

FACTORS THAT INFLUENCE ADOLESCENT ON THE USE OF
CONTRACEPTIVES IN THE DREAMS PROJECT, KHOMAS REGION
NAMIBIA

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH

OF

THE UNIVERSITY OF NAMIBIA

BY

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OCTOBER 2025

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ABSTRACT

Contraceptive use is crucial for preventing unintended pregnancies and sexually transmitted infections (STIs) among adolescents. However, low contraceptive uptake in Sub-Saharan Africa remains a significant public health concern. The study fit a binary logistics model, to explore factors influencing contraceptive use among adolescents in the DREAMS project within the Khomas Region, Namibia, to identify and analyze the demographic, social, and economic factors associated with contraceptive use among adolescents, to evaluate the associations between adolescent knowledge and attitude levels regarding contraceptives and their actual contraceptive use. A quantitative cross-sectional survey was conducted among 359 adolescent girls (aged 15-19 years) in the Khomas region, Namibia. A bivariate and binary logistic regression analysis assessed the association between factors and contraceptive use. The results showed that adolescents' age, occupation level, method of contraceptive use, reason for not using contraceptives and parent's awareness on the use of contraceptives were associated with contraceptive use. The results also showed that living arrangements, particularly living with one parent, were associated with higher contraceptive use. The results further showed that parental awareness of their child's contraceptive use was positively associated with actual use. In addition, the result showed that there was a significant difference between those who discussed the contraceptive methods with their health provider. Contraceptive use among adolescent girls exhibits strong significant association, even though some demographic, instructional, and other factors were not associated with contraceptive use. Similar studies in the future need to consider reasons behind specific living arrangement influences and delve deeper into the dynamics of partner and family communication.

Key words: Adolescents, Contraptives, DREAM Project

LIST OF CONFERENCE PROCEEDING

- Presented at the 2nd Health Africa International Conference (HAIC) 2025 on
12 March 2024

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LIST OF ABBREVIATION/ACRONYMS

AIDS	Acquired Immunodeficiency Virus
AGYW	Adolescent Girls and Young Women
ASRH	Adolescent Sexual and Reproductive Health
DHIS 2	District Health Information System Version 2
DREAMS	Determined Resilient Empowered AIDS-free Mentored and Safe
HIV	Human Immunodeficiency Virus
IUD	Intrauterine Device
LMIC	Low- and Middle-Income Countries
MoHSS	Ministry of Health and Social Services
NDHS	Namibia Demographic Health Survey
SDG	Sustainable Development Goals
STI	Sexual Transmitted Infection
UNFPA	United Nation Fund for Population Activities
WHO	World Health Organization
ZDHS	Zambia Demographic Health Survey

ACKNOWLEDGEMENTS

Thank you to the Almighty God for giving me wisdom, courage, strength and determination to complete the study. I am deeply grateful to the following individuals and organizations for their invaluable contributions to this work. My research supervisor Dr Erica Sibatani-Libuku, for her immense support, advice, professional and academic guidance, her approachable and commitment toward my academic journey, and her kindness and constructive criticism that made the study a success. To the Namibian Student Financial Fund Assistance for the financial support to pursue my studies. Thank you to Mr. Nakaludhe for his support during my data analysis and moral support. To my sister Nelago Embula thank you for immense support and guidance. Thank you for always believing in my DREAMS and motivating me to achieve them. The University of Namibia for approving my research proposal. The Ministry of Health and Social Services for permitting me to conduct the study. Project Hope Namibia for allowing me to conduct this study in their health facility. Thank you for the immense support you offered me during the study. All the AGYW in the Khomas Region who supported me during the study despite their hectic daily schedules. Their cooperation made this study a success.

DEDICATION

“To Christopher and Johnson, this achievement is for you.”

DECLARATION

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Name of Student	Signature	Date
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CHAPTER 1

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1. Introduction

Reproductive health initiatives play a crucial role in promoting well-being, with contraceptive use and family planning emerging as essential components. Studies have shown that the strategies can significantly reduce maternal and child mortality rates [1]. The Sustainable Development Goals (SDGs) further emphasize this importance by urging all countries to ensure "universal access to sexual and reproductive healthcare services" by 2030 [2]. This includes access to family planning information and education and the integration of reproductive health within national programs.

Despite progress, the unmet need for contraception remains a significant global public health concern. An estimated 214 million women of reproductive age have an unmet need for modern contraception, with stark regional disparities [3]. Sub-Saharan Africa bears the greatest burden, with 24.2% of women experiencing unmet needs, compared to 10.2% and 10.7% in Asia and La, Latin America, Caribbean, respectively [4]. This low demand for contraception in Africa, hovering around 20% despite 30% seeking services, translates to a significant unmet need [5]. This disparity is particularly concerning in Sub-Saharan Africa, a region with a high youth population and limited access to family planning services [6]. Research suggests that socio-cultural norms, economic limitations, and a lack of comprehensive sexual education contribute to this unmet need [7,8].

Accessible and high-quality contraceptive services are critical for achieving the SDGs, particularly those related to health. Complications in pregnancy and childbirth are leading causes of death for young women in low- and middle-income countries (LMICs) [9]. Unintended pregnancies have significant social and economic consequences for individuals and families [10]. Some contraceptive methods can also offer protection against sexually transmitted infections (STIs) like HIV [11]. Contraceptive use allows women and girls to control their reproductive health and pursue education and career opportunities [12]. Stable population growth can contribute to improved living standards and resource allocation, with contraception as a key factor [12].

Namibia, a country within Sub-Saharan Africa, exemplifies the challenges faced in the region. While national policies promote reproductive health and family planning, challenges persist. Studies have identified cultural beliefs and gender inequality as factors influencing contraceptive use among Namibian adolescents [13] [14].

This study acknowledges the crucial role of increased awareness in addressing these challenges and promoting responsible sexual behavior among adolescents. By investigating the factors influencing contraceptive use within the Khomas region of Namibia, this research aims to contribute valuable insights to improve program design and ultimately, enhance reproductive health outcomes for adolescents.

1.2. Background of the study

Globally, prevention of adolescent pregnancy and early childbirth are critical healthcare issues [15]. WHO further indicated that about 21 million adolescent pregnancies are documented worldwide each year, and almost half (49%) of pregnancies is unintended, and a little over half end in induced abortions (51%). It has been reported that about 23% of all adolescent births occur in Africa [16]. Adolescent pregnancies occur in areas with low contraceptive prevalence [17]. Sub-Saharan Africa has the lowest contraceptive demand (30%) and use (20%) among adolescents [18]. The low contraceptive uptake results in teenage pregnancies, high childbirth rates and incidence of sexually transmitted infections (STIs) including HIV [19]. Widespread access to contraceptives is a critical tool for achieving the Sustainable Development Goals (SDGs) and improving health and reducing poverty in developing countries. It empowers individuals to plan their families, minimizing unintended pregnancies and fostering a healthier future. Contraception offers a multitude of benefits, including reducing unintended pregnancies and unsafe abortions, lowering infant mortality rates, and helping prevent the spread of HIV/AIDS. Additionally, it empowers individuals and can contribute to educational attainment. Sexually active adolescents both married and unmarried need contraception [20].

Namibia is a case in point. Adolescents (aged 15-19) constitute approximately 24.5% of the population [21]. The Namibian Demographic and Health Survey (NDHS) further highlights a concerning high teenage pregnancy rate of 19%, one of the highest globally [22]. Additionally, the NDHS reveals a stark age-related disparity in modern contraceptive use among women in Namibia. While only 24%

of those aged 15-19 utilize such methods, usage climbs to 62% for women aged 25-29 before declining to 45% among those aged 45-49 [22]. Low contraceptive use among adolescents in Namibia emerges as a critical public health issue contributing to unwanted pregnancies, HIV/STIs, and unsafe abortions. It is given this that the study sought to determine factors influencing adolescents on the use of contraceptives in the DREAMS project Khomas region Namibia.

1.3. Problem statement

The Khomas region, encompassing Namibia's capital city, experienced rapid population growth of 3% annually and high unemployment of 43% in 2018[22] This economic hub attracts youth seeking education, opportunities, and better living conditions.

Data from 2019-2022 from the DREAMS project (DHIS 2) indicates that 15,066 adolescents in Khomas are sexually active, yet only 2,048 (14%) utilize contraceptives. This significantly high number engaging in unprotected sex puts them at risk of unwanted pregnancy, social stigma, stillbirth, low birth weight, and maternal death. Project Hope Namibia's DREAMS project offers contraceptives to eligible teens (double orphans, sexually active, living in child-headed households, engaged in transactional sex, pregnant or having children). However, the low uptake among eligible individuals necessitates further investigation.

Despite the availability of contraceptive services provided by Project Hope Namibia's DREAMS project to eligible adolescents in the Khomas region, there remains a significantly low uptake of these services. This disparity suggests that a

substantial proportion of sexually active adolescents are not taking advantage of available contraceptive options. However, the low uptake among these adolescents highlights a significant gap in understanding the factors influencing contraceptive use. This study aims to identify and understand these factors to design more effective interventions and ensure better access to reproductive health services for this vulnerable population in the Khomas region.

1.4. Conceptual framework

This study demonstrates the relationship between numerous factors and the effects of adolescent use on contraceptives. It demonstrates the precise guidelines under which the research was carried out (figure 1.1). This framework is based on the theory of reasoned action which states that behaviour is influenced by several factors [15] [23]. It emphasizes the association between an individual's beliefs, norms, intentions, and actions. The dependent variable (contraceptive use) and independent variables include Knowledge and Attitudes, and Socio-demographics, Sociocultural factors, Community factors, Institution factors. The belief that contraception provides protection against unwanted pregnancies and sexually transmitted infections by the adolescent would mean he or she is taking actions to either minimize or prevent it from occurring. Factors such as economic status, marital status, and others have all been known to influence adolescent pregnancy. Adolescents' socioeconomic status also could empower their decision-making on contraceptives, increasing their use.

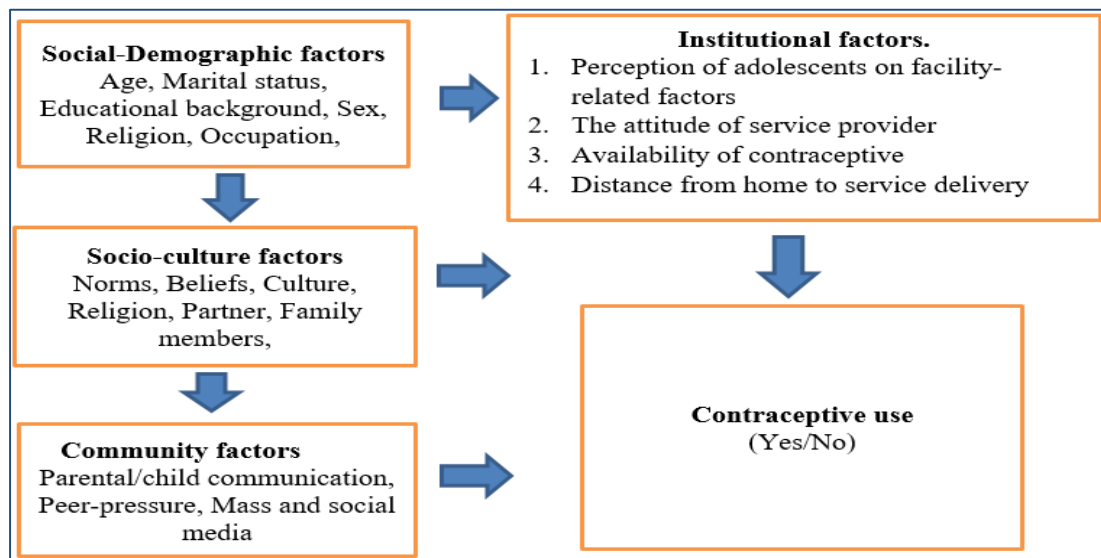


Figure 1.1: Conceptual framework on factors influencing adolescents on the use of contraceptives.

1.5. Purpose of the study

The purpose of this study is to determine factors that influence adolescents on the use of contraceptives aged 15-19 in the DREAMS project in Khomas Region Namibia

1.6. Objectives of the study

- a) To identify and analyze the demographic, social, and economic factors associated with contraceptive use among adolescents.
- b) To evaluate the associations between adolescents knowledge and attitude levels regarding contraceptives and their actual contraceptive use.
- c) To describe and compare the effectiveness of different institutional modalities for contraceptive provision with health services to adolescents.

1.7. Significance of the study

The research findings can help identify the factors that encourage or discourage contraceptive use among these girls. This information can be used to develop targeted interventions within the DREAMS project to promote informed decision-making and responsible sexual behaviors, leading to a reduction in unintended pregnancies and sexually transmitted infections (STIs). Understanding the factors influencing contraceptive use can empower girls to take control of their reproductive health. The study highlights areas where the DREAMS project can strengthen its approach to equip girls with the knowledge, confidence, and resources to make informed choices about their bodies and sexuality. The Khomas Region may have unique cultural or social factors impacting contraceptive use among adolescent girls. This research can provide insights specific to the region, allowing the DREAMS project to tailor its services and address the girls' needs more effectively. Findings can inform the development and improvement of future programs targeting adolescent girls' sexual and reproductive health within the DREAMS project and potentially beyond. By addressing the factors influencing contraceptive use, the project can empower girls to protect themselves from unintended pregnancies and STIs, ultimately reducing their vulnerability to health risks and social challenges.

1.8. Limitations of the study

This study addressed sensitive topics, requiring adolescents to discuss personal sexual experiences. The sensitive nature of the questions could have made participants uncomfortable, potentially influencing their responses. Societal moral expectations, particularly regarding adolescent sexuality, might have affected participants' ability to

answer questions in a way they deemed morally acceptable. However, rigorous measures were taken to mitigate these potential biases. Confidentiality was maintained throughout the interviews to ensure participants felt comfortable sharing their responses. Trained field workers, similar in age to the adolescents, were employed to create a comfortable and relatable environment for participants. Despite these efforts, the cross-sectional design limits the ability to draw causal conclusions. Relying on self-reported data may introduce bias. Furthermore, the generalizability of findings may be limited to the specific study population and context.

1.9. Delimitation of the study

This study was limited to adolescents who reside in Khomas region and the database of DREAMS. This excludes adolescents outside the project or in other areas of Namibia. The research will explore factors influencing contraceptive use. It will not delve into the effectiveness of specific contraceptives or offer medical advice. The study will rely on data collection methods chosen by the researcher. Data collection will occur within a defined timeframe established by the researcher. Trends over extended periods or long-term impacts won't be explored.

1.10. Definition of key concepts

- **The DREAMS Project**

The DREAMS Project is a comprehensive HIV prevention and girls' empowerment initiative implemented by the United States Agency for International Development (USAID) in partnership with PEPFAR (President's Emergency Plan for AIDS Relief) and other organizations[24]. It focuses on providing adolescent girls and young women in high HIV burden countries with comprehensive services, including sexual

and reproductive health education, HIV prevention, economic empowerment, and life skills training[24].

- **Adolescent Sexual Reproductive Health**

Adolescent sexual reproductive health (ASRH) encompasses the physical, psychological, and social well-being of young people related to sexuality, reproduction, and sexual health[25]. It includes aspects such as sexual knowledge and attitudes, contraceptive use, prevention of sexually transmitted infections (STIs), and access to quality healthcare services.

- **Demographic Factors**

Demographic factors are characteristics of a population, such as age, gender, ethnicity, socioeconomic status, and geographic location[26]. These factors can influence access to and utilization of healthcare services, including sexual and reproductive health services.

- **Socio-cultural factors**

Socio-cultural factors include social and cultural norms, values, beliefs and practices that shape individuals and community behaviors[27]. These factors can influence attitudes toward sexuality, contraception and reproductive health.

- **Peer Pressure**

Peer pressure refers to the influence exerted by one's peers on their beliefs, behaviors, and decisions[28]. It can be positive or negative and can impact adolescent decision-making regarding sexual activity, contraception, and risk-taking behaviors.

- **Sex education**

Sexual education is the process of providing comprehensive information and skills related to sexuality, reproduction, sexual health, and relationships[29]. It can help young people make informed decisions about their sexual health and well-being.

- **Attitude to Contraceptive**

Attitude to contraception refers to individuals' beliefs, feelings, and intentions regarding the usage of contraceptives[30]. It can influence whether and how individuals use contraceptives. For this study attitude toward contraception was measured using rating the question with multiple categories.

- **Knowledge of contraceptive**

Knowledge of contraception refers to individuals' understanding of different contraceptive methods, effectiveness, risks, and benefits. It is essential for making informed decisions about contraception[31]. Knowledge was measured using the correctness of the selected responses to the posed multiple-choice questions as well as in rating questions.

- **Use of contraceptive**

Use of contraception refers to the actual practice of using contraceptive methods to prevent pregnancy. It can be influenced by various factors, including socio-demographic, sociocultural, community, institutional, knowledge, attitudes, access, and affordability[32].

For this research, contraception was considered as the use of a modern contraceptive method. Usage was categorized into two groups: those currently using contraception and those who have never used contraception.

1.11. Outline of the study

Chapter 1

Chapter 1 deals with the introduction and background of the study, problem statement, the purpose, objectives and Significance of the study as well as the definition of key concept.

Chapter 2

In this chapter the focus is on the literature review.

Chapter 3

This chapter describes the methodology used for the study.

Chapter 4

Chapter 4 the data analysis and interpretation.

Chapter 5

The conclusions, limitations and recommendations are addressed in this chapter.

1.12. Summary

This chapter provides a comprehensive overview of the research, outlining its purpose, objectives, and significance. The study explores the factors influencing adolescent contraceptive use within the DREAMS project in Namibia. Despite the availability of contraceptive services, low uptake among eligible adolescents remains a concern. This chapter establishes the context by discussing the factors associated with adolescent contraceptive use in Namibia. Understanding these factors is crucial for improving program effectiveness and promoting informed decision-making among young people.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

This chapter investigates the multifaceted factors that impact adolescent contraceptive use within the DREAMS Project in Namibia's Khomas Region. The study focuses on socio-demographics (age, education, financial status, and geographic location), socio-cultural, institutional, and communal factors that influence adolescent sexual health behaviors. Drawing on existing research, the chapter examines the intersectional barriers and facilitators to contraceptive use. By adopting a theoretical framework that incorporates these categories, the study aims to understand the patterns of adolescent contraceptive use and provide evidence-based recommendations to enhance the DREAMS Project's interventions for safe sexual practices among Namibian adolescents.

2.2. Concepts of Contraception

Contraception is the act of preventing pregnancy. Contraception allows a woman to control her reproductive health and affords the ability to be an active participant in her family planning [33]. Contraception minimizes the need for abortion and also prevents deaths by mother and children [34]. Similarly, contraception is defined as a deliberate avoidance of conception through the usage of numerous devices, sexual practices, chemicals, drugs, or surgical procedures [35].

Contraception involves various methods and techniques to prevent unintended pregnancies. These include hormonal methods, barrier methods, intrauterine devices

(IUDs), and surgical procedures. The primary goal of birth control is to empower individuals, especially women, to make informed choices about their sexual health and family planning. According to the UNFPA, this is crucial for family planning, enabling women and couples to choose when and how often to have children [63].

Contraception is grounded in an understanding of human reproductive processes and the potential impact of unwanted pregnancies on individuals, families, and communities. The World Health Organization (WHO) emphasizes the importance of birth control in reducing unsafe abortions and improving maternal and child health [24]. Access to effective contraception and related services is essential for achieving broader public health goals and improving maternal health [24].

Beyond preventing pregnancy, contraception empowers women to make autonomous decisions about their sexual and reproductive lives. By enabling women to choose when and if to have children, contraception promotes gender equality and women's independence. Access to contraception is considered a fundamental human right and a crucial component of reproductive healthcare [63]. Several Sustainable Development Goals (SDGs), such as those related to poverty reduction, child health, and gender equality, rely on widespread access to contraception.

Advances in reproductive health knowledge have led to the development of diverse contraceptive methods to meet various needs, preferences, and medical conditions. Hormonal pills, implants, IUDs, and condoms are among the most common modern contraceptive methods globally. These methods vary in effectiveness, ease of use, and potential side effects, requiring informed decision-making by users. Surgical

sterilization offers long-term options for individuals seeking permanent contraception [89].

Sociocultural, cultural, and health-related factors significantly influence contraceptive use. Cultural norms and beliefs can impact the acceptability and use of contraception, with some groups harbouring misconceptions about infertility, health risks, and social stigma. These factors can hinder contraceptive use, particularly among adolescents and young women [108].

Access, affordability, and the quality of contraceptive services remain challenges in many low-income countries. Comprehensive family planning services and accurate information about contraceptive methods are essential for protecting reproductive health rights. Misconceptions and a lack of accurate information about contraceptive methods are significant barriers to their effective use [42]. Addressing these knowledge gaps through targeted communication and education is crucial.

Contraception is a cornerstone of sexual health, rights, and gender equality. Access to effective contraception empowers individuals, particularly women, to make informed choices about their reproductive health and family planning. Comprehensive contraception services that address access, information, and sociocultural barriers can significantly contribute to broader public health and development goals. Understanding the factors influencing adolescent girls' contraceptive use, especially within the DREAMS Project in Khomas Region, Namibia, is crucial for informed interventions.

2.3. Contraceptive methods

This section explores the most popular modern methods of contraception, including dermal patches, vaginal rings, implants, intrauterine devices, condoms, and oral contraceptives.

Contraceptive methods, such as dermal patches, vaginal rings, implants, intrauterine devices, condoms, and oral contraceptives, offer various options to prevent pregnancy [42]. These methods differ in effectiveness, administration, and user preference, allowing women to make informed choices that align with their reproductive health goals. Modern contraceptives empower adolescents to make responsible decisions and avoid unintended pregnancies [42].

2.3.1. Patch and ring

Two new methods of hormonal birth control are transdermal patches and vaginal rings [36]. The patch releases 150 µg of norelgestromin and 20 µg of ethinyl estradiol. A three-week cycle is followed by a patch-free week. The FDA approved the vaginal ring in 2001. It's a flexible device that delivers 120 µg of etonogestrel and 15 µg of ethinyl estradiol daily. Worn for three weeks, it's removed for one week to allow for menstruation. The WHO Medical Eligibility Criteria [37] equate the patch and ring to oral contraceptives.

This flexible plastic vaginal ring, FDA-approved in 2001, releases daily dose of etonogestrel (120 µg) and ethinyl estradiol (15 µg). After three weeks of continuous use, a one-week break allows for menstruation. The vaginal ring releases fewer hormones than oral contraceptives and patches, potentially reducing systemic side

effects [89]. Both the patch and ring are suitable for women who prefer non-daily dosing and offer high efficacy in preventing unintended pregnancies.

2.3.2. Injectable Contraception

Injectable contraceptives provide long-term, reversible birth control. Depo-Provera, the most common injectable, delivers 150 mg of medroxyprogesterone acetate intramuscularly every three months. This convenient, long-lasting method offers at least 12 weeks of pregnancy protection with a single injection [108]. When administered correctly, injectable contraceptives inhibit ovulation with a failure rate of less than 1%. Additionally, they alter cervical mucus and endometrial lining, further preventing pregnancy. Injectable contraceptives may appeal to teens seeking discreet, low-maintenance birth control [42]. However, counseling should address potential side effects like weight gain and delayed fertility return.

2.3.3. Oral Contraceptives

Oral contraceptive pills (OCPs) remain a widely used method of contraception globally. Since their introduction in the 1960s, OCPs have revolutionized family planning by empowering women to take control of their reproductive health. As of 2021, two primary types of OCPs exist: combined oral contraceptives, containing both estrogen and progestin, and progestin-only pills, also known as "mini-pills." Combined OCPs primarily prevent ovulation by suppressing the luteinizing hormone (LH) surge. Additionally, they alter cervical mucus, hindering sperm motility, and thin the uterine lining, reducing implantation likelihood. Progestin-only pills are often preferred by women who cannot tolerate estrogen or have specific medical conditions. The mini-pill primarily works by thinning the uterine lining and thickening cervical mucus,

impeding sperm access to the egg and potential implantation [89]. Despite their efficacy, consistent daily adherence to the prescribed regimen is crucial for maintaining the effectiveness of oral contraceptives.

2.3.4. Implantable Contraception

Subdermal contraceptive implants are small, flexible rods that deliver progestin hormones, typically etonogestrel, continuously for three to five years, depending on the specific implant. With a failure rate of less than 1%, implants are among the most effective long-acting reversible contraceptive methods (LARCs) [108]. Implant hormones suppress ovulation, alter cervical mucus, and thin the endometrial lining, preventing pregnancy. Contraceptive implants offer a convenient, long-term contraceptive option that requires minimal daily or monthly administration [89]. However, common side effects such as irregular bleeding may deter some individuals from choosing this method.

2.3.5. Emergency Contraceptive

Emergency contraception (EC) is a method used to prevent pregnancy after unprotected sex or birth control failure. It is most effective when taken as soon as possible, ideally within 72 hours, but certain methods can be effective for up to 120 hours. EC is a crucial tool for reducing the risk of unintended pregnancies, particularly among adolescents who may not have consistent access to other contraceptive options [118]. Emergency contraceptive pills (ECPs) typically contain higher doses of hormones, such as levonorgestrel or ulipristal acetate, to prevent ovulation, fertilization, or implantation[39]. Research suggests that ECPs are most effective when taken within 72 hours of unprotected sex, with success rates ranging from 72% to

87%[38]. While generally well-tolerated, ECPs may cause side effects like nausea, headache, or menstrual irregularities [42]. Healthcare providers play a crucial role in providing accurate information about the timing and use of EC to maximize effectiveness and minimize side effects.

2.3.6. Condom Method

Male and female condoms prevent pregnancy by blocking sperm from fertilizing an egg. They also offer dual protection by reducing the risk of HIV and other sexually transmitted infections (STIs). Most condoms are male and made of latex, polyurethane, or treated animal tissue, while female condoms, also known as vaginal pouches, are typically polyurethane or nitrile [89].

Condoms are readily accessible and easy to use, requiring no prescription or medical intervention. Women insert female condoms into the vagina before intercourse, while men wear male condoms on the penis. Studies indicate that male condoms can be up to 98% effective in preventing pregnancy when used correctly. However, typical use efficacy is lower, around 85%, due to human error or inconsistent use [118]. Female condoms offer equivalent protection but may require more skill and comfort for insertion.

2.3.7. Other Contraceptive Methods

Lactation Amenorrhea Method (LAM), rhythm and withdrawal methods, diaphragms, cervical caps, and natural family planning are alternative birth control methods. In addition to modern contraceptives, several ancient or natural techniques can prevent pregnancy.

- **Lactation Amenorrhea Method (LAM):** This method leverages the natural postpartum infertility associated with exclusive breastfeeding. To be effective, the infant must be exclusively breastfed, the mother's menstrual cycle must not have resumed, and the infant must be under six months old [108].
- **Rhythm and Withdrawal Methods:** The rhythm method, also known as fertility awareness, involves tracking menstrual cycles to identify fertile periods and abstain from sexual intercourse during those times. The withdrawal method, or coitus interruptus, involves withdrawing the penis from the vagina before ejaculation. Both methods require significant self-control and precise cycle tracking, making them less reliable, especially for adolescents [89].
- **Diaphragms and Cervical Caps:** These barrier methods are inserted into the vagina to cover the cervix and prevent sperm entry. They are often used with spermicidal creams or gels to enhance effectiveness. While less common than other methods, they offer a hormone-free option for some individuals [89].
- **Natural Family Planning (NFP):** To prevent pregnancy, NFP methods utilize reproductive indicators like basal body temperature and cervical mucus. These methods require substantial training and supervision, making them less suitable for adolescents [42].

2.4. Benefits of Contraceptives use

Contraceptive use offers numerous benefits for both individuals and society as a whole. Effective contraception provides social and health benefits to mothers and their children by reducing unintended pregnancies and facilitating family planning [31]. Contraceptives can also reduce pregnancy-related morbidity and mortality, lower the risk of developing certain reproductive cancers, and be used to treat menstrual-related symptoms and disorders [41]. The use of contraceptives among adolescents and young adults is one of the most effective strategies to address various sexual and reproductive health challenges, including early marriages and sexually transmitted infections [42]. It also brings improvements in schooling and economic outcomes, especially for girls and women.

Beyond the individual-level impact of contraceptive use, there are also macroeconomic perspectives and benefits related to fertility reduction. Spacing pregnancies allows for better maternal and child health outcomes, reducing the risk of complications during childbirth and improving survival rates [41]. Contraceptive use can help countries achieve sustainable population growth and development [43].

2.5. Describing Adolescent Sexuality

Adolescents are people between the ages of 10-19 years [44]. Adolescence is a transition period from childhood to adult life during which pubertal development and sexual maturation take place [45]. Adolescents 10-19 make up 23 percent of the population of sub-Saharan Africa [46]. Thus, adolescents' health and well-being are vital to attaining the Sustainable Development Goals [47]. In Namibia, the DREAMS (Delivering Rights, Equity, Access and More for Young People) project specifically

targets adolescent girls and young women (AGYW) to prevent HIV infection. This chapter addresses this gap by critically analysing relevant literature to Namibian context and the DREAMS project's interventions. Through this analysis, this chapter seeks to identify key factors that influence AGYW's contraceptive use within the Khomas Region and provide recommendations to optimize the DREAMS project's effectiveness in promoting safe sex practices among AGYW.

2.6. Adolescent sexual health in Namibia

Adolescent sexual health in Namibia presents a complex picture, influenced by various sociocultural, economic, and health-related factors. Despite notable progress in reducing overall HIV prevalence, adolescent girls and young women remain disproportionately at risk of infection[48]. While knowledge and awareness of HIV are high among adolescents, they often engage in risky sexual practices, contributing to the high rate of new infections within this age group [49].

Limited access to adolescent-friendly sexual and reproductive health (SRH) services, including family planning and HIV testing and treatment, poses significant challenges for young people in Namibia[50]. Cultural taboos and myths surrounding sexuality, coupled with limited communication between parents and children, teachers and learners, and health care providers and adolescents, hinder open discussions about sexual health issues[50]. This lack of open dialogue creates a barrier to accessing essential information and services.

Early pregnancy, HIV/AIDS, and other sexually transmitted infections (STIs) are among the major sexual and reproductive health problems faced by adolescents and

youth in Namibia. The 1993 youth health profile revealed that 50% of all births were attributed to mothers under the age of 20 years, highlighting the prevalence of early pregnancy [49]. Additionally, the high rates of HIV infections among young people underscore the urgent need for effective interventions to address these issues.

The national teenage pregnancy rate in Namibia stands at 19%, indicating that nearly one in five women aged 15 to 19 have begun childbearing [48]. This alarming statistic highlights the challenges faced by adolescent girls in accessing and utilizing contraception. The contraceptive prevalence rate among women aged 15 to 49 is 50.2%, with lower rates observed among younger age groups. This suggests that a significant proportion of adolescents are not meeting their family planning needs.

Furthermore, the high prevalence of "baby dumping" and unsafe abortions underscores the urgent need for comprehensive sexual and reproductive health services for adolescents [22]. These practices often result from unintended pregnancies and limited access to safe and legal abortion services [51]. Addressing these issues requires a multi-faceted approach that includes improving access to contraception, promoting safe abortion services, and addressing the underlying social and economic factors that contribute to these problems [52].

2.7. Namibia's effort to Address Adolescent Sexual Health

The Ministry of Health and Social Services (MOHSS) has consistently emphasized the importance of reaching adolescents through outreach activities. In its 2004 guidelines, the MOHSS recommended that health service providers include adolescent-specific services in their community outreach programs[53]. Subsequently, in 2011, the

MOHSS mandated that healthcare providers actively seek out adolescents in their natural environments, such as schools[48] The Ministry specifically directed healthcare providers to conduct school visits to deliver health education sessions.

This recommendation underscores the necessity for healthcare providers to be proactive in promoting adolescent-friendly health services. Rather than passively waiting for adolescents to come to health facilities, providers must actively market these services and bring them closer to the community. By going out into the field, especially to schools where adolescents spend a significant portion of their time, healthcare providers can overcome barriers such as distance and accessibility.

The World Health Organization (WHO) further supports the role of schools in adolescent health. The WHO recognizes that schools provide a valuable opportunity to reach a large number of adolescents and address their unique health needs. By leveraging school settings, healthcare providers can more effectively deliver essential services and support[51].

The Ministry of Basic Education, Sport, and Culture recognized the importance of HIV/AIDS and Life Skills Education (LSE) in addressing adolescent health issues [54]. Teenage pregnancy, a longstanding problem in Namibian schools, directly and indirectly impacts learners' performance[55]. To combat this, the Ministry introduced the School Health Program, focusing on promoting health through information and facilities (UNICEF, 2015).

While Namibia has an HIV/AIDS Policy for the Education Sector, a specific policy for Comprehensive Sexuality Education (CSE) is lacking. National standards guide teacher education and development, and the Ministry has mandated a full-time Life Skills teacher in schools with 250 or more learner [54].

2.8. Community-based interventions to promote Adolescent Contraceptive use

Community-based interventions have emerged as effective strategies to promote adolescent contraceptive use in various settings, including Namibia. These interventions often involve collaboration between community members, healthcare providers, educators, and policymakers to address the specific needs and challenges of adolescents.

One common approach is the establishment of youth-friendly health clinics that provide accessible and confidential sexual and reproductive health services to adolescents. These clinics may offer a range of services, including contraceptive counselling, distribution, and education. A study conducted in Namibia found that youth-friendly health clinics were effective in increasing adolescent contraceptive use and reducing unintended pregnancies [22].

Community outreach programs can also be effective in promoting adolescent contraceptive use [49]. These programs involve reaching out to adolescents in their communities to provide information about contraception, address misconceptions, and offer support. Community health workers can play a crucial role in delivering outreach services and building trust with adolescents [52].

Peer education programs have been shown to be effective in promoting adolescent contraceptive use [51]. These programs involve training adolescents to educate their peers about sexual and reproductive health, including contraception. Peer educators can be particularly effective in reaching out to adolescents who may be reluctant to seek information from adults [52].

School-based interventions can also be effective in promoting adolescent contraceptive use. These interventions may involve providing sexual and reproductive health education, establishing school-based health clinics, and promoting positive peer norms around contraceptive use. A study conducted in Namibia found that school-based interventions were effective in increasing adolescent knowledge and attitudes about contraception [49].

Community-based interventions can also address the social and economic factors that influence adolescent contraceptive use. These interventions may involve providing economic opportunities, improving access to education, and addressing gender inequality [52].

2.9. Contraceptive prevalence

Contraceptive prevalence rate is usually defined as the percentage of adolescent married women and unmarried women using method of contraception [56]. Contraceptive prevalence rate (CPR) among adolescents in sub-Saharan Africa is significantly lower than among all women. A study conducted in 29 countries in sub-Saharan Africa found that only 24.7% of adolescent girls and young women aged 15–

24 years use modern contraception [57]. This rate varies widely across countries, with Lesotho reporting the highest CPR (59.2%) and Chad the lowest (5.1%) [57]. Compared to all women, CPRs were much lower among adolescents, with only 15% of girls aged 15 to 19 years who were either married or in a union using modern contraceptives [58].

In Zambia, the CPR among adolescent women aged 15 to 19 years was 25%. Thirty-eight percent of married women used any method of contraceptives, with 36% using modern method and 2% using traditional method [59]. The Zambia Demographic and Health Survey (ZDHS) reported that the use of any method was higher among currently married women (38%) than among sexually active unmarried women and a similar pattern was observed for use of modern methods [59].

A study conducted in Ghana reported varying CPRs among sexually active adolescents, 67% of sexually active adolescents had ever used contraceptives [17]. Another study reported that only 42% of sexually active participants were currently using contraceptives [60]. Knowledge of contraceptive methods was relatively high, with 89% of adolescents knowing about at least one method [17] [60] However, knowledge of modern methods such as pills, injections, and emergency contraceptives was lower [17]. Low CPR was also highlighted among female adolescents in Ghana [61].

In Namibia, the national CPR is 50.2% among women aged 15 to 49 years, according to the UNFPA [62]. Furthermore, among young people, the CPR is 24% for those aged 15 to 19 years and 56% for those aged 20 to 24 years. The Namibia Demographic and

Health Survey (NDHS) reported a prevalence of adolescent contraceptive use ranging from 21% to 45% among those aged 15 to 19 years [63].

2.10. Factors influencing adolescents on the use of Contraceptive

The use of modern contraceptives varies widely, particularly in developing countries. The UNFPA's latest research highlights that poverty significantly limits access to modern contraceptive options for those living in rural areas. Over 200 million women seeking contraceptives are unable to obtain them due to the ongoing challenges in reaching these populations [43]. A myriad of factors such as socio-demographic, knowledge and awareness, socio-cultural, Institutional factors, community factors and access to information, significantly influence adolescents on the use of contraceptive.

2.10.1. Socio-demographic factors

Adolescence, a period characterized by physical and emotional development, can also be a time of sexual exploration. However, unintended pregnancies among adolescents remain a global concern. Understanding the socio-demographic factors that influence contraceptive use among this population is crucial for promoting safe sex practices and reducing unintended pregnancy rates. Studies consistently show a positive association between age and adolescent contraceptive use [64][65]. Moreover, age at sexual debut also plays a role. Early sexual initiation is associated with lower contraceptive use [66]. Older adolescents are more likely to have initiated sexual activity and have a greater understanding of contraceptive options [67].

Adolescents with higher education levels tend to have greater access to information and resources regarding sexual health and contraception [68][69]. Educational

attainment can also empower adolescents to make informed decisions about their reproductive health [70]. Adolescents from lower socioeconomic status backgrounds often face greater barriers to contraceptive access due to limited financial resources and transportation issues [71][72].

Several factors may influence contraceptive use and non-use, especially among women in general. The use of contraception is influenced by the perceived likelihood and appeal of pregnancy, relationship status, women's knowledge, and perceptions of side effects and health risks. However, lack of education and poverty is linked with low contraception use [73]. Education has been shown to empower adolescents with knowledge and decision-making skills regarding their sexual health [74]. Furthermore, education is a significant socioeconomic factor demonstrably linked to contraceptive use. Higher education levels in both males and females are associated with increased knowledge about contraceptives and a greater likelihood of using them effectively [75].

Research consistently reveals a positive association between a woman's educational attainment and her likelihood of employing family planning methods [76]. Studies have shown that educated women have a greater chance of using contraception compared to their less-educated counterparts. A study conducted in Catalonia, Spain, identified education level (increasing the likelihood by 30.59% and 39.29%) and having children older than 14 (increasing the probability by 35.35%) as key factors influencing contraceptive use [77]. Other studies have corroborated this positive correlation between education and contraceptive use [78].

Adolescents in rural areas continue to face difficulties accessing contraception compared to urban counterparts [79]. A major barrier to contraceptive use is the lack of knowledge or an unmet need for such methods. This is particularly prevalent among adolescents who often have insufficient information regarding contraception and its proper application [80]. Addressing this knowledge gap is crucial for enhancing access to family planning services and empowering individuals to make informed choices concerning their reproductive health.

2.10.2. Socio-cultural factors

Cultural, social, and religious factors significantly influence contraceptive decision-making and use among adolescent girls and women. In many regions, cultural expectations and limitations hinder their access to family planning services, as they may lack the decision-making power or resources to pursue them. Furthermore, contraceptive decision-making is influenced by social factors, including individual, interpersonal, and societal influences, as well as adolescents' perceptions of hormonal contraceptives [81].

Despite these challenges, contraceptive use among adolescents remains persistently low. Several interrelated factors contribute to this, such as sociocultural norms and traditions, lack of comprehensive knowledge about contraceptive methods, inadequate adolescent-friendly services, and health workers who may not have the necessary competencies to work with adolescents [82]. However, this may not always reflect informed choice, as social pressure or cultural expectations within marriage can influence contraceptive use [61].

In addition to these factors, religious restrictions or disapproval of contraception can be a significant barrier [83]. A study revealed that traditional cultural beliefs and spousal support were significant predictors of contraceptive use. However, religious affiliation and decision-making regarding family size were not strongly correlated with contraceptive uptake [84]. Some parents expressed concern that access to sexual and reproductive health services might encourage early sexual activity among adolescents. Additionally, some believed that the availability of contraceptives promoted promiscuity among young people [85].

Furthermore, the influence of religion can be complex, with some religious interpretations allowing for contraceptive use within marriage for specific purposes [86]. Gender norms that emphasize male dominance and female sexual submissiveness can limit adolescent girls' access to information and decision-making regarding contraception [87] [88].

2.10.3. Knowledge, Attitude and Awareness

Comprehensive education programs on contraceptive services are essential for promoting positive attitudes toward family planning among both males and females [89]. These programs should provide accurate information about the risks of unintended pregnancy, possible side effects of contraceptives, the benefits of birth spacing, and safety measures to encourage informed decision-making.

Despite the availability of various safe and effective contraceptives, unintended pregnancy remains a significant social and public health problem [90]. Lack of adequate knowledge and awareness about contraceptive options is a contributing

factor to low contraceptive use among young women, particularly those who have previously experienced pregnancy [91]. Studies have shown that some pregnant adolescents become pregnant due to a lack of knowledge about and access to contraceptives [92]. Moreover, poor knowledge and a lack of contraceptive awareness are common among young girls seeking abortion services [93].

It is crucial to ensure the dissemination of accurate information about contraceptives to young women. The media, peers, friends, and healthcare professionals are major sources of information for young women regarding contraceptive services. Clients seeking family planning services should receive comprehensive counselling about the side effects of their chosen methods and how to address them [90].

A study conducted in Nigeria found that while awareness of contraceptives was high in some communities, understanding of different contraceptive methods was lacking [93]. This highlights the need for young women to receive information about contraceptive options and to promote their right to control reproductive health. Additionally, it is essential to create awareness and dispel myths about contraceptives [94]. The adolescent need for HIV and pregnancy prevention information has been a sensitive issue in sub-Saharan Africa, leading to policy and political debates about what information should be provided to adolescents and at what age [95].

A study done in Zimbabwe showed that awareness of contraceptives among young people in tertiary institutions does not necessarily lead to increased uptake [96]. However, educational campaigns that emphasize the benefits of contraceptives will help reduce misconceptions and increase access to utilization [96].

Another study conducted among tertiary students at the University of Namibia showed that the majority (80%) had poor practices toward contraceptive use. However, the study also showed a positive attitude regarding contraceptive use among 91% of the participants [97].

2.10.4. Institutional factor

Contraceptive use among adolescent girls can be influenced by factors related to the provider of the services. Limited access to healthcare facilities, particularly in rural areas, restricts their ability to obtain methods [79]. Inaccessible clinics, inconvenient hours, and a lack of privacy can discourage adolescents from seeking contraception [82]. Restrictive policies limiting access to contraception for minors or requiring parental consent can be major barriers [98]. Conversely, policies promoting comprehensive sex education within schools can have a positive impact on adolescent contraceptive knowledge and use [99].

Furthermore, limited availability of youth-friendly health clinics with trained providers comfortable discussing sexual health with adolescents can discourage contraceptive use [98]. Telehealth and mobile health interventions can expand access to contraceptive services for geographically isolated adolescents [100]. Moreover, negative attitudes or judgments from healthcare providers can create a hostile environment and deter adolescents from seeking contraceptive services [101].

Healthcare worker competency in addressing adolescent sexual and reproductive health (ASRH) needs is crucial. Studies have shown that a lack of training and skills in working with adolescents can hinder effective communication and service provision

[82]. Culturally competent and gender-sensitive provider training can improve adolescent experiences within healthcare settings [85].

2.10.5. Community factors

Community factors also significantly influence adolescent decisions about contraception. Supportive and open communication between parents and adolescents regarding sex and contraception can encourage responsible sexual behavior and contraceptive use [102]. Researchers highlight that supportive parental guidance can encourage accountable sexual practices and contraceptive use [103]. However, parental disapproval or discomfort in discussing sexual health can create barriers [97]. Furthermore, Peer pressure, a common aspect of adolescence, can significantly influence risk behaviors and psychosocial well-being [104]. Peers play a crucial role in shaping adolescent norms, attitudes, and values related to contraceptive use, providing a platform for discussion and support. Access to accurate contraceptive information is essential for preventing unintended pregnancies among adolescents [105]. Unfortunately, many adolescents rely on inaccurate information obtained from peers, rather than reliable sources [106].

Several studies highlight the potential of mass media to promote responsible sexual behavior and encourage contraceptive use among adolescents. Media portrayals depicting healthy relationships and accurate contraceptive information can increase adolescents' knowledge about contraception options and their effectiveness [107]. Additionally, media campaigns and educational programming with positive messaging about contraception can normalize its use and reduce stigma [108]. This can empower adolescents to make informed decisions about their sexual health. Moreover,

showcasing adolescents confidently accessing contraceptives can promote a sense of self-efficacy, encouraging them to overcome barriers and seek contraceptive services [67].

2.10.6. Other factors

Adolescent girls in Namibia may face concerns about potential side effects when considering contraceptive use[109]. These concerns, such as irregular menstruation or infertility, can influence their decision-making and contribute to low uptake rates[110]. A study of female students aged 15-24 found that 77.5% reported non-use of contraceptives due to these concerns [111].

Contraceptive non-use among adolescents contributes to unintended pregnancies, particularly in developing countries[112]. While many adolescents initially use contraceptives, inconsistent use is common due to factors like fear of side effects, convenience, changing needs, and preference for alternative methods[113]. Adolescents may also face challenges in accessing and using contraceptives due to uncertainty about legal rights, available methods, and usage instructions[114].

2.11. Summary

This review examined existing literature on factors influencing adolescent contraceptive use, specifically focusing on the Namibian context. While the studies reviewed originated from various regions, the insights were adapted to explore the unique challenges faced by Namibian youth. While age, education level, and socioeconomic status play a role, cultural, social, religious, and community factors significantly impact decision-making. Limited access to healthcare services, lack of

comprehensive sex education, and negative provider attitudes are key barriers. Conversely, Supportive communication between parents and adolescents regarding sex and contraception can encourage responsible sexual behavior and contraceptive use. Studies highlight the role of peer pressure and access to accurate information within communities. Community-based interventions, such as youth-friendly clinics, outreach programs, and peer education, can address these factors and promote contraceptive use among Namibian adolescents.

A multifaceted method is necessary to effectively encourage adolescents to use birth control. This means getting rid of societal and cultural hurdles, making sure everyone can access private, youth-friendly services, and teaching everyone everything they need to know about sex. Adolescents must have the knowledge and confidence to make decisions about their sexual health and reproductive rights that are best for them. The goal of this study is to find out how true some of these hurdles and factors are that make teens less likely to use birth control in the DREAMS project Khomas Region. This study also talked about the sexual activities and rates of occurrence in the study group so that suggestions could be made to protect the sexual health of Namibian teens. Chapter 3 covers research methodology

CHAPTER 3

METHODOLOGY

3.1. Introduction

This section covers the study area, research design, variables, population, sample size, sampling technique, data collecting methods, quality control, data processing and analysis, and ethics.

3.2. Study design

This study adopted a cross-sectional survey design, utilizing quantitative data collection and analysis methods through the administration of structured questionnaires. This design aligns well with the objective of this study, which is to identify the factors influencing adolescents on the use of contraceptives in the DREAMS project in the Khomas region of Namibia.

This is a cross-sectional study because data is collected at a single point in time, providing a snapshot of the situation regarding contraceptive use among adolescents at that specific moment. It is also a descriptive study as its primary goal is to describe the prevalence of contraceptive use and explore the characteristics of adolescents who do and do not use contraceptives, as well as the various factors that may be associated with these practices. The study aims to identify and describe these factors rather than establish causal relationships.

3.3. Study settings

The Khomas region is the capital city of the Republic of Namibia situated in the central area of Namibia. Khomas region has 10 constituencies. Khomas Region is one of the region with the highest population among the 14 regions in Namibia. The region had a projected population of 494605 (16.4%) people. The average household size was 3.3 per household. About half of the population were female with being in their reproductive ages (15-49).

3.4. Variables

Two key variables were measured in this study: outcome/dependent variable and independent variable.

3.4.1. Dependent Variable

The outcome variable for this study was Contraceptive Use (Yes/No).

3.4.2. Independent Variables

Social-demographic factors (Age, Marital status, educational background, Sex, Occupation). Knowledge, Attitude, and Practice about contraceptives. Community factors such as beliefs, culture, religion, partner, family members, parental involvement, communication, and peer pressure. Institutional factors such as the perception of adolescents on facility-related factors, attitude of service providers, and availability of contraceptives were also assessed.

3.5 Study Population

The study was conducted among a study population of 15066 adolescents (15-19) in the DREAMS project in Khomas Region. A total of 360 adolescents participated in the study.

3.5.1. Inclusion criteria

Adolescents aged 15-19 years in the DREAMS project in Khomas Region.

3.5.2. Exclusion criteria

Adolescents aged 10-14 in the DREAMS project in Khomas Region.

3.6 Sampling

3.6.1. Sampling size calculation

The sample size was calculated using epi-info 7 version 7.2.5 with a 95% confidence level.

Confidence level	Total Sample
95%	360

n= minimum sample size required 360

N=the population size (15066)

P=40

3.6.2. Sampling procedure

The researcher employed a random sample technique to draw a sample of 360 adolescents (sexually active) who participated in the study. The researcher contacted the girls with the information provided through the DHIS 2 system DREAM project and informed them to participate in the study willingly. One

questionnaire was deemed invalid due to a lack of responses across majority of the questions. This participant's data was therefore excluded from further analysis

3.7. Data Collection Techniques/Methods and Tools

This study is the process of gathering vital information in a systematic process by identifying the subjects and site with the research goal or hypothesis of the study (Burns and 2007). The Structured questionnaire was used to gather information from the participants on their knowledge, access to contraceptives and their use. The questionnaires were comprised largely of closed-ended questions. Four research assistants were employed in the distribution of questionnaire and data collection in Khomas among the adolescent girls in the DREAMS database.

3.8 Data Analysis

Data entry and processing were done using Excel and SPSS (Statistical Package for Social Science) version. SPSS was used for coding and exported for final analysis in Excel. Descriptive statistics were utilized to outline the factors associated with contraceptive use and to depict and compare the effectiveness of different institutional approaches for providing contraceptive services to adolescents summarized in percentages, proportions, and frequencies. Mean, median, and standard deviation were calculated for age. The Chi-square test was used to measure the association or relationship between the outcome variables (contraceptive use) and the explanatory variables. The associations between variables of interest were obtained using cross-tabulation analysis. The binary logistic model was employed to assess the factors that influence contraceptive use among adolescents. A confidence interval of 95% and $p < 0.05$ (at 5% level of significance) was measured.

3.9. Ethical Consideration

Ethical Clearance was obtained from the University of Namibia Decentralised Ethics Committee (DEC). It was also obtained from the Ministry of Health and Social Services to conduct the study on factors influencing adolescents on the use of contraceptives in the DREAMS project in Khomas Region, Namibia. Informed written consent was sought from all respondents voluntarily. Among adolescents under the age of 18 years written consent was obtained from their parents or guardians, ensuring adherence to ethical guidelines. Participation was entirely voluntary with the right to withdraw at any stage without repercussions. Confidentiality and anonymity of the participants were guaranteed and the names of the participants were neither written on the questionnaire nor recorded in any write-up. While participants might experience some time expenditure and emotional discomfort due to sensitive questions, these were considered minimal. Participants experiencing emotional distress were referred to appropriate authorities for further assistance. The research aims to inform policy guidelines that may contribute to reducing adolescent pregnancy rates and promote overall health and education within the Khomas region and beyond. The researcher declares no conflict of interest in conducting this study. Collected data was stored electronically, password-protected, and accessible only to the principal investigator and supervisor. The research finding was shared with the academic institutions through various formats such as printing and electronic. The research was solely funded by the principal investigator.

3.10. Quality control

The data collection instrument was meticulously designed to align with the research objective. To ensure the quality of the quantitative data, a rigorous approach was implemented addressing content, face, and construct validity. Content validity was ensured through a thorough review of existing literature and consultation with experts in the field of adolescent reproductive health. This process helped to identify and include all relevant constructs and items related to contraceptive use among adolescents, ensuring that the questionnaire comprehensively covered the intended domain. Face validity was assessed by expert review of the questionnaire for clarity and appropriateness of language. This step ensured that the questionnaire appeared clear, understandable, and relevant to the target audience. Construct validity was between items measuring the same or related constructs," or "using factor analysis to examine the underlying structure of the questionnaire and confirm that items loaded onto the intended factors. This process provided evidence that the questionnaire was accurately measuring the theoretical constructs of interest. Data was collected carefully, and collected data was consistently reviewed each day to minimize human error.

3.11. Pre-testing

To ensure the effectiveness of the research instrument, a pre-test was conducted in Windhoek, Khomas Region of adolescent girls who are not part of the DREAMS The pre-test served two purposes: to evaluate the clarity of the research project. question and to assess the questionnaire's comprehensiveness. Based on the pre-test necessary modifications were made to the questionnaire before the actual data was collected.

This pre-testing step helped to refine the instrument and ensure its suitability for the target population.

3.12. Summary

In this chapter, the ideas and actions that used a study approach are explained. The design is made up of ideas and activities, study setting, data analysis methodologies, variables, population, inclusion criteria, sample size, sampling process, data gathering instruments, ethics, and quality control. Chapter 4 covers the results.

CHAPTER 4

RESULTS

4.1. Introduction

This chapter presents the results of the empirical study on the socio-demographic characteristics of the respondents, socio-cultural, community factors, knowledge and awareness of contraceptive use of the respondents. This chapter also examined the socio-demographic factors associated with contraceptive use and other factors that influenced contraceptive use among adolescents.

4.2. Socio-Demographic Characteristics of Respondents

A total of 359 adolescents participated in the study, with a mean age of 17.4 years (standard deviation of 1.4 years). The minimum and maximum ages were 15 and 19 years, respectively. The socio-demographic characteristics provide a clear understanding of the study participants. Data was collected on their age, marital status, residential, education status, level of education, occupation and living arrangement. Table 4.1 shows a detailed presentation of the results.

Nearly a third (n=103, 28.7%) of participants were 19 years old. Approximately a quarter (n=90, 25.1%) were 18 years old, followed by 17-year-olds (n=67, 18.7%), 16-year-olds (n=55, 15.3%), and 15-year-olds (n=44, 12.3%). The vast majority (n=349, 97.2%) of participants were single, with only a small number (n=10, 2.8%) reporting cohabitation. Over 40% of participants resided in informal settlements (n=151, 40%), while 35.4% lived in other locations (n=127) and 22.6% resided in substandard housing (n=81). More than half (n=206, 57.4%) of participants were still in school, while 42.6% were out of school (n=153). Secondary education was the most common

educational level (n=307, 85.5%). A small number had tertiary education (n=26, 7.2%) or primary education (n=26, 7.2%). Nearly half (n=166, 46.2%) of the participants were learners, 34.5% were unemployed (n=124), 7.2% were students (n=26), 5.6% were contract/casual workers (n=20), 3.3% were employed (n=12), and 3.1% (n=11) were self-employed. Regarding living status, the most common arrangement was living with one parent (n=109, 30.4%), followed by living with family members (n=88, 24.5%). A significant number lived with both parents (n=72, 20.1%). Others lived alone (n=44, 12.3%), with a boyfriend (n=27, 7.5%), or in a child-headed household (n=19, 5.3%).

Table 4.1: Socio-demographic Characteristics of adolescents.

Variable		Frequency (N=359)	Percentage
Age	15years	44	12.3%
	16years	55	15.3%
	17years	67	18.7%
	18years	90	25.1%
	19years	103	28.7%
	Total	350	100%
Age 's mean (standard deviation) = 17.4 (1.4)			
Marital status	Single	349	97.2%
	Cohabiting	10	2.8%
	Total	359	100%
Residential	Informal settlement	151	42.1%
	Location	127	35.4%
	Suburb	81	22.6%
	Total	359	100%
Educational status	In-school	206	57.4%
	Out of school	153	42.6%
	Total	359	100%
Level of education	Primary education	26	7.2%
	Secondary education	307	85.5%
	Tertiary education	26	7.2%
	Total	359	100%
Occupational level	Employed	12	3.3%
	Self-employed	11	3.1%
	Student	26	7.2%
	Learner	166	46.2%
	Unemployed	124	34.5%
	Contract/Casual worker	20	5.6%
	Total	159	100%
Living arrangement	Both parent	72	20.1%
	One parent	109	30.4%
	Child headed household	19	5.3%
	Family Member	88	24.5%
	Boyfriend	27	7.5%
	Alone	44	12.3%
	Total	359	100%

4.3. Use of contraceptives

Figure 4.1 displays the prevalence of contraceptive use among adolescent girls in the study. Most participants who currently used contraceptives had a prevalence rate of 73%, compared to those who had ever used them (27%).

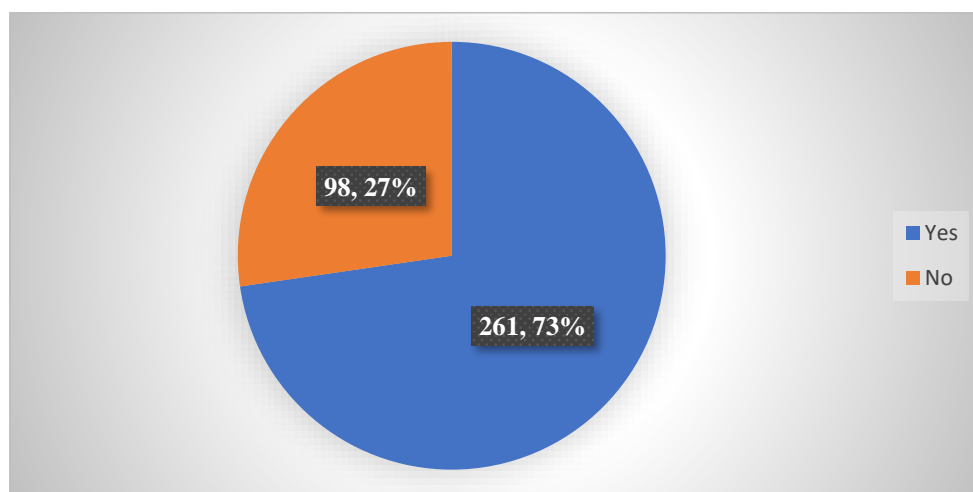


Figure 4.1: Display the prevalence of contraceptive use among adolescents.

4.4. Current Contraceptive method(s) used

Figure 4.2 shows the most popular contraceptive methods used among adolescent girls in the study. Male condoms were the most widely used method, with 75% of respondents choosing them. Injectable contraceptives were the second most popular, used by 19% of participants. Birth control pills were used by a smaller percentage, at 6%.

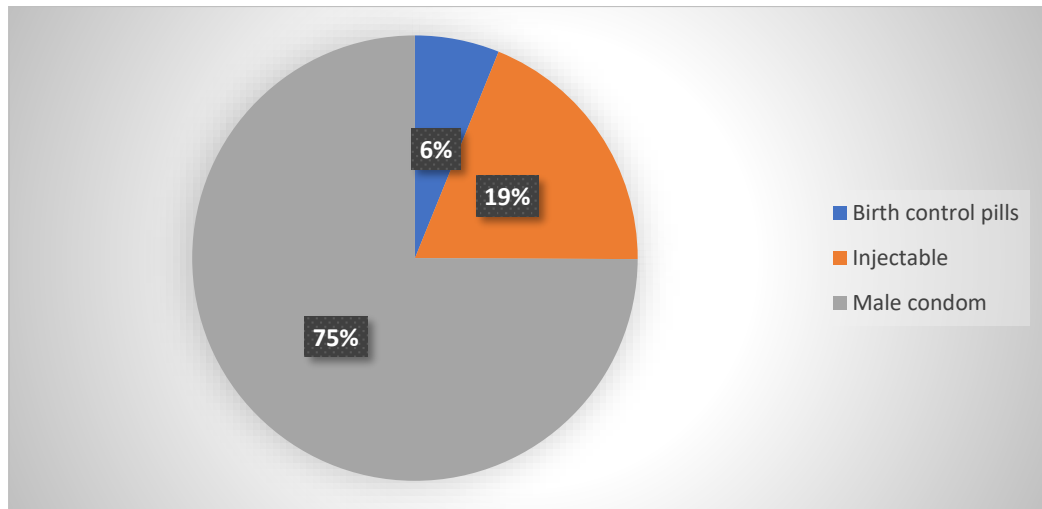


Figure 4.2: Current contraceptive methods used by study participants.

4.5. Source of contraceptives

Figure 4.3 shows the sources from which adolescent girls in the study accessed contraceptives. DREAMS clinics were the most common source, accessed by 65.2% of respondents. Government clinics were the second most common, used by 18.4%. Community outreach programs were used as a source of contraceptives by 10.3% of the participants, 3.3% used pharmacies, and 2.5% school outreach program.

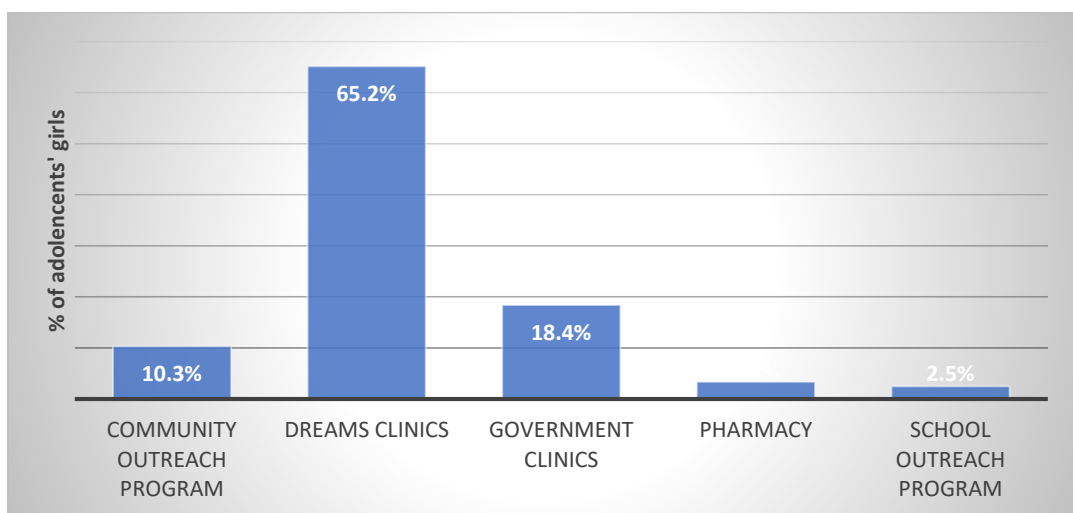


Figure 4.3: shows the source of contraceptives among adolescents.

4.6 Source of Contraceptive Information.

Figure 4.4 shows the source of contraceptive information. Most respondents (n=102, 28.4%) learned from health workers. Friends and peers were the second most common source of information (n=75, 20.9%), followed by the media (n=65, 18.1%). Community care workers (n=58, 16.2%), sex education (n=48, 13.4%), and parents/guardians were less frequent sources of contraceptive information (n=11, 3.1%).

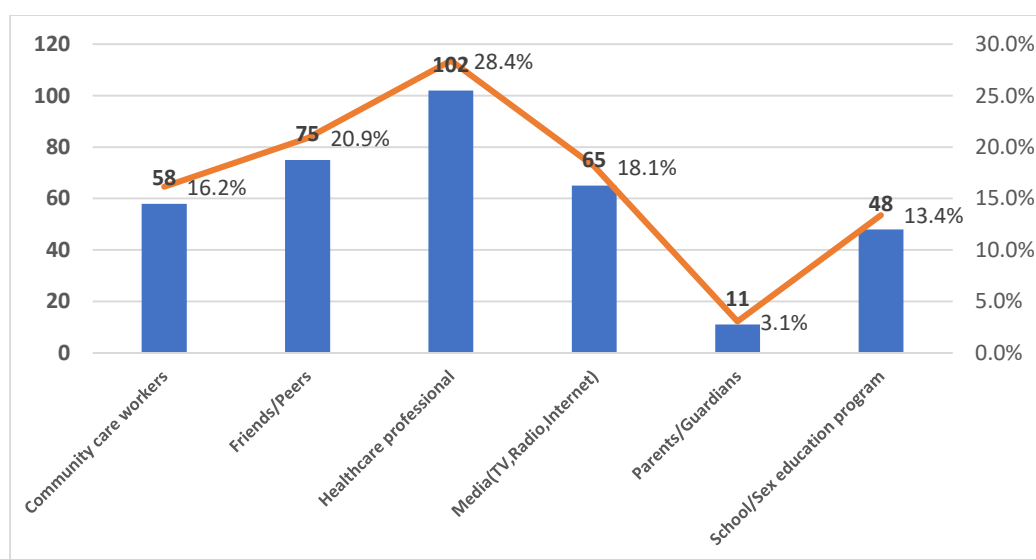


Figure 4.4: Adolescents sources of contraceptives information.

4.7. Reason why not using contraceptives

Figure 4.5 show the reasons perceived by adolescents why they do not use contraceptives. Majority (37%) indicated stigma, followed by concerns about side effects (28%), Myths and rumours about contraceptives were also a significant factor (15%), as well as influence from partners or family members (12%) and only a smaller percentage (8%) mentioned other influences.

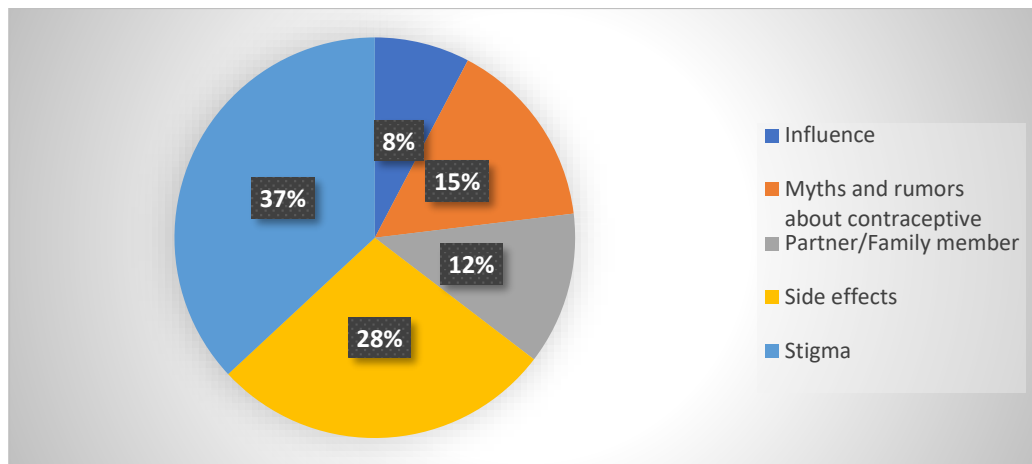


Figure 4.5: Shows why adolescents avoid using contraceptives.

4.8. Knowledge and Attitude factors of contraceptive use

Study findings revealed several factors associated with contraceptive use among adolescent girls in the DREAMS project in Khomas Region. Table 4.2 shows that most respondents (n=145, 40.4%) indicated familiarity with various contraceptive methods, while (n=100, 27.9%) disagreed. Additionally, (n=125, 34.8%) reported strongly agreed with their understanding of the effectiveness of contraceptives, with (n=100, 27.9%) agreeing. This was reflected in an overall mean rating of 71.8 with a standard deviation of 50.7. Furthermore, (n=112, 31.2%) of adolescents agreed to understand how to correctly use different contraceptive methods, while (n=95, 26.5%) disagreed. The majority (n=288, 80.2%) strongly agreed of knowing where to obtain contraceptives if needed, with (n=49, 13.6%) agreeing. Regarding awareness of potential risks and side effects, (n=128, 35.7%) indicated knowledge, while (n=88, 24.5%) disagreed. Most adolescents (n=206, 57.4%) strongly agreed that their knowledge of contraceptives influenced their decision to use them, and (n=98, 27.3%) agreed. Additionally, (n=191, 53.2%) indicated strongly agreed that their attitudes towards contraceptives affected their use, with (n=97, 27.0%) agreeing.

Table 4.2: Views of adolescent girls on the knowledge and attitude of contraceptives.

Statement	SD	D	NAD	A	SA	Mean (SD)
I am familiar with different types of contraceptives methods.	20	100	55	145	39	71.8 (50.5)
	5.6%	27.9%	15.3%	40.4%	10.9%	
I know how effective different contraceptive methods are preventing pregnancy.	0	94	40	100	125	71.8 (50.7)
	0.0%	26.2%	11.1%	27.9%	34.8%	
I understand how to correctly use various contraceptives method.	43	95	56	112	53	71.8 (29.9)
	12.0%	26.5%	15.6%	31.2%	14.8%	
I know where to obtain contraceptive if I need them.	16	1	5	49	288	71.8 (122.3)
	4.5%	0.3%	1.4%	13.6%	80.2%	
I am aware of potential risks and side effects associated with different contraceptive methods.	78	88	43	128	22	71.8 (41.1)
	21.7%	24.5%	12.0%	35.7%	6.1%	
My knowledge about contraceptive influences my decision to use them.	42	11	2	98	206	71.8 (83.9)
	11.7%	3.1%	0.6%	27.3%	57.4%	
My attitude towards contraceptives affects whether I use them.	29	27	15	97	191	71.8 (74.0)
	8.1%	7.5%	4.2%	27.0%	53.2%	
Mean average response rate of factors influenced adolescents' girls						71.8 (64.6)

Note: SD-Strongly disagree, D-disagree, NAD-Neither agree nor disagree, A-Agree, SA-Strongly agree.

Adolescent girls' perceptions of contraception, including parental awareness, communication about sexual issues, contraceptive knowledge, and trust in healthcare services. Table 4.3 provides insights into adolescent girls' perceptions of contraception, including parental awareness, communication about sexual issues, contraceptive knowledge, and trust in healthcare services. A vast majority (n=318, 88.6%) of respondents indicated that their parents were unaware of their contraceptive use and only (n=16, 4.5%) said their parents were aware, while 7% stated it was not applicable. Most adolescents ((n=328, 91.4%) reported difficulty discussing sexual issues with their parents. Only (n=31, 8.6%) felt comfortable doing so. The majority (n=173, 48.2%) rated the effectiveness of contraceptive use as excellent, followed by good (n=105, 29.2%) and average (n=63, 17.5%) and only 5% found it "not

applicable”. Over half of the respondents (n=195, 54.3%) were able to discuss contraceptive methods with someone, while (n=164, 45.7%) were not. A significant majority (n=210, 58.5%) rated the confidentiality of their healthcare services as good, with (n=84, 23.4%) rating it as average and only (n=4, 1.1%) rated it as poor

Table 4. 3: Perception of adolescents’ girls on the knowledge and attitude of contraceptives.

Statement		Frequency (N=359)	Percentage
My parents aware of the use of Contraceptives.	Yes	16	4.5%
	No	318	88.6%
	Not applicable	25	7.0%
I am able to discuss sexual issues with your parents.	Yes	31	8.6%
	No	328	91.4%
I would rank the effectiveness of the use of contraceptives.	Average	63	17.5%
	Good	105	29.2%
	Excellent	173	48.2%
	Not applicable	18	5.0%
I am able to discuss contraceptive methods with a health provider.	Yes	195	54.3%
	No	164	45.7%
I would rank the confidentiality of your health provider?	Poor	4	1.1%
	Average	84	23.4%
	Good	210	58.5%
	Excellent	61	17.0%

4.9. Institutional factors influencing the use of contraceptives

Clinics and community outreach initiatives were examined as institutional variables affecting Adolescent contraceptive usage. This study assessed adolescent girls' perceptions of institutional factors influencing their contraceptive use, focusing on clinics and community outreach programs. Table 4.4 shows that most respondents (n=114, 31.8%) strongly agreed that clinics were conveniently located for accessing contraceptives, while (n=109, 30.4%) disagreed. A small proportion indicated (n=6, 1.7%) neither agreed nor disagreed. A large majority (n=272, 75.8%) strongly agreed

that clinic staff were knowledgeable and helpful in providing contraceptive information, with (n=83, 23.1%) agreeing and (n=4, 1.1%) remaining neutral. While a significant number indicated (n=135, 37.6%) disagreed with the convenience of clinic hours, (n=75, 20.9%) agreed, and a small portion (n=10, 2.8%) strongly agreed. Over half (n=250, 69.6%) of respondents strongly agreed that community outreach programs were effective in providing information and access to contraceptives, with (n=82, 22.8%) agreeing and (n=19, 5.3%) disagreeing. Furthermore, (n=191, 53.2%) strongly agreed that outreach programs provided clear and accurate information, (n=155, 43.2%) agreed, and a small proportion (n=12, 3.3%) disagreed. The majority (n=284, 79.1%) strongly agreed that outreach programs made contraceptives more accessible, with (n=73, 20.3%) agreeing and (n=2, 0.6%) remaining neutral. Over half (n=206, 57.4%) strongly agreed that outreach programs created a comfortable environment for discussing contraceptives, (n=125, 34.8%) agreed, and (n=7, 1.9%) disagreed.

Table 4.4: Institutional factors influencing contraceptive use among adolescents' girls

Statement	SD	D	NAD	A	SA	Mean (SD)
Clinics offer a convenient location to access contraceptives.	27 7.5%	109 30.4%	6 1.7%	103 28.7%	114 31.8%	71.8 (51.2)
Clinics staff knowledgeable and helpful in providing information on different contraceptive methods.	0 0.0%	0 0.0%	4 1.1%	83 23.1%	272 75.8%	71.8 (117.4)
Clinic operating hours convenient for adolescents seeking contraceptives.	57 15.9%	135 37.6%	28 7.8%	75 20.9%	10 2.8%	61.0 (48.4)
Community outreach programs better mean to access contraceptives.	0 0.0%	19 5.3%	6 1.7%	82 22.8%	250 69.6%	71.4 (105.0)
Outreach programs provide clear and accurate information about contraceptives.	0 0.0%	0 0.0%	12 3.3%	155 43.2%	191 53.2%	71.6 (93.6)
Outreach programs make contraceptives accessible to adolescents who may not be able to go to clinics.	0 0.0%	0 0.0%	2 0.6%	73 20.3%	284 79.1%	71.8 (122.7)
Outreach programs create a comfortable environment for discussing contraceptives.	0 0.0%	7 1.9%	20 5.6%	125 34.8%	206 57.4%	71.6 (90.7)
Mean average response rate of institutional factors influenced adolescents' girls						70.1 (89.8)

Note: SD-Strongly disagree, D-disagree, NAD-Neither agree nor disagree, A-Agree, SA-Strongly agree.

4.10. Socio-demographic factors and use of contraceptives

Bivariate analysis and cross-tabulation were conducted to analyze the socio-demographic factors influencing contraceptive use among adolescents. The results are presented in Table 4.5 below. Bivariate analyses revealed a statistically significant association between adolescents' age and contraceptive use ($\chi^2 = 50.673$, p-value < 0.001). Most adolescents aged 18 years used contraceptives (82.2%) compared to those who did not (17.8%). Regarding education status, the majority of participants were still in school and used contraceptives (68.0%). However, a significant association was found between education status and contraceptive use ($\chi^2 = 5.474$, p-

value = 0.019). In terms of occupational level, most participants were unemployed and used contraceptives (87.9%) compared to those who did not (12.1%). Therefore, a significant association was found between occupational level and contraceptive use ($\chi^2 = 60.509$, p-value < 0.001).

Table 4.5: Association between socio-demographic factors of the respondents and use of contraceptives.

Variable		Use of contraceptives		χ^2 (P-value)
		Yes, n (%)	No, n (%)	
Age	15years	24 (54.5)	20 (45.5)	50.673 (<0.001)
	16years	29 (52.7)	26 (47.3)	
	17years	67 (100.0)	0 (0.0)	
	18years	74 (82.2)	16 (17.8)	
	19years	67 (65.0)	36 (35.0)	
Marital status	Single	254 (72.8)	95 (27.2)	0.038 (0.846)
	Cohabitate	7 (70.0)	3 (30.0)	
Residential	Informal settlement	112 (74.2)	39 (25.8)	0.701 (0.704)
	Location	93 (73.2)	34 (26.8)	
	Suburb	56 (69.1)	25 (30.9)	
Educational status	In-school	140 (68.0)	66 (32.0)	5.474 (0.019)
	Out of school	121 (79.1)	32 (20.9)	
Level of education	Primary education	15 (57.7)	11 (42.3)	4.821 (0.090)
	Secondary education	224 (73.0)	83 (27.0)	
	Tertiary	22 (84.6)	4 (15.4)	
Occupation	Employed education	5 (41.7)	7 (58.3)	60.509 (<0.001)
	Self-employed	11 (100.0)	0 (0.0)	
	Student	22 (84.6)	4 (15.4)	
	Learner	104 (62.7)	62 (37.3)	
	Unemployed	109 (87.9)	15 (12.1)	
	Contract/Casual worker	10 (50.0)	10 (50.0)	

4.11. Other factors and use of contraceptives

The other factors and use of contraceptives are those excluded in the socio-demographic factors. Bivariate analysis and cross-tabulation were done to analyze the association between other factors and use of contraceptives in the DREAMS project, Khomas Region. The results are shown in table 6 below. The bivariate analysis indicates that there was statistically significant difference between living arrangement among adolescents who use contraceptives ($X^2 = 17.604$, p-value = 0.003). Many adolescents who lived with one parent and used contraceptives (77.1%) compared to those who did not use contraceptives (22.9%). For contraceptive methods currently used, the majority of adolescents used male condoms (63.9%) against those who did not use male condoms (36.1%) as a method of contraceptive. Therefore, there was a significant association with contraceptive methods ($X^2 = 41.521$, p-value<0.001) among contraceptive users and non-users.

Table 4.6 further shows that most participants were not using contraceptives because of stigma and used contraceptives (23.8%) compared to those who did not use contraceptives (13.1%). There was a significant association with the reason for not using contraceptives ($X^2 = 77.88$, p-value<0.001) among contraceptives users and non-users. Among parents who knew their daughters were using contraceptives, most (77%) were unaware of which specific methods were being used, while 23% were unaware of any contraceptive use. Then, there was a statistical difference between parent who aware of using contraceptive among used contraceptives and those who did not used ($X^2 = 57.521$, p-values <0.001).

Table 4.6: Association between various factors of the respondents and contraceptive use

Variable		Use of contraceptive		χ^2 (P-value)
		Yes, n (%)	No, n (%)	
Living arrangement	Both parent	50 (69.4)	22 (30.6)	17.604 (0.003)
	One parent	84 (77.1)	25 (22.9)	
	Child headed household	10 (52.6)	9 (47.4)	
	Family Member	69 (78.4)	19 (21.6)	
	Boyfriend	24 (88.9)	3 (11.1)	
	Alone	24 (54.5)	20 (45.5)	
Method contraceptives currently used	Birth control pills	22 (100.0)	0 (0.0)	41.521 (<0.001)
	Male condom	172 (63.9)	97 (36.1)	
	Injectable	67 (98.6)	1 (1.5)	
Reason for not using contraceptives Injectable, implant, birth control pills	Influence	0 (0.0)	10 (100.0)	77.88 (<0.001)
	Myths/rumors	0 (0.0)	20 (100.0)	
	Partner/Family member	15 (93.8)	1 (6.3)	
	Side effects	0 (0.0)	36 (100.0)	
	Stigma	31 (23.8)	17 (13.1)	
Parents aware of Contraceptives	Yes	14 (87.5)	2 (12.5)	57.521 (<0.001)
	No	245 (77.0)	73 (23.0)	
	Not applicable	2 (8.0)	23 (92.0)	
Discussion sexual issues with your parents	Yes	22 (71.0)	9 (29.0)	0.051 (0.821)
	No	239 (72.9)	89 (27.1)	
Discussion contraceptive methods with health provider.	Yes	138 (70.8)	57 (29.2)	0.803 (0.370)
	No	123 (75.0)	41 (25.0)	

4.12. Logistic regression on factors that influence contraceptive use among adolescents

Binary Logistic Regression analysis was conducted to analyze the association between factors and the use of contraceptives among adolescents in the DREAMS project, Khomas Region. Table 4.7 shows the unadjusted univariate and adjusted multivariate odd ratios (OR) of the factors influencing the use of contraceptives. In adjusted multivariate analyses, adolescents aged 15 to 19 years were found to have increased

odd (OR = 0.859, 95% CI = 0.583 - 1.256) of using contraceptives. The odds of being in the informal settlement and using contraceptives were equally likely to use contraceptives (OR = 1.076, 95% CI = 0.371 - 3.119) as compared to those in location (OR = 2.173, 95% CI = 0.619 - 7.631) counterparts. For education status, participants who were in school had an increased odd (OR = 1.615, 95% CI = 0.239 - 10.892) of using contraceptives as compared to their counterparts. Per the occupational level, those who were unemployed had increased odd of using contraceptives (OR = 41.252, 95% CI = 1.614 - 105.312) as compared to those who were employed (OR = 3.38, 95% CI = 0.116 - 98.196) and student (OR = 3.38 95% = 0.116 - 98.196). However, this indicates that unemployed adolescents were more likely to use contraceptives as compared to other counterparts. With regards to living arrangements, those child-headed households had an increased odd (OR = 0.178, 95% CI = 0.012 - 2.582) of using contraceptives as compared to other counterparts (Table 4.7).

Parents who were aware of the use of contraceptives had an increased odd of using contraceptives (OR = 0.097, 95% = 0.017 - 0.573) as compared to those who had not. This reflects a good significant association with p-value of 0.010. In terms of discussing sexual issues, those who discuss sexual issues with their parents had an increased odd (OR = 0.104, 95% CI = 0.012 - 0.935) of using contraceptives as compared to those who have not. There was an indication of good association with a p-value of 0.043. For discussing contraceptive methods, those who discuss the contraceptive methods with their health provider come with an increased odd (OR = 1.813, 95% CI = 0.535 - 6.145) of using contraceptives as compared to those who have not (Table 4.7).

Table 4.7: Unadjusted univariate and adjusted multivariate odd ratios of the factors influence of contraceptives use among adolescent.

Variable	Unadjusted univariate		Adjusted multivariate	
	OR (95% CI)	P-value	OR (95% CI)	P-value
Age	0.863 (0.729 , 1.022)	0.087	0.859 (0.583 , 1.256)	0.442
Marital status (ref. cohabitate)				
Single	0.873 (0.221 , 3.444)	0.846	-	0.995
Residential (ref. suburb)				
Informal settlement	0.780 (0.430 , 1.415)	0.414	1.076 (0.371 , 3.119)	0.893
Location	0.819 (0.443 , 1.513)	0.523	2.173 (0.619 , 7.631)	0.226
Educational status (ref. Out of school)				
In-school	1.783 (1.095 , 2.902)	0.020	1.615 (0.239 , 10.892)	0.623
Level of education (ref. tertiary)				
Primary education	4.033 (1.078 , 15.086)	0.038	-	1.000
Secondary education	2.038 (0.682 , 6.090)	0.202	-	1.000
Occupational level (ref. contract/casual worker)				
Employed	10.17 (2.862 , 36.162)	<0.001	3.38 (0.116 , 98.196)	0.479
Self-employed	0.000 (0.000 , -)	0.999	-	0.998
Student	1.321 (0.400 , 4.362)	0.648	1.221 (0.361 , 4.133)	0.748
Learner	4.332 (2.320 , 8.091)	<0.001	-	0.994
Unemployed	7.267 (2.596 , 20.342)	<0.001	41.252 (1.614 , 105.312)	0.024
Living arrangement (ref. alone)				
Both parent	0.528 (0.243 , 1.148)	0.107	-	0.994
One parent	0.367 (0.170 , 0.751)	0.005	-	0.993
Child headed household	0.357 (1.080 , 3.175)	0.889	0.178 (0.012 , 2.582)	0.206
Family Member	0.330 (0.151 , 0.722)	0.005	-	0.994
Boyfriend	0.150 (0.039 , 0.572)	0.005	-	0.994
Parents aware of the use of Contraceptives (ref. No)				
Yes	0.479 (0.107 , 2.158)	0.338	0.097 (0.017 , 0.573)	0.010
Discussion sexual issues with parents (ref. No)				
Yes	1.099 (0.487 , 2.476)	0.821	0.104 (0.012 , 0.935)	0.043
Discussion of contraceptive methods with health provider (ref. No)				
Yes	1.239 (0.775 , 1.981)	0.370	1.813 (0.535 , 6.145)	0.339

4.13 Summary

This chapter presents the results on the socio-demographic factors, the use of contraceptives, current contraceptive use, the source of information about contraceptions for teens, the reasons teens don't use contraceptives, knowledge and attitude factors, how teenage girls feel about their knowledge and attitude towards contraceptives, institutional factors that influence the use of contraceptives, the link between socio-demographic factors and the use of contraceptives, and other factors.

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1. Introduction

This chapter compares the findings of the present study with those of other relevant research on factors influencing adolescents on the use of contraceptives in the DREAMS project within the Khomas Region, Namibia. By examining similarities, disparities, and gaps in the literature, this section aims to contribute to a deeper understanding of the factors influencing contraceptive use among adolescents. Considering relevance and brevity, only results that reveal significant findings will be discussed.

5.1.1. Socio-Demographic Characteristics of Respondents

Descriptive analysis was conducted to identify the demographic, social, and economic factors associated with contraceptive use among adolescents. The study found that most participants (193, 53.8%) were aged between 18 and 19 years old, which is in line with the findings of the study in Techiman Municipality Ghana, which found that most participants (150, 50.3%) were aged between 18 and 19 years old [74]. On the other hand, a study done at Atwima Kwanwoma District in Ashanti Region-Ghana revealed that more than half of the participants (105, 52.0%) were aged between 16 and 17 years old [37]. The study also revealed that 97.2% of participants were single. This is similar to the study conducted in Ghana, which reported that 93.3% of participants were single [74]. Another study identified that 37.5% of participants were cohabiting. This contradicted the findings [37]. The study further revealed most of the participants, 40% lived in informal settlements, 57.4% were still in school, and 85.5% had secondary education. These study's findings contradict the study done in

Ghana, which found that most participants, 68.1% lived in urban areas, 53.1% were out of school and 65% had completed basic education [74]. In addition, these findings also agree with a study done in Sunyani West District, University of Ghana, who found that most participants, 55.4% had secondary education [36].

Furthermore, the study also revealed that 46.2% of the participants were learners, which contrasts with a study done in Ghana, which found that the majority of participants, 29.0% were unemployed. Moreover, the study revealed that the majority of participants, 30.4% lived with one parent, which concurs with another study which identified that 78.4% of the participants lived with parents irrespective [36]. On the other hand, other studies found that most participants lived with both parents (57%) and lived with partners (40.5%), respectively [17] [37].

5.1.2. Use of contraceptives

The results of the study showed a small percentage of the participants (27%) had ever used contraceptives. This is not far lower than the findings of other studies done at Asella Preparatory School, Ethiopia and Atwima Kwanwoma District, Ashanti Region-Ghana, respectively [75] [37].

5.1.3. Current Contraceptive method(s) used

Among participants who used contraceptives, the study found that male condoms were the most widely used method (75%) followed by injectable (19%), and birth control pills were the least used method (6%). This finding is similar to another study that assessed the knowledge of contraceptive methods among adolescents that revealed male condoms were the most common contraceptive method (82%) [17].

5.1.4. Source of contraceptives

As per accessing contraceptives, the study found that 65.2% of adolescents accessed contraceptives from DREAMS clinics, 18.4% from government clinics, 10.3% from community outreach programs, 3.3% from pharmacies and 2.5% school outreach programs. Another study contradicts the findings that the majority of adolescents (62.1%) reported accessing contraceptives from the pharmacy and the chemical seller's shops and only few adolescents (3.6% of males and 4.9% of females) accessed their contraceptives from healthcare facilities [17].

5.1.5. Source of Contraceptives Information

Regarding sources of contraceptives information, 81.1% reported they had from media, 28.4% from health workers, 20.9% from friends and peers, 18.1% from media, 16.2% from community care workers, 13.4% from sex education, and 3.1% from parents/guardians. A similar study reported that 28.5% of the participants had information from media, followed by health facilities (23.5%) [37].

5.1.6. Reason why not using contraceptives

For the reasons why adolescents not using contraceptives, the results revealed that majority (37%) indicated stigma, (28%) side effects, Myths and rumors (15%), partners or family members (12%) and other influences (8%). Several studies concur with the findings of this study [17] [37].

5.1.7. Knowledge and Attitude factors of Contraceptives use

Knowledge and attitude factors of contraceptive use were examined, it revealed that most participants agreed; (40.4%) were familiar with different types of contraceptive

methods, (34.8%) understood the effectiveness of contraceptives, (31.2%) understood how to use different contraceptive methods correctly, (80.2%) knowing where to obtain contraceptives if needed, (35.7%) regarding awareness of potential risks and side effects, (57.4%) their knowledge of contraceptives influenced their decision to use them, and (53.2%) their attitudes towards contraceptives affected their use. This finding differs from a study done in Ibadan, Nigeria which assessed the attitude of healthcare providers towards providing contraceptives to unmarried adolescents, which found that healthcare providers had negative attitudes towards the provision of contraceptives to unmarried adolescents as 57.5% of the health care providers had the opinion that use of contraceptives among the adolescents promotes sexual promiscuity [76] [74].

5.1.8. Institutional factors influencing the use of contraceptives

Institutional factors influencing contraceptive use were surveyed, focusing on clinics and community outreach programs. The results found that most respondents (n=114, 31.8%) strongly agreed that clinics were conveniently located for accessing contraceptives, (n=272, 75.8%) strongly agreed that clinic staff were knowledgeable and helpful in providing contraceptive information, (n=250, 69.6%) of respondents strongly agreed that community outreach programs were effective in providing information and access to contraceptives, (n=191, 53.2%) strongly agreed that outreach programs provided clear and accurate information, (n=284, 79.1%) strongly agreed that outreach programs made contraceptives more accessible, and (n=206, 57.4%) strongly agreed that outreach programs created a comfortable environment for discussing contraceptives. These findings contradict a study done in Ramshahpath,

Kathmandu, Nepal, which identified that the service hours, distance and location of the service center were the perceived challenges in getting services by adolescents[82].

5.1.9. Socio-demographic factors and use of contraceptives

A bivariate analysis was conducted to analyze the socio-demographic factors associated with contraceptive use among adolescents. The study findings revealed that education status, living arrangement, method of contraceptives, the reason why not using contraceptives, being unemployed, having parents who are aware of the use of contraceptives and adolescents discussing sexual issues with their parents were found to be significantly associated with contraceptive use. These findings align with those found in other studies [62] [108]. As predicted by the conceptual framework, education, living arrangements, employment, and parental communication were found to impact contraceptive use.

5.1.10. Other factors and use of contraceptives

A bivariate analysis was examined to analyze the other factors associated with contraceptive use among adolescents. The results found that there was statistically significant difference between participants who were living with one parent and contraceptives use ($X^2 = 17.604$, p-value = 0.003). These findings contradict a study done in Ghana which reported that participants who were staying with both parents were found to be associated with contraceptive use with their p-values of 0.002. On the other hand, another study reported that participants who were living with both parents found to be not associated with contraceptive use with their p-value of 0.57 [17]. For contraceptive methods currently used, the results revealed that contraceptive methods, mostly condom, found to be significantly associated with contraceptive use

($X^2 = 41.521$, $p\text{-value} < 0.001$), which is in line with a study done in Kenya found that contraceptive methods, mostly condoms, were associated with contraceptive use [118]. As per the reason not using contraceptives, the results further revealed that reason not using contraceptive found to be significantly associated with contraceptive use ($X^2 = 77.88$, $p\text{-value} < 0.001$). These findings contradict the study done in at Guttmacher Institute in New York [119], which reported that it was the most common reason the women gave for not using contraception and there was no significant variation in the proportions of women who cited this reason. For parents who knew that their adolescent girls were using contraceptives, the results revealed that parents who aware of using contraceptive among used contraceptives were found to be significantly associated with contraceptive use ($X^2 = 57.521$, $p\text{-values} < 0.001$).

5.1.11. Logistic regression on factors that influence contraceptive use among adolescents

Binary Logistic Regression analysis was conducted to analyse the association between factors and the use of contraceptives among adolescents in the DREAMS project, Khomas Region. The study result indicated participants who were living in informal settlements were equally likely to use contraceptives (OR = 1.076, 95% CI = 0.371 - 3.119) as compared to those in location (OR = 2.173, 95% CI = 0.619 - 7.631) counterparts. For education status, participants who were in school had an increased odd (OR = 1.615, 95% CI = 0.239 - 10.892) using contraceptives as compared to their counterparts. Per the occupational level, those who were unemployed had increased odd of using contraceptives (OR = 41.252, 95% CI = 1.614 - 105.312) as compared to those who were employed (OR = 3.38, 95% CI = 0.116 - 98.196) and student (OR = 3.38 95% = 0.116 - 98.196). However, this indicates that unemployed adolescents were

more likely to use contraceptives as compared to other counterparts. With regards to living arrangements, the results furthermore revealed that those children's head household had a decreased odd (OR = 0.178, 95% CI = 0.012 - 2.582) of using contraceptives as compared to other counterparts which is contrary to a study done in Sunyani West District, which found that participants who lived alone had an increased odd (OR=2.63, 95% CI = 0.90 – 7.66) of using contraceptive as compared to other counterparts [61].

Parents who were aware of the use of contraceptives had an increased odd of using contraceptives (OR = 0.097, 95% = 0.017 - 0.573) as compared to those who had not. This reflects a good significant association with p-value of 0.010. In terms of discussing sexual issues, those who discuss sexual issues with their parents had an increased odd (OR = 0.104, 95% CI = 0.012 - 0.935) of using contraceptives as compared to those who have not. There was an indication of good association with a p-value of 0.043. For discussing contraceptive methods, those who discuss the contraceptive methods with their health provider come with an increased odd (OR = 1.813, 95% CI = 0.535 - 6.145) of using contraceptives as compared to those who have not.

5.2. Conclusion

This study investigated contraceptive use among 359 adolescents in Khomas Region, Namibia. Findings reveal that most participants were young, single, and lived in informal settlements. Many lacked parental support and faced challenges accessing healthcare. Among respondents who use contraceptives, condom was the method mostly used and the healthcare worker was cited as the most common source of information on contraceptives, and lack of parental awareness was a barrier to use. Despite good knowledge of contraceptives, correct use and open communication with parents were lacking. Outreach programs were effective in providing information and access to contraceptives. These findings highlight the need for tailored interventions, comprehensive sex education, improved healthcare access, and open communication to promote contraceptive use among adolescents. Contraceptive use among adolescent girls exhibits strong significant association, even though some demographic, institutional and other factors were not associated with contraceptive use.

5.3. Recommendation

It is imperative to expand adolescent knowledge of contraceptive methods beyond male condoms to include options such as oral contraceptives and hormonal injections. This approach offers adolescents a broader range of choices, particularly for females who may face challenges in negotiating condom use. Furthermore, developing and implementing culturally sensitive interventions tailored to the specific needs of adolescent girls in the Khomas Region is crucial. These interventions should consider factors such as living arrangements, socioeconomic status, and educational level.

Additionally, integrating comprehensive sexuality education into school curricula and youth programs is essential. This education should provide accurate information on contraception, including methods, risks, and benefits, as well as address topics like healthy relationships, communication skills, and body image. Encouraging open communication between parents and adolescents regarding sexual health is vital. Programs designed to equip parents with the knowledge and skills to engage in constructive conversations with their children about sexuality and contraception should be developed and implemented.

Improving the accessibility and convenience of healthcare services for adolescents is essential. This may involve extending clinic hours, offering mobile health services, and ensuring healthcare providers are adequately trained to address the specific needs of the adolescents. Implementing strategies to combat the stigma and misinformation surrounding contraceptives is crucial. This may involve media campaigns, educational materials, and peer education programs. These recommendations aim to enhance access to contraceptives, promote positive attitudes towards contraception, and increase contraceptive use among adolescent girls in the Khomas Region.

Further research is needed to explore the specific reasons for non-use of contraceptives among different subgroups of adolescents. Research can be done to explore the reasons behind responses given by adolescents to understand how this could influence their behavior towards contraceptive use, using qualitative methods since this study employed quantitative methods.

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APPENDIX

Appendix 1: Ethical Clearance Certificate



ETHICAL CLEARANCE CERTIFICATE

Ethical Clearance Reference Number: DEC OSH 0120 **Date:** 29/05/2024

This Ethical Clearance Certificate is issued by the University of Namibia Ethics Committee (REC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines. Ethical approval is given in respect of undertakings contained in the Research Project outlined below. This Certificate is issued on the recommendations of the ethical evaluation done by the ethics committee.

Title of Project: FACTORS THAT INFLUENCE ADOLESCENTS ON THE USE OF CONTRACEPTIVES IN THE DREAMS PROJECT, KHOMAS REGION NAMIBIA

Principal researcher: SIMANEKA EMBULA

Staff Number/ Student number: 201113996

Remarks: Low Risk and Approved with minor corrections

Centre for Research Services

Take note of the following:

1. Any significant changes in the conditions or undertakings outlined in the approved Proposal must be communicated to the ethics committee. An application to make amendments may be necessary.
2. Any breaches of ethical undertakings or practices that have an impact on ethical conduct of the research must be reported to the ethics committee.
3. The Principal Researcher must report issues of ethical compliance to the ethics committee (through the Chairperson) at the end of the Project or as may be requested by the ethics committee.
4. The ethics committee retains the right to:
 - i) Withdraw or amend this Ethical Clearance if any unethical practices (as outlined in the Research Ethics Policy) have been detected or suspected,
 - ii) Request for an ethical compliance report at any point during the course of the research.

The ethics committee wishes you the best in your research.


A handwritten signature in black ink, appearing to read "Hans J Amukugo".

Prof Hans J Amukugo (Oshakati Campus Chairperson Decentralized Ethics Committee)

A handwritten signature in black ink, appearing to read "Davis Mumbengegwi".

Prof. Davis Mumbengegwi (Head, Multidisciplinary Research)

Appendix 2: Letter of granted permission


REPUBLIC OF NAMIBIA

MINISTRY OF HEALTH AND SOCIAL SERVICES
OFFICE OF THE EXECUTIVE DIRECTOR

Ministerial Building
Harvey Street
Private Bag 13198, Windhoek

Tel: No. 061-203 2507
Fax No. 061-222 558
Andreas Shipanga@mhss.gov.na

Ref: 22/4/2/3
Enquiries: Ms. C. Narib

Date: 12 June 2024


Ms. Simaneka Embula
PO Box 64094
Wanaheda
Windhoek

Dear Ms. Embula


Re: Factors that influence adolescents on the use of contraceptives in the dreams projects, Khomas Region, Namibia.

1. Reference is made to your application to conduct the above-mentioned study.
2. The proposal has been evaluated and found to have merit.
3. **Kindly be informed that permission to conduct the study has been granted under the following conditions:**
 - 3.1 The data to be collected must only be used for academic purpose;
 - 3.2 No other data should be collected other than the data stated in the proposal;
 - 3.3 Stipulated ethical considerations in the protocol related to the protection of Human Subjects should be observed and adhered to, any violation thereof will lead to termination of the study at any stage;
 - 3.4 A quarterly report to be submitted to the Ministry's Research Unit;
 - 3.5 Preliminary findings to be submitted upon completion of the study;
 - 3.6 Final report to be submitted upon completion of the study;
 - 3.7 Separate permission should be sought from the Ministry for the publication of the findings.
4. All the cost implications that will result from this study will be the responsibility of the applicant and **not** of the MoHSS.

Yours sincerely,


BEN NANGOMBE
EXECUTIVE DIRECTOR

All official correspondence must be addressed to the Executive Director



Appendix 3: Assent Agreement Text for Parents or Guardians of Adolescent Girls Aged 15-19.



Introduction

My name is Simaneka Penelago Embula, and who is a master's student from the School of Public Health at the University of Namibia. We are interviewing girls like your child under your guardianship between the ages of 15 and 19 years, who live in Windhoek to answer some questions to determine factors that influence adolescents on the use of contraceptives in DREAMS project Khomas Region, Namibia. I'm, therefore, seeking permission from you to ask your girls under your guardianship question. Participation in this study is entirely voluntary. You can choose whether or not to be in this study. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind.

- The purpose of the study is to assess potential factors that influence adolescents on the use of contraceptives in the DREAMS project Khomas Region.

The study will benefit the region by identifying the factors that influence adolescent girls on the use of contraceptives in the DREAMS project for improvement and development purposes. The results of the study may be published but your name will not be revealed, and no individual identification information will be provided. All the information from the study will be confidential and safe.

Do you agree for your child under your guardianship to respond to these questions?

YES

NO


Please do not write your name on the questionnaire.

Signature of Parent /Guardian..... Date.....

Signature of the Participate.....

Right thumb of the Participant's print

Appendix 4: Questionnaire

QUESTIONNAIRE	
<p>Dear Participant</p> <ol style="list-style-type: none">1. My name is Simaneka Penelago Embula, student number 201113996. I am studying towards a Masters of Public Health degree at the University of Namibia (UNAM), and I am conducting a study to assess potential factors that influence adolescents on the use of contraceptives in the DREAMS project, Khomas Region Namibia.2. I have selected you to participate in my study, because you belong to the group of people I want to include for my research. I would therefore like to invite you to complete this questionnaire.3. The research I am conducting has been approved by the UNAM Research Ethics Committee. I would appreciate it very much if you would complete this questionnaire, and I would like to assure you of the following:<ol style="list-style-type: none">a. You do not have to fill in this questionnaire if you do not want to.b. You can stop filling in the questionnaire and stop participating at any time if you want, and there will be no negative consequences.c. Your participation is completely anonymous. This means that, even if I ask for information that might identify you or if I know you, I am not allowed to make your identity known to anyone. When I report on my questionnaires' data and results, I will not mention any personal information about participants that might identify them.d. All completed questionnaires and data will be stored in a safe and secure place and only authorized University officials, my supervisor and I will have access to it. After five years, all the questionnaires and data will be destroyed in an environmentally friendly way.4. If you have any questions about this questionnaire, or if you do not understand anything, please feel free to ask me, and I will be happy to explain it to you.5. If you want to know more about the research I am doing, please feel free to ask me, and I will be happy to tell you more.6. It should take about 10-15 minutes for you to complete the questionnaire.7. You can reach me on my cell phone at 0813768957 or send an e-mail to penelagoembula@gmail.com.8. If you want to contact the UNAM Centre for Research Services for more information or because you have a comment or complaint about this research or about me, please call (+ 264 61) 206 4673, or write an e-mail to research@unam.na. Please provide specific information.9. Thank you very much for your willingness to participate in this research!	

Please detach this page and keep it.

Please turn over to start filling in the questionnaire.

Please do not put your name on this questionnaire; we wish to retain your anonymity. Check the following items that apply to you: Please mark your appropriate response with an x in the box with numbers. Mark one box only

Section 1: Demographics Information

1.1 How old are you?

- 15
- 16
- 17
- 18
- 19

1.2 What is your Marital status?

- Single
- Married
- Widowed
- Cohabiting
- Refused

1.3 What is your Residential status?

- Suburb
- Location
- Informal settlement
- Village

1.4 What is your educational status?

- In-school
- Out of school
- None

1.5 What is your level of education?

- Primary education
- Secondary education
- Tertiary education
- None

1.6 What is your occupational level?

- Employed
- Self-employed
- Student
- Domestic worker
- Unemployed
- Contract/Casual worker

1.7 What are your current living Arrangements?

- Both parent
- One parent
- Child headed household
- Husband/Boyfriend
- Alone

Section 2: Contraceptive Use

2.1 Are you currently using contraceptives?

- Yes
- No

2.2 What method of Contraceptive are you currently using? (If None please go to question 2.4)

- Birth Control Pills
- Emergency pills
- Patch
- Female condom
- Male condom
- Traditional method
- Injectable
- Implant
- IUD
- None
- Refused

2.3 Where do you usually obtain your contraceptive

- DREAMS Clinics
- Community outreach program
- School outreach program
- Government Clinics
- University health based clinics

2.4 Where do you get information about contraception?

- Healthcare Professional (doctor,nurses)
- School/Sex education program
- Parents/Guardians.
- Friends/Peers.
- Media(TV,radio,Internet)
- Community care workers.
- Other (Please Specify)

2.5 Have you ever used contraceptives in the past?

- Yes
- No

2.6 What is your reason for not using contraceptives?

- Not aware
- Not sexually active
- Myths and rumors about contraceptive.
- Stigma
- Religious/Traditional beliefs
- Partner or family member
- Influence
- Distance from health facility
- Health provider attitude
- Side effect

Section 3: Knowledge and attitude about Contraceptives

3.1 Understanding of Different Contraceptive Methods: I am familiar with different types of contraceptive methods (e.g., pills, condoms, IUDs, etc.)

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

3.2 Effectiveness of Contraceptives: I know how effective different contraceptive methods are in preventing pregnancy.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

3.3 Correct Use of Contraceptives: I understand how to correctly use various contraceptive methods.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

3.4 Sources of Contraceptives: I know where to obtain contraceptives if I need them.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

3.5 Risks and Side Effects: I am aware of the potential risks and side effects associated with different contraceptive methods.

- Strongly disagree
- Disagree.
- Neutral
- Agree
- Strongly agree

3.6 Impact of Knowledge on Use: My knowledge about contraceptives influences my decision to use them.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

3.7 Influence of Attitudes on Use: My attitudes towards contraceptives affect whether I use them.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

3.8 Are your parents aware of the use of Contraceptives?

- Yes
- No

3.9 Are you able to discuss sexual issues with your parents?

- Yes
- No

3.10 How would you rank the effectiveness of the use of contraceptives?

- Excellent
- Good
- Average
- Poor

2.10 Are you able to discuss contraceptive methods with a health provider

- Yes
- No

2.11 How would you rank the confidentiality of your health provider?

- Excellent
- Good
- Average
- Poor

Section 3: Institutional modalities

3.1 Where do you prefer getting contraceptive services?

- Clinics
- Community outreach
- School outreach
- University-based

3.2 Using a scale of / 1= Strongly disagree / 2= Disagree / 3=Neutral / 4=Agree / 5=Strongly agree /

	1	2	3	4	5
Do clinics offer a convenient location to access contraceptives?					
Are clinic staff knowledgeable and helpful in providing information on different contraceptive methods?					
Is clinic operating hours convenient for adolescents seeking contraception?					
Is the privacy of your information respected during clinic visits for contraceptives?					
Are community outreach programs better means to access contraceptives?					
Do outreach programs provide clear and accurate information about contraceptives?					
Do outreach programs make contraceptives accessible to adolescents who may not be able to go to clinics?					
Do outreach programs create a comfortable environment for discussing contraceptives?					
Do University health clinics offer a discreet way to access contraception?					
Are University health clinic staff approachable and non-judgmental when discussing contraceptives?					
Does having contraceptive services available at school encourage safe sex practices among adolescents?					