reproductive age. Thus, the results imply that the odds of using modern contraceptives decline as a woman becomes older. Therefore, the results suggest a non-linear (inverted U) the link between age and the usage of contemporary contraception Nketiah-Amponsah et al. (2022) found similar results when they employed the 2014 Ghana Demographic and Health Survey data and measured age as a continuous variable. For younger women, the finding is plausible: women within those age ranges would most likely want to avoid unwanted pregnancies, delay childbirth, or avoid STIs (Nketiah-Amponsah, Ampaw and Baffour P. T., 2022). However, as women age and reach the menopausal stage, sexual activity tends to decline and so they are less likely to use contraceptives to prevent unwanted pregnancy or STIs.

The results indicate that the use of modern contraceptives is influenced by marital status. This supports the findings of Nketiah-Amponsah et al. (2012) and Nyarko (2020). Women living with their partners are found to be more likely to use modern contraceptives compared to those who are single. Generally, women living with their partners may be able to afford contraceptives as compared to their unmarried counterparts due to partner support (Nyarko, 2015). Also, relative to single women, the findings show that women who are living with or separated from their partners have higher odds of using modern contraceptives. Widows are less likely to use modern contraceptives because they may not be in an intimate or committed relationship. Kusunoki and Barber (2020) explain that women are more likely to use contraceptives when they are in an intimate or committed relationship.

Also, the results point to a significant effect of the level of education on the uptake of modern contraceptives in Ghana. This result is consistent with Nonvignon and Nonvignon (2014) and Awiisah et al. (2018). The findings indicate that the odds of using modern contraceptives rise

as a woman attains higher education. Relative to women with no education, the probability of using modern contraceptives is higher among women with tertiary-level education than it is with their counterparts who have received primary or secondary education. The educational level of a client influences her perception, acceptance, and use of modern contraceptives. Therefore, it is expected that the use of modern contraceptives will be high among women who are educated.

The outcome of the estimation also shows that employment status determines the utilization of modern contraceptives. This outcome supports the findings of Nketiah-Amponsah (2012) and Nyarko (2020). The probability of using modern contraceptives is found to be higher among respondents who are economically engaged as compared to those who are unemployed. It is common to find employed women postpone childbirth due to the demands of the world of work. Also, women who are employed are more able to afford modern contraceptives compared to their counterparts who are unemployed. In addition, the results indicate that the use of modern contraceptives is influenced by the wealth of clients. This finding supports the results of Aviiisah et al. (2018). Poorer women have higher odds of using modern contraceptives compared to those who are the poorest. The odds of using modern contraceptives are higher among women in the richer category than it is with those in the lowest wealth quintile (poorest). Although women in both the poorer and richer wealth categories have higher probability of using modern contraceptives, the odds are higher among the latter compared to the former. In addition, the results show women in the middle wealth quintile are more likely to use modern contraceptives compared to those in the lowest wealth quintile (poorest). Wealthier women are more likely to use contraceptives because they are able to overcome the economic barriers (service or travel costs) to accessing modern contraceptives (Budu et al., 2023). For poorer women, the use of modern contraceptives may be high, probably because of the increased awareness creation about family planning in the country. Poorer women are noted for high

fertility rate which suggests that they are becoming aware of the need to reduce their number of births (Khan and Khan, 2007).

From the results, the location of clients is also found to be a key determinant of modern contraceptive utilization. Specifically, the probability of using modern contraceptives is found to be higher among women in rural areas compared to those who are urban dwellers. Ameyaw et al. (2017) found similar results using the 2014 Ghana Demographic and Health Survey data. Thus, the recent trends indicate increasing use of modern contraceptives among women in rural areas (Aviisah et al., 2018). This can be attributed to the increased availability of family planning services at each level of the healthcare system-teaching hospitals, regional hospitals, district hospitals, clinics, and health centres. The findings also suggest that the odds of using modern contraceptives increase as a woman has one more child. This outcome is consistent with the findings of Nonvignon and Nonvignon (2014) and Aviisah et al. (2018). This result is expected as the preference to use contraceptives to control birth is generally predominant and stronger among women with more children.

CHAPTER SIX

SUMMARY, CONCLUSION AND POLICY RECOMMENDATION

6.0 Introduction

This chapter is broken into three sections. The first section is an overview of the study, outlining the research aims, methods, and conclusions. The second portion presents the study's conclusions based on its findings. The final part offers policy recommendations based on the findings.

5.1 Summary

The study's main goal was to investigate the amount of awareness and use of contemporary contraception among Ghanaian women of reproductive age (15-49 years old). The study used a quantitative cross-sectional research approach to analyse secondary data, notably the Ghana Demographic and Health Survey from 2022. The data was compiled from a sample of 15,014 women of reproductive age (15-49 years) drawn from throughout the country's regions. Descriptive statistics and cross-tabulation analysis were used to evaluate respondents' knowledge and use of contemporary contraception. The study also generated a logistic regression model to assess the parameters that influence the use of contemporary contraception among respondents.

The findings of the study indicated that the majority of the respondents know about modern contraceptives. It also revealed that knowledge of modern contraceptives among the respondents varied across socio-demographic characteristics-age, education, location, marital status, wealth, number of children, and employment status. The results also indicated that the level of utilization of modern contraceptives among the respondents is low. The types of modern contraceptives commonly used by the respondents are implants, injections, pills, emergency contraception, condoms, and female sterilization. With the exception of condoms,

the majority of users of the various types of modern contraceptives are between 20-39 years old. Most condom users are within the age group 40-45 years. In addition, most users of modern contraceptives are employed, married, or those who have received secondary-level education. The findings also pointed to the majority of modern contraceptive users being urban dwellers, the rich or poor.

Results from the logistic regression indicated higher odds of using modern contraceptives among respondents in the following age groups; 20-24 years, 25-29 years and 30-34 years (relative to their counterparts aged 15-19 years). The results showed lower odds of using modern contraceptives among respondents aged 45-49 years compared to those who are 15-19 years old. Compared to respondents who are unmarried, the odds of using modern contraceptives are higher among respondents who are living with their partner, widowed, or those who are separated from their partner. Respondents who are educated have higher odds of using modern contraceptives as compared to their counterparts who are uneducated. The odds of using modern contraceptives are predicted to be higher among the employed and rural residents than the unemployed and urban dwellers, respectively. The results also suggested that women with more children have a higher probability of using modern contraceptives. Respondents who are considered poorer, richer, or the richest of the respondents, are more likely to use modern contraceptives compared to their counterparts in the lowest wealth quintile (poorest).

6.2 Conclusion

The study examined the level of knowledge and utilization of modern contraceptives among women of reproductive age (15-49 years) in Ghana. The study arrives at the following conclusions based on the findings. First, the knowledge of modern contraceptives among the respondents is high but varies across various socio-demographic characteristics. Second, the

level of utilization of modern contraceptives among the respondents is low. Third, the most widely used modern contraceptives among the respondents are implants, injections, pills, emergency contraception, condoms, and female sterilization. Last but not least, the factors influencing the uptake of modern contraceptives among the respondents are age, marital status, level of education, location, employment status, and wealth.

6B .3 Policy Recommendations

The study suggests the following policy actions based on the findings.

- The Ministry of Health, through the various agencies and NGOs in the health sector, should intensify awareness creation and education on the availability of modern contraceptives in the country. This will help to encourage usage of modern contraceptives in order to meet the country's family planning goal of increasing modern contraceptive prevalence rate to 39% by 2025 and 44.4% by 2030.
- The government should intensify women empowerment interventions such as providing more women with opportunities for higher education and employment as this increases the likelihood that they will use modern contraceptives to delay birth or prevent any unplanned pregnancy.
- Further research should be conducted to investigate the reasons why modern contraceptive usage is higher in urban areas compared to the rural areas.

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APPENDIX

Appendix 1: Secondary Data Collection Instrument Guide: Variable Definition and Measurement

Variable	Definition in GDHS	Measurement
use_modern_contraceptive (generated from existing variables)	Modern contraceptive use	Yes (coded 1) No (coded 0)
age	Age	15-19 years (coded 1) 20-24 years (coded 2) 25-29 years (coded 3) 30-34 years (coded 4) 35-39 years (coded 5) 40-44 years (coded 6) 45-49 years (coded 7).
education	Education	No education (coded 0) Primary (coded 1) Secondary (coded 2) Higher (coded 3)
location	Residence	Urban (coded 1)

		Rural (coded 2)
wealth	Wealth quantile	Poorest (coded 1) Poorer (coded 2) Middle (coded 3) Richer (coded 4) Richest (coded 5)
number_children	Number of living children	Urban (coded 1) rural (coded 2)
marital_status	Current marital status	Never in union (coded 0) Married (coded 1) Living with partner (coded 2) Widowed (coded 3) Divorced (coded 4) No longer living together/separated (coded 5)
employment_status	Employment status (past 12 months)	Yes (coded 1) No (coded 0)