

**Correlates of dual method
contraception among adolescent girls in
Ratlou
Local Municipality, South Africa**

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DECLARATION

I, Boitshwarelo Keselwetse Mirriam Ngake, declare that this thesis is my original work. I have acknowledged the sources of information used in the study. It is being submitted for the degree of Doctor of Philosophy in Population Studies at North-West University. To the best of my knowledge, it has not been submitted for examination to this or any other university.

Signature

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Date

February 2023

DEDICATION

I dedicate this achievement to a woman, Ms Mpho Rinah Pitso, who saw it fit to assist me with my first-year registration; the candle you lit in 2007 is still burning. I worked so hard, against all odds, to ensure that the candle you lit is not extinguished. Thank you Ms Mpho Rinah Pitso.

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ABSTRACT

South Africa, compared to other countries in sub-Saharan Africa, has done remarkably well in reducing the total fertility rate. The change in population indicators, such as fertility and mortality, ultimately affects development planning. The sexual and reproductive behaviour of adolescents plays an important role. The alarming increase in the rate of adolescent pregnancy, especially in Ratlou Local Municipality in North West Province, prompted the study of the correlates of dual method contraception among adolescent girls.

The study was conducted in Ratlou Local Municipality situated in North West Province, South Africa. A cross-sectional study was conducted among 462 adolescent girls irrespective of their school attendance status. The focus of the study was adolescent pregnancy. The study used multistage sampling procedures. Simple random sampling was used at the first stage, stratification sampling proportional to size at the second stage, and systematic sampling at the third stage. The participants were informed about the purpose/objective of the study, the time needed, and the importance of consent. Participants aged 18 years or above were given the consent form to fill in, and the consent for minors (13–18 years) was obtained from their parents. A structured questionnaire was used for the collection of data, captured in Microsoft Excel and exported to Stata version 16 for analysis purposes.

The binary logistic model was used to examine the relationship between socio-demographic factors and dependent variables, namely contraceptive use at first sex, dual method contraception knowledge, and dual method contraception use. Chi-square at $p < 0.05$ was used to determine significant differences.

The findings of the study showed that relationship status, age at first sex, employment status of the head of household, and village of residence were significant predictors of contraceptive use at first sex amongst respondents. Christian denomination, relationship status, age at first sex, contraceptive use at first sex, and the village of residence were significant predictors of dual method contraception knowledge amongst the respondents. Age of the respondent, sex of head of household, contraceptive use at first sex, ever fallen pregnant and village of residence were the significant predictors of dual method contraceptive use among adolescent girls.

Generally, the use of contraceptives was low, whether contraceptive use at first sex or dual method contraception. It is still necessary to promote contraceptive use and educate young people about dual method contraception. Furthermore, young people should be taught more about the impact of early childbearing on their personal development, and the whole country's economic development.

Keywords: dual method contraception, adolescent girls, adolescent pregnancy rate

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ABBREVIATIONS/ACRONYMS

AIDS	: Acquired Immunodeficiency Syndrome
AOR	: Adjusted Odds Ratio
ART	: Anti-Retroviral Therapy
CI	: Confidence Interval
DMC	: Dual Method Contraception
EWEC	: Every Woman Every Child
HBM	: Health Belief Model
HIV	: Human Immunodeficiency Virus
HSS-REC	: Human Social Sciences Research Ethics Committee
IUDs	: Implants and Intrauterine Devices
LARC	: Long-Acting Reversible Contraceptive
NARHS	: National HIV/AIDS and Reproductive Health Survey
NGO	: Non-Governmental Organisation
SADHS	: South Africa Demographic and Health Survey
SD	: Standard Deviation
SLT	: Social Learning Theory
SRH	: Sexual and Reproductive Health
STATS SA	: Statistics South Africa
STD	: Sexually Transmitted Diseases
STI	: Sexually Transmitted Infections
TFR	: Total Fertility Rate
TPB	: Theory of Planned Behaviour
UNFPA	: United Nations Population Fund
UNICEF	: United Nations International Children's Emergency Fund
VIF	: Variance Inflation Factor
WHO	: World Health Organisation

CHAPTER 1: INTRODUCTION

1.1 Background to the study

Stakeholders and policymakers concerned with adolescents' reproductive lifestyles in South Africa have increasingly given attention over the years to dual contraception (Department of Health, 2012). The use of contraception is essential to the personal, social, and economic development of women, since it reduces the risk of maternal mortality, and unwanted pregnancy, increases child spacing thus limiting the number of children, and, to a large extent, prevents sexually transmitted infections (STIs). This increased attention is because adolescents' sexual and reproductive health is one of the prioritized human development indicators set on a global agenda. Therefore, the United Nations Population Fund (UNFPA) and the World Health Organization (WHO) for the Adolescent Working Group developed a Technical Guidance for Prioritizing Adolescent Health (EWEC, 2017). The collaborative evidence that emanated from the UNFPA and WHO summary report indicated that adolescent girls worldwide are faced with unwanted pregnancies, unsafe abortions, and a high-level of risk of STIs (EWEC, 2017).

Contraception is defined by Shah (2010) as a device or medication used for reducing the likelihood of the fertilization of an ovum by a spermatozoon. In brief, contraception is a method or device used to prevent pregnancy. The United States Department of Health and Human Services (2018) outlined all the different methods of contraception, as well as their degree of effectiveness. Implants, intrauterine devices, and male and female sterilization are the most effectively rated methods of contraception, at less than 1 pregnancy per 100 women in a year. Fertility-based methods such as calculating using the menstrual cycle or calendar, and spermicides, are the least effective methods, estimated at 18 or more pregnancies per 100 women in a year (United States Department of Health and Human Services, 2018). None of these methods are 100% safe, as indicated by the United States Department of Health and Human Services (2018). Given the level of effectiveness of these methods of contraception, the dual method becomes necessary to achieve good health and so avoid unintended pregnancies and STIs, as well as HIV/AIDS infection.

Lemoine *et al.* (2016) defines dual method contraception (DMC) as the use of highly effective hormonal contraceptives commensurately with condoms. There are various ways in which dual protection can be achieved: (i) through the use of a male or a female condom alone, or by the use of a condom along with a non-barrier contraceptive, (ii) by the use of effective contraception in the context of long-term mutual monogamy. This study adopted the working definition of DMC given by Lemoine *et al.* (2016), especially as it emphasizes the use of condoms with other contraceptive methods. This approach has the benefits of preventing unintended pregnancy and sexually transmissible infections (Lemoine *et al.*, 2016; Higgins & Cooper, 2012).

The World Health Organization (2018a) gives an encompassing definition of adolescents as persons in the age cohort of between 10 and 19 years. This age group is usually characterized by the transition from childhood to adulthood, which involves developmental changes in body structure and brain function which, in turn, causes the desire for starting relationships and engaging in sexual activities. Consequently, this group of individuals make decisions that have a long-term impact on their sexual and reproductive health (UNICEF, 2016). Adolescents account for 16% (1.2 billion) of the global population, with the highest percentage (23%) representation in the sub-Saharan African region (UNICEF, 2018). Furthermore, UNFPA (2018) provided evidence that 20, 000 girls younger than 18 years of age, give birth every day in developing countries, adding to the annual births of 7.3 million. Adolescents' perceptions and attitudinal dispositions towards the use of contraceptives have remained a global challenge. However, developing nations, particularly those in sub-Saharan Africa, are the most vulnerable (Darroch, 2016).

Evidence abounds that 23 million adolescent girls between the ages of 15 and 19 years, who are sexually active and want to delay childbearing by at least two years, indicated that they were not using any modern contraceptives (Darroch, 2016). This implies that the developing regions, especially in Africa, are still faced with the challenge of having an unmet need for contraception, which will consequently lead to unintended pregnancy and an increased risk of contracting STIs. In South Africa,

about 51% of female adolescents (15–19 years) reported an unmet need for contraception (Chersich *et al.*, 2017). Based on the foregoing background, this study intends to investigate the knowledge, practice, and attitudes of DMC among adolescent girls in the Ratlou Local Municipality, North West Province, South Africa.

1.2 Statement of the problem

The use of dual method contraception amongst adolescents is becoming an increasing global challenge for the population and for the reproductive health-related sectors in South Africa. Teenage pregnancy is an area of concern across countries and invariably relates to negative social issues such as poverty, school failure and dropout, child abuse and neglect, reproductive health and mental health issues, and a decline in the economy. Evidence abounds that South Africa is one of the countries globally that have prioritized the use of contraceptives for the reduction of total fertility (Department of Health, 2012). The total fertility rate (TFR) in South Africa has decreased rapidly, from 6 to 2.2 children per woman in 1960 and 2014 respectively (Central Intelligence Agency, 2018). Currently, South Africa has a TFR of 2.41 (Statistics South Africa 2017). This decline in the birth rate has also contributed positively to the maternal mortality rate, as it has decreased from 160 to 140 per 100 000 live births in 2005 and 2013 respectively (WHO, 2014: 42). Moreover, the SADHS 2016 findings have shown that almost 100% of women and men have heard of at least one modern method of contraception (National Department of Health *et al.*, 2019:93). Further, the SADHS 2016 report indicates that injectables (25%) and male condoms (16%) are the most commonly used methods; 18% of sexually active women use injectables for a 3-month period and 7% use injectables for a 2-month period (National Department of Health *et al.*, 2019:93)

However, the results of the South African National HIV Prevalence, Incidence and Behaviour Survey 2012, revealed that the use of condoms has decreased, and the correct and consistent use is also low (Shisana *et al.*, 2014). According to Statistics South Africa (2017), 28% of girls aged 19 years had begun childbearing, and 9.3% of these girls had not completed their primary education. The 2016

community survey results indicated that 437 teenagers aged 12 years had given birth to at least one child (Statistics South Africa, 2017). Ratlou Local Municipality was trending on media in 2016 due to the increasing rates of adolescent pregnancy. In Mareetsane, Setlagole, Madibogo and other villages of Ratlou Local Municipality, 1800 girls younger than 18 years of age were mothers or were pregnant (UNFPA, 2016). Although it may be conceded that this outcome may be expected from sexually active adolescents because they tend to indulge in sexually risky behaviour, the risk of unexpected outcomes, such as unintended pregnancy, may have been significantly reduced with the use of contraceptives.

The high incidence of unplanned pregnancy among adolescents in Ratlou Local Municipality may be attributed to the perception of and attitude towards the use of contraceptives. In addition, personal and demographic characteristics have been shown to influence the use of contraceptives, including DMC. Although there is a dearth of studies around this topic in South Africa, the few studies that have been conducted have not deviated from each other in terms of the definition and application of the means of dual method contraception (Morrone *et al.*, 2006; Seutlwadi *et al.*, 2012; Raifman *et al.*, 2014; Toska *et al.*, 2020). Rural areas are often neglected when it comes to studies around DMC; some studies have tended to focus on urban areas or at the provincial or national levels (Peltzer *et al.*, 2010; Galárraga *et al.*, 2018; Kaida *et al.*, 2010). There is still a need to conduct studies on dual method contraception (DMC) among adolescent girl in South Africa until the rate of adolescent pregnancy is reduced to less than 1% (National Department of Health *et al.*, 2019:69).

1.3 Main objective of the study

The main objective of the study is to determine the correlates of dual method contraception among adolescent girls in the Ratlou Local Municipality in the North West Province, South Africa.

1.3.1. Specific objectives of the study

The study aims to achieve the following specific objectives:

- To assess the level of dual method contraceptive use among adolescent girls in the Ratlou Local Municipality.
- To examine the influence of socio-demographic factors on contraceptive use at first sex among adolescent girls in the Ratlou Local Municipality.
- To investigate the relationship between socio-demographic factors and knowledge of dual method contraception among adolescent girls in the Ratlou Local Municipality.
- To assess the influence of socio-demographic factors on the use of dual method contraception among adolescent girls in the Ratlou Local Municipality.

1.4 Research questions

The study aims to answer the following research questions:

- What is the level of dual method contraceptive use among adolescent girls in the Ratlou Local Municipality?
- What is the influence of socio-demographic factors on contraceptive use at first sex among adolescent girls in the Ratlou Local Municipality?
- What is the relationship between socio-demographic factors and knowledge of dual method contraception among adolescent girls in the Ratlou Local Municipality?
- What is the influence of socio-demographic factors on the use of dual method contraception among adolescent girls in the Ratlou Local Municipality?

1.5 Significance of the study

The focus of the research study is concentrated on DMC, so the outcome can contribute to new insights in the field of population studies and public health in the context of developing countries, particularly South Africa. Preliminary literature reviewed in this study has shown that this concept of dual method contraception is not as common in South Africa and other developing countries as in developed countries, yet the occurrence of adolescents' pregnancy and the general fertility rate is known to be higher. The study intends to address some of the concerns outlined in the 1998 Population Policy for South Africa through sharing results with the Department of Social Development, Department of Health, non-governmental organizations (NGOs) and other interested parties so that they can develop advocacy and capacity building programmes on DMC. Moreover, the researcher envisages that the study will create awareness of DMC during the data collection process.

1.6 Scope of the study

The study was conducted in Ratlou Local Municipality of the Ngaka Modiri Molema District in the North West Province of South Africa. In 2019, Ratlou Local Municipality had the highest TFR of 4.8 in North West Province, according to Palamuleni (2019), and as such the municipality attracted the attention of South Africa's Parliament and UNFPA (UNFPA, 2016). The participants were female adolescents aged between 13 and 19 years, irrespective of their current school attendance status.

1.7 Organisation of the study

This study is organised into seven chapters. Chapter one presents the background of the study, statement of the problem, objectives of the study, research questions and significance of the study. Chapter two presents the literature relevant to the topic under study, including the theoretical framework. Chapter three discusses the methods used to address study objectives. The chapter is

subcategorised into research design, study area, target population, sampling procedure and sample size, method of data collection and analysis, the scope of the study, and ethical considerations. The fourth chapter presents the findings of the determinants of contraceptive use at first sex. Chapter five gives the results of the knowledge of dual method contraception. The last analytical chapter, chapter six, focuses on the use of dual method contraception. Chapter seven provides the discussion of findings, conclusions, and recommendations.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This section explores the literature on the use of DMC and theories related to the research topic. Dual method use, or the simultaneous use of contraception, is the use of two contraceptive methods to prevent pregnancy and reduce the risk of sexually transmitted infections (STIs). This can be achieved through the adoption of responsible sexual behaviour including abstinence, consistent condom use, or the dual method use of condoms plus an effective non-barrier contraceptive (Workowski & Berman, 2015).

2.2. Socio-demographic factors and use of dual method contraception

Numerous research studies have examined the relationships between personal characteristics such as age, education, frequency of coitus, and the use of single method and DMC among sexually active adolescent females. The findings associate adolescent female socio-demographic factors with DMC use. Tyler *et al.* (2014) explored sexual intercourse frequency and factors associated with decreased odds of dual method use or non-use in a sample of 2,093 unmarried adolescent females in the USA. The researchers found that 20.7% of respondents used dual methods at the time of their last coitus, 34.4% used condoms alone, 29.1% used hormonal contraception or an intrauterine device alone, and 15.8% used nothing at all. The results further showed a significant and positive association between sexual debut before age 16, a previous pregnancy, and no health insurance coverage in the last 12 months.

Results of the study by Osuafor and Maputle (2017) revealed a non-significant association between education and DMC use, suggesting that both factors may not be strongly associated among sexually active adolescents. Similarly, Vazquez-Rodriguez *et al.* (2018) investigated the relationship of family, personal, and social factors associated with the non-use of any contraceptive method at sexual

debut in a large sample of 1,409 adolescent females. Results showed that the most significant risk factors for non-use of contraceptives included being younger than 15 years of age, and the lack of knowledge and awareness about the various contraceptive methods available. The study reported other family-related risk factors for non-use of contraceptives to include living in an incomplete family (e.g. single parent home), and unhealthy relationship among family members.

The studies by Tyler *et al.* (2014) and Vazquez-Rodriguez *et al.* (2018) suggest that a younger age is associated with reduced likelihood of contraceptive use including dual method contraception. However, other studies reported contradictory findings in which a younger age was associated with dual method contraceptive use among sexually active females. For instance, the results of a study (Osuafor & Maputle, 2017) that investigated dual method contraceptive use among adolescent females in Mafikeng, North West Province, South Africa, showed that dual method contraceptive use was highest among adolescents within the 15–24 years age group.

Other studies investigated the correlates and barriers of dual method contraceptive use during the last coitus among adolescent females. For instance, Buraimo *et al.* (2017) assessed the correlates and barriers of dual method contraceptive use amongst undergraduates in some Nigerian universities. Bivariate chi-square (χ^2) and multivariate logistic regression analyses were performed to identify variables that were significantly associated to the use of dual method contraception at the last sexual intercourse. Results indicated that dual method contraception (DMC) prevalence at last sexual intercourse was 20.6%; DMC users reported that their age at first sexual intercourse was at least 16 years. Multivariate analysis indicated that older age at first sex (AOR=3.081; 95%CI: 1.053-9.013; $p=0.040$), and intentions to avoid pregnancy (AOR=2.929; 95%CI: 1.035-8.292; $p=0.043$) predicted consistent use of DMC.

Martinez *et al.* (2011) examined contraceptive use (single or dual method), sexual activity and childbearing among teenagers in the USA. Participants in the 2006–2010 National Survey of Family Growth (NSFG) were males and females aged 15–19 years. Their findings showed that about 43% of never-married female teenagers (4.4 million) and about 42% of never-married male teenagers (4.5 million) had sexual intercourse at least once in the period under review. Importantly, the findings reported that neither male nor female teenagers used DMC during this period of sexual encounters with a member of the opposite sex. Similarly, Nyarko (2015) investigated the prevalence and correlates of contraceptive use among female adolescents in Ghana. Data was sourced from the 2008 Ghana Demographic and Health Survey. Bivariate analysis and logistic regression were performed to determine the contraceptive prevalence and examine the correlates of contraceptive use among female adolescents, respectively. Nyarko (2015) reported that age of the adolescent, education level, work status, knowledge of ovulatory cycle, visit to a health facility, and marital status significantly determined female adolescent contraceptive use.

Eisenberg *et al.* (2012) analysed data collected from a nationally representative sample of women by the United States National Survey of Family Growth from 2006–2008 for correlates of DMC use. The study found that only 7.3% of the 5,178 women surveyed utilized DMC, and that younger age, non-married marital status correlated strongly with higher rates of DMC use. Other correlates of low rates of DMC use reported in the study were associated with less than a high-school education, disruptions in utilization of health insurance in the past year, and use of the contraceptive injection or long-acting reversible contraception. Steiner *et al.* (2016) conducted a study that compared condom use in two groups of sexually active female adolescents in the 12th grade in the United States. One group of female adolescents used long-acting reversible contraception (LARC), while the other reported moderate use of other contraceptives. The results indicated low to moderate use of different contraceptives in the sample; 1.8% used LARC; 5.7% used Depo-Provera, patch, or ring; 22.4% used oral contraceptives; 40.8% used condoms; 11.8% used a traditional method (withdrawal or other

method); 15.7% used no contraceptive method; and 1.9% was not sure. Steiner *et al.* (2016) concluded that increased uptake of LARC was associated with low use of other methods such as condoms to achieve DMC use.

Several studies suggested that contraceptive use may differ by population group. Chersich *et al.* (2017) conducted a study to assess contraception coverage in South Africa, with one of its objectives being to identify underserved populations. They analysed data from the 2012 SA Household Survey, which assessed contraception coverage among 6296 women between 15–49 years of age. Results showed moderate prevalence of contraceptive use (49.1%) in the sample; however, a significant race difference was observed, with contraception use being lower in black Africans.

Bernard *et al.* (2018) conducted a study that compared rates of dual method use between LARC and non-LARC users. The study also investigated demographic factors associated with dual method use. The results showed that factors including younger age (<25 years), black population group, lower education, single relationship status, baseline dual method use, baseline diagnosis of STI, greater partner willingness to use a condom, and higher condom self-efficacy score correlated strongly with the use of DMC. Some studies have shown that relative to sexually active white women, sexually active black women were more likely to report using contraceptive methods associated with lower efficacy (e.g., condoms or withdrawal) or non-use of any form of contraception (Dehlendorf *et al.*, 2014). Manlove *et al.* (2003) investigated the relationship between partner, relationship characteristics and contraceptive use and consistency within first sexual relationships among adolescents. They reported that greater school attendance, higher grades, test scores, and educational expectations were associated with increased adolescent contraceptive use and reduced risk of pregnancy and childbearing.

2.3. Behavioural factors and use of dual method contraception

Prior research reported that behavioural factors, such as heavy drinking, are related to unsafe sexual behaviour, including early sexual debut, and unsafe sexual practices among sexually active adolescents (Claxton *et al.*, 2015; White & Hingson, 2013). Research steered in this direction showed association between alcohol intoxication and reduced likelihood of contraceptives use among sexually active adolescents (Felson *et al.*, 2020). Similarly, Marcantonio *et al.* (2019) reported a positive association between hazardous alcohol consumption and contraceptive use during sexual intercourse. Specifically, they found that participants who had consumed large amounts of alcohol were more likely to engage in sex, but they also used at least one method of contraceptive, e.g., condoms (Marcantonio *et al.*, 2019). Besides studies that have linked alcohol consumption to unsafe sexual practices, substance use has equally been associated to an increased likelihood of unsafe sexual activity among adolescents (Ritchwood *et al.*, 2015; de Looze *et al.*, 2019). In this respect, research showed that adolescents who regularly abused substances, compared to non-substance abusing peers, were increasingly vulnerable to risky sexual behaviours including early sexual debut, have more sexual partners, and are more likely to have unprotected sex (Connell *et al.*, 2009; Dunn & Yannesss, 2018; Madkour *et al.*, 2010; Tucker *et al.*, 2012).

Terplan *et al.* (2015) reviewed the literature on contraceptive use by women who presented with opioid and other substance use disorders. Opioids are substances that act on opioid receptors to produce a morphine-like effect (Hemmings & Egan, 2012). The study aimed to investigate the preferred method of contraception among the study sample in this population. The results indicated a prevalence rate of 6% to 77% for opioid and other substance use, with a median of 55% (Terplan *et al.*, 2015). Further analysis showed that women with opioid and other substance use disorders used contraception less often (56%) compared to women who were non-users of drugs (81%) (Terplan *et al.*, 2015). Werthern *et al.* (2021) also reported that women receiving treatment for opioid use disorder have low levels of contraception use and high rates of unintended pregnancies. In terms of choice of

contraceptive, most participants preferred condoms (62%), while far fewer (8%) used the more effective methods such as implants and intrauterine devices (IUDs) or DMC (Terplan *et al.*, 2015). These findings suggest that the use of effective contraceptives, including DMC for protection against unintended pregnancy and STIs, may be low and less common among drug and substance users.

Allen *et al.* (2018) reviewed the literature to examine the prevalence of hormonal contraceptives use among female smokers, as well as to determine the association of hormonal contraceptives with different smoking motives. The sample was 734 females in the age range between 18 and 35 years (mean age = 20.7 years; SD = ± 2.7). The results showed that the women smoked on average 7.3 ± 6.7 cigarettes per day. Also, further analysis indicated that the majority of the participants had a past history of hormonal contraceptive use (85%), reported a history of hormonal contraceptive use (85%) and half of them reported current use (48%). Among the salient conclusions, the authors noted that hormonal contraceptive use was high among female smokers, suggesting that smoking may be associated with the use of a single method of contraceptive use. The implication of these findings is the fact that heavy drinking and use of substances (e.g. cigarettes) reduces the likelihood that an adolescent, particularly a female, will engage in safe sex by employing contraceptives to avoid getting pregnant and/or contracting sexually transmitted diseases.

2.4. Sexual and reproductive health factors and use of dual method contraception

Substantive studies have assessed DMC use among reproductive age women; although the population attributes for each study differed, significant studies were conducted among populations with HIV/AIDS (e.g., Antelman *et al.*, 2016; Munsakul *et al.*, 2016). A recent study by Gebrehiwot *et al.* (2017), conducted among women on Anti-Retroviral Therapy (ART) in Ethiopia reported a low prevalence of utilization of DMC. However, the results have also documented factors associated with the use of DMC to include being single (AOR 5.43); cohabitating (AOR 6.06); having a HIV-negative

partner (AOR 4.44); and discussing safer sex with a partner (AOR 6.96) among other positive correlates reported in the study. Studies that investigated the relationship between sexual and reproductive health factors and DMC among adolescent South Africans have reported low utilization of DMC in this population (Seutlwadi, 2012). This is reflected in the study by Seutlwadi (2012) conducted among 3123 young persons aged between 18 and 24, and selected from four provinces in South Africa. The results showed that the majority (89.1%) of the participants were currently using contraceptives (9.3% pills, 5.2% IUDs, 25.6% injectables, and 5.9% female condoms), but only 8.9% indicated they used dual methods (Seutlwadi, 2012).

Kottke *et al.* (2016) assessed the utilization level, enhancers, and risk factors of DMC in a sample of sexually active females. They reported lower use of dual method contraception; 20.6% of participants used a dual method at last sexual intercourse, while about 23.6% at next-to-last sexual intercourse. Results also showed that having a previous sexually transmitted disease (AOR 2.30), negative attitudes towards pregnancy (AOR 2.25), and giving birth as a teen (AOR 2.34) were associated with higher odds of dual method use. Risk factors for low use of DMC were having no health insurance (AOR 0.39), multiple lifetime sexual partners (AOR 0.42), sex at least weekly (AOR 0.54), and agreeing to monogamy with the current sexual partner (AOR 0.40) (Kottke *et al.*, 2016). Overall, the study concludes that dual method contraceptive use was considered low among sexually active adolescents (Kottke *et al.*, 2016). Haddad *et al.* (2018) investigated factors within a social-ecological framework associated with the most or moderately effective contraceptive use (hormonal contraception or an IUD), condom use, and dual method use at last coitus, in a sample of 14–30-year-old females. The results indicated that at last coitus, only 27% reported dual-method use; 46% reported most or moderately effective contraception, and 62% reported condom use. In addition, more frequent coitus (>once/week versus ≤ once/week; AOR 0.14 [0.03, 0.82]) was associated with reduced dual method use, while being enrolled in school (AOR 5.63 [1.53, 20.71]) was significantly associated with increased dual method use (Haddad *et al.*, 2018).

Lemoine *et al.* (2016) conducted a study that examined motivations for using DMC in a sample of female adolescents aged 13–24 years (mean age =19; range = 16–24, SD± 3.09) who assessed family planning services at a healthcare facility in the United States. It was found that pregnancy prevention rather than the prevention of STIs was the primary motivation for using DMC among the study participants. Further analysis showed that sustained use of DMC positively correlated with level of trust in a partner, decreased anxiety about pregnancy and STI testing as a substitute for on-going condom use (Lemoine *et al.*, 2016). The study cited other factors that were related to non-use of DMC to include condom unavailability, fast-paced sexual encounters, self-reported “immaturity,” and lack of knowledge regarding the need for condoms to prevent STIs (Lemoine *et al.*, 2016).

Bernard *et al.* (2018) carried out a study aimed to (i) compare rates of dual method use among LARC and non-LARC users, and (ii) to assess factors that were associated with DMC use. Their sample was composed of 6744 women who were assessed for contraceptive method at 3 and 6 months post-enrollment. DMC use reported for two groups were LARC (32%) and non-LARC users (45%) respectively. Multivariate analysis showed that other factors associated with dual method contraception were age < 25 years, black race, lower education, single relationship status, baseline dual method use, baseline diagnosis of sexually transmitted infection (STI), greater partner willingness to use a condom, and higher condom self-efficacy score. From the findings, it is implied that DMC use seemed relatively higher among younger females compared to older women.

2.5. Family characteristics and use of dual method contraception

Research aimed at understanding the patterns of adolescent contraceptive use have examined contextual factors that are most likely to influence DMC, including the family structure (Imamura *et al.*, 2007; Miller, 2002), the quality of parent-child relationships and sexual communication (de Graaf *et al.*, 2011; Markham *et al.*, 2010; Widman *et al.*, 2016) and socio-economic status (Neville *et al.*,

2017; Singh *et al.*, 2001). Research studies have also examined parents' educational status as a contextual attribute of the family that may influence sexual and reproductive health communication, including DMC use among adolescents (De Graaf *et al.*, 2011; Markham *et al.*, 2010; Widman *et al.*, 2016). Previous studies in this regard suggested a positive association between parents' (mother) educational level and family planning attitudes (Mosher *et al.*, 2004). The association between these factors was established in a Nigerian study, as reported by Ojebuyi *et al.* (2019). The authors explored factors that influenced parent-child communication about HIV/AIDS and sexual and reproductive health issues with data from the 2012 National HIV/AIDS and Reproductive Health Survey (NARHS) Plus II (Ojebuyi *et al.* 2019).

In a study conducted by Ojebuyi *et al.* (2019), education level and religious affiliation influenced HIV/AIDS and SRH communication patterns in families. Also, they found that parents with higher education talked about reproductive health more often than less-educated parents (Ojebuyi *et al.*, 2019). The study also discovered that economic status correlated positively with parent-child sexual health communication (Ojebuyi *et al.*, 2019). Specifically, in this regard, the study found that high economic status parents were about four times more likely to discuss family planning and contraception with their wards than those with lower economic status (Ojebuyi *et al.*, 2019). Thus, the findings from this study implied that the higher the parents' educational level and economic status, the more likely it is that they would discuss sexual health-related issues, such as contraceptive use, with their adolescent children, particularly their sexually active female adolescents (Ojebuyi *et al.*, 2019).

Besides parents' educational level as a factor that may influence adolescents' choice of contraception, research has suggested that the quality of parent-child sexual health communication also may be crucial to understanding the sexual socialization of adolescents (De Graaf *et al.*, 2011; Markham *et al.*, 2010; Widman *et al.*, 2016). In one study that was steered along this direction, Vigoureux *et al.* (2018) tested associations between communication with parents and friends about sexuality and

contraception, use of less-effective contraception, social and demographic characteristics, sexual activity, and health characteristics. The responses from 713 sexually active women (15–24 years old) who did not currently want a child and were using contraception showed that 27.5% of the younger women (15–19 years of age group) used less-effective contraceptives (e.g. condoms, and barrier or natural methods) more often compared to 14.7 % of the women in the 20–24 year age group ($p < 0.001$).

Additional analysis of the results showed that ease of communication with the mother was associated with effective use of contraception in such a way that adolescents who had difficulty discussing contraception and sex with their mothers were more likely than those with easier communication to use less-effective contraception methods. The study findings highlight the negative influence of poor parent-child communication about sex on the use of less-effective contraceptives among sexually active females. Furthermore, these findings confirmed previous studies (e.g. Donadiki *et al.*, 2013), that showed a strong association between fragile familial support and education with the use of less-effective contraceptives among female teenagers and adolescents.

Diaz *et al.* (2019) conducted a study that aimed to compare the use of hormonal contraceptives by immigrant mothers and their daughters from five countries (Vietnam, Chile, Poland, Morocco and Pakistan) who had migrated and were living in Norway. They examined associations between work and education among several other sociodemographic variables with the use of contraception among first-generation immigrants and non-immigrant women. The results showed that being employed and level of education was associated significantly with contraceptive use among some women, specifically those from Vietnam, Chile, and Poland, but not for women from Morocco and Pakistan. Parental gender expectation may play a role in adolescent female contraception choices. Studies have shown that women from gender unequal households are also associated with low socioeconomic status (Dereuddre *et al.*, 2016), which tends to erode their negotiating power with respect to barrier

methods (Parrado & Flippen, 2010), and limits adequate knowledge regarding different methods of contraception (Trussell & Wynn, 2008). In other words, adolescents from economically disadvantaged families may lack the resources they require to utilize DMC in sexual relationships with a partner.

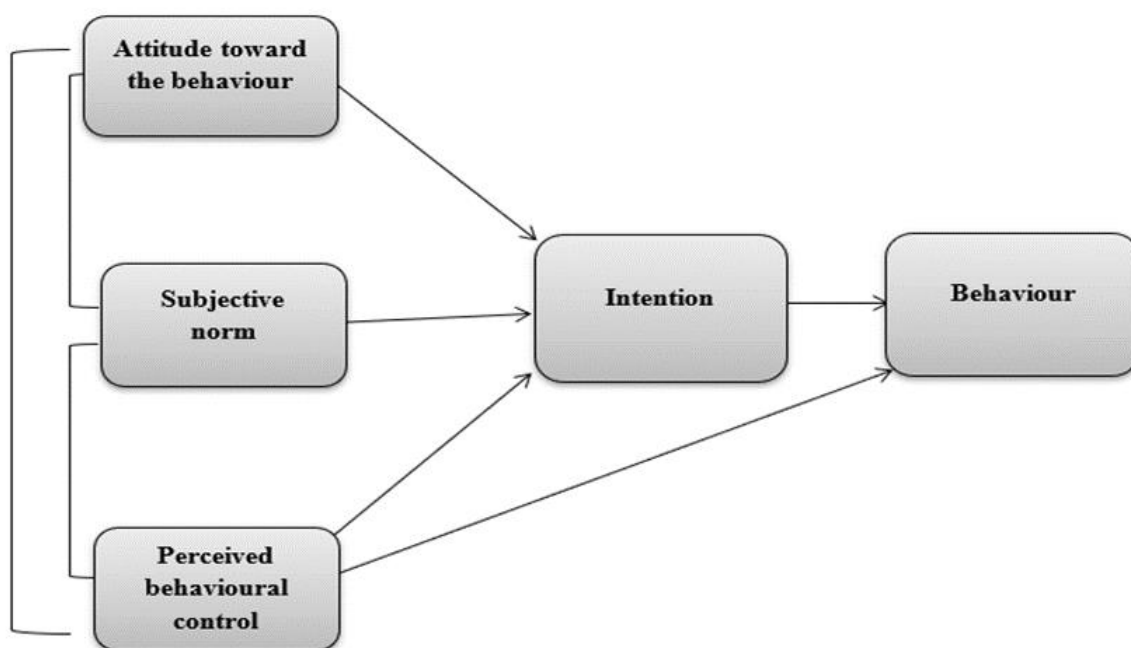
Crosby *et al.* (2001) examined correlates of the use of DMC in a sample of African-American female teens at high risk of pregnancy and STIs in the USA. The sample comprised 522 sexually active female teens recruited mainly from low-income neighbourhoods. Results indicated that 13.6% of the sample could be classified as consistent DMC users. Further results indicated that among the correlates for use of DMC, the desire to avoid pregnancy was the strongest {odds ratio (OR = 2.3)}. This was followed by parents knowing with whom the adolescent was hanging out (OR = 2.0), and frequent communication with parents (OR = 1.9). These findings further emphasised the importance of frequent communication in the parent-child relationship in strengthening DMC use, particularly among at-risk female teens.

2.6 Theoretical framework

The study adopted the Theory of Planned Behaviour (TPB), proposed by Ajzen and Fishbein (1980). The underlying theories of the Social Learning and Health Belief Model are used in addition in the study to enhance depth of meaning. Many of the constructs of TPB, HBM, and SLT are similar, but each theory also uses distinct concepts. In contrast to the theory of planned behaviour and social learning theory, perceived susceptibility and severity are major components of HBM, and Intentions are unique to the TPB. The TPB, HBM, and SLT specify different casual relationships among the important constructs in each (Montanaro, 2011). Various studies have used these theories in

conjunction (e.g., Montanaro, 2011; Mohammed *et al.*, 2020; Gerend & Shepherd, 2012). The TPB stipulates that attitude toward the behaviour, subjective norms, and perceived behavioural control interact to influence an individual's behavioural intentions and actual behaviour. In other words, the behaviour is influenced by beliefs, motivation, and social norms prevalent in an individual's social environment (Ajzen & Fishbein, 1980).

Figure 2.1: Theory of Planned Behaviour Model



Source: Ajzen and Fishbein (1980)

The constructs of the TPB are presented in Figure 2.1. Behavioural beliefs or attitude relates to the extent to which a behavioural outcome is favourably evaluated. If an expected outcome is deemed favourable, then the attitude towards that behaviour would be positive (Ajzen & Fishbein, 1980). Subjective norm, according to Ajzen and Fishbein (1980), focuses on people's perception and the value they place on the behavioural expectations of significant others in their lives, or people to whom they relate. People subscribe to social or customary codes of behaviour in a group or cultural context. The extent to which a person defers to subjective norms significantly influences the person's behaviour. If an adolescent female values her mother's views about responsible sexual behaviour,

then the likelihood that she will act responsibly in a sexual matter is significantly higher than the adolescent who does not value her mother's views.

Related to this, Ajzen and Fishbein (1980) indicated that perceived behavioural control relates to controlling factors that can significantly impact the performance of a behaviour. It is the perception of the degree of difficulty associated with the performance of the desired behaviour. These control factors are regarded as perceived power factors because they can encourage or discourage the performance of a behaviour of interest. One control factor against pregnancy is enforcement of a school's policy towards teen pregnancy. In a school setting, a policy is perceived to be a control factor if it can punish a pregnant learner to deter others from such behaviour in the future. The last key concept in the theory is an intention that explains whether a behaviour will be performed or not. The stronger the motivational factor(s), the greater the likelihood the behaviour will be performed (Ajzen & Fishbein, 1980).

2.6.1 Social Learning Theory

Most theorists assume that people are social beings in that they pay attention to their environment and also respond to stimuli in the environment. Social learning theory (SLT) is a learning theory, which is grounded in the belief that human behaviour is determined by a three-way relationship between cognitive factors, environmental influences, and behaviour (Bandura, 2018). In its most basic form, SLT represents a theoretical orientation, which seeks to explain the factors that influence learning amongst humans. It explains that learning takes place through observing others' behaviour and their attitudes, with the consequence that follows the behaviour that is imitated being a critical factor for learning to occur. The SLT also goes on to argue that most behaviours are learned through modelling – that is, by imitating or emulating the behaviour/action that an individual finds appealing and wants to identify with the person displaying the behaviour/action. It is believed that in most cases, the behaviours that are emulated are incentivized by the desire to become socially accepted, attractive,

and otherwise well-liked. In addition, the SLT recognises attention, retention, reproduction, and motivation as critical factors that can determine whether a particular behaviour will be learned or not.

SLT provides a plausible framework for understanding how a sexually active age-group, such as adolescents, might learn and adopt DMC from those they admire in their environment, to prevent undesirable outcomes including unwanted pregnancy and sexually transmitted diseases such as HIV. This is likely because people tend to adapt their behaviour and/or attitudes to what is going on around them, and they also have a tendency of imitating what they see being done by those people who have the power to influence them (Bandura, 1962). The theory hypothesizes that an adolescent pays attention to the sexual behaviour of others, which in this case would be someone they admire, like or wish to identify with. They may observe this person's behaviour and attitudes and the consequences of their choices as they relate to sexually-related themes, such as safe sex, pregnancy, abortion, multiple sexual partners, and DMC. For example, when an adolescent observes that DMC is modelled, accepted and results in positive consequences (e.g. prevention of unwanted pregnancy and STIs), then the likelihood of the individual imitating this behaviour in future sexual encounters with a partner increases significantly.

SLT has provided researchers with an empirical framework for understanding and analysing how social environment can influence sexually risky behaviours, especially those that relate to preventative sex such as DMC. But the theory is not without its drawbacks, one of which is the assumption that an adolescent merely engages in pairing of behaviour with outcomes without necessarily processing the information to consider how it fits with an individual's personal values and beliefs before internalising the behaviour displayed by a model. The SLT is too reductionist in that it tends to reduce behaviour down to learning, while neglecting the influence of any biological factors. Lastly, the theory is largely deterministic as it neglects the role of freewill on behaviour (Bandura, 1962).

2.6.2 Health Belief Model

The Health Belief Model (HBM) is a conceptual framework that may be applied when the goal is to arouse strong interest in people into taking health-promoting actions, while at the same time avoiding those that can compromise their health (Rosenstock, 1974). At the core of the HBM is the assumption that a person's readiness for change is influenced by their assessment of the threat of a health-related problem and the likelihood that the threat would be reduced through appropriate personal action. Thus, the motivation here is the avoidance of negative health consequences through application of a positive health-promoting behaviour. The HBM is premised on three principles, namely perceived threat, perceived benefits, and perceived barriers. Perceived threat is made up of perceived susceptibility and perceived severity. Perceived susceptibility is the perception of risk. It describes an individual's subjective opinion of contracting a disease or any other health-related problems, such as unwanted pregnancy, resulting from unprotected penetrative sex. Perceived severity refers to the relative seriousness and consequences of the risk. Perceived benefits refers to the relative effectiveness of behaviours that can reduce the threat. It is made up of the beliefs, opinions, and ideas regarding the effectiveness of the strategies, which are designed to reduce the threat of illness. Perceived barriers are an individual's opinion of the tangible and psychological costs of the advised action (Maiman & Becker, 1974). Perceived barriers identify and reduce barriers through reassurance, incentives, and assistance.

The HBM proposed that the likelihood, for example, that an adolescent would embrace positive health-related actions related to the adoption of DMC increases when these three conditions are present (Rosenstock, 1974):

- i. If they feel that a negative health condition can be avoided (i.e. unwanted pregnancy and STIs can be avoided);

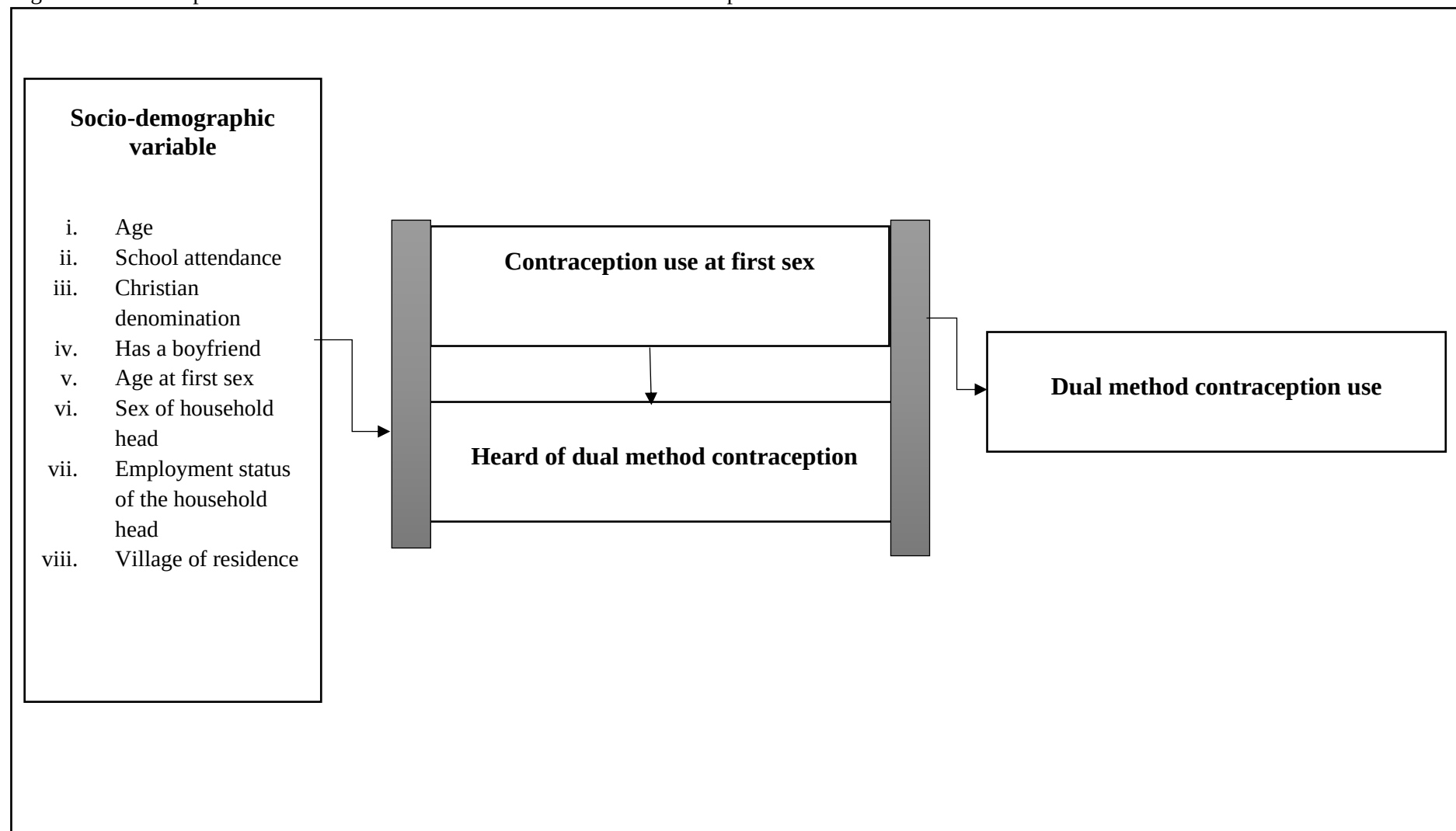
- ii. If there is a positive expectation of avoiding a negative health condition if a person takes the recommended action (i.e., a combination of DMC will be effective at preventing unwanted pregnancy and STIs);
- iii. If a person feels capable to successfully implement a recommended health action (i.e. she can use DMC with ease and confidence).

A critical overview of the HBM suggested that emphasis is placed on individual factors including personal goals, threat assessment, self-efficacy, and decision-making skills as drivers of health-promoting behaviour. The HBM has certain limitations; the main limitation is that HBM does not take into account behaviours that are performed for non-health-related reasons such as social acceptability.

2.7 Conceptual framework on the correlates of dual method contraception

The study aims to investigate the relationship between socio-demographic, behavioural, sexual and reproductive health, and family characteristics on DMC use among adolescent females in Ratlou Municipality in the North West Province, South Africa. Figure 2.2 shows the conceptual framework adopted for this study. The model proposes that there is a relationship among the socio-demographic (independent variables) such as age, school attendance, Christian denomination, relationship status (i.e., boyfriend), age at first sex, ever fallen pregnant, village, sex of the household head, and employment of household head. The model also proposes that contraceptive use at first sex and socio-demographic characteristics (independent variables) are likely to influence the knowledge of DMC. Moreover, contraceptive use at first sex, knowledge of dual method (i.e. heard of DMC) and socio-demographic characteristics have a direct relationship with DMC use among adolescent girls.

Figure 2.2: A conceptual framework on the correlates of dual method contraception



CHAPTER 3: METHODOLOGY

3.1 Introduction

Detailed procedures are provided of the methods followed in this research study. The chapter includes research design, study area, target population and sample size, sampling procedure, method of data collection and data analysis, study variables and their measures, and ethical clearance and consideration.

3.2 Research design

The research is a quantitative study which employed the cross-sectional design. The design was considered adequate because the researcher wanted to examine associations among the independent variables and dependent variables of the study. According to Creswell (2014), quantitative research design enables the researcher to test theories and also examine the relationships among the variables of interest. In the present study, the predictor variables were age group, sex of head of household, employment status of head of household, alcohol consumption, ever fallen pregnant, and place of residence. The dependent variables were contraceptive use at first sex, dual method contraception use, and dual method contraception knowledge.

3.3 Study area

3.3.1 Geographic location

The study was conducted in Ratlou Local Municipality, North West Province, South Africa. The municipality is one of the five local municipalities in Ngaka Modiri Molema District. Others are Tswaing, Ditsobotla, Ramotshere Moilwa, and Mafikeng. In 2016, Ratlou Local Municipality was classified as a category B municipality. According to Pycroft (2000), category B

municipalities are local authorities within the boundaries of district municipalities. Ratlou Local Municipality has an area size of 14618km², 14 Wards and 26 villages (Ratlou Local Municipality, 2016:10). The map of Ratlou Local Municipality is presented in Figure 3.1.

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Province: North West
District Municipality: Ngaka Modiri Molema
Local Municipality: Ratlou

Legend

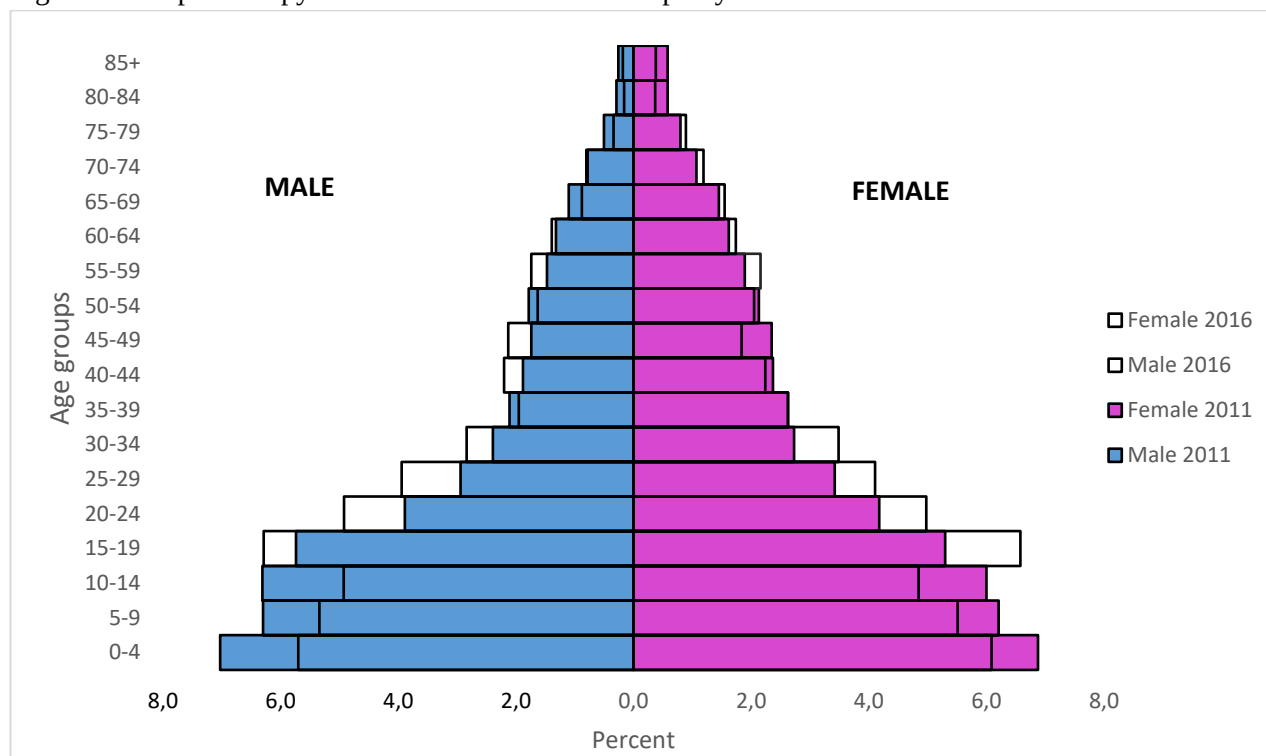
- Police_Stations
- Railway Line
- Subplacenames
- Ratlou Municipality
- Municipalities

Map created: November 2022

3.3.2 Population size and composition

Population growth rate fluctuates, and noticeable changes have been recorded for Ratlou Local Municipality from 1996 to 2016 (Statistics South Africa, 2011; Statistics South Africa, 2018). According to the 2011 census results, the adolescent population accounted for 17,136 persons, 8,231 females, and 8,905 males (Statistics South Africa, 2011). In 2016, the local municipality had a total population of 106,108 persons, 50,247 males and 55,861 females (Statistics South Africa, 2016). Over this period the adolescent population increased by 17,617 persons, with 51% being adolescent girls. The population age-sex structure presented in Figure 3.2 shows a broad base, implying that the local municipality had more children aged between 0 and 14 than any other age group. According to the 2016 Community Survey results (Statistics South Africa, 2016), the number of persons aged between 15 and 19 increased for both males and females by 6.29% and 6.58% respectively. On the other hand, the elderly population decreased for both sexes. Based on the researcher's calculations, using the 2016 Community Survey results (Statistics South Africa, 2016), Ratlou Local Municipality had a dependency ratio of 87%, suggesting that most people depend on the economically defined age group (15 – 64 years) (Refer to Figure 3.2). The dependency ratio was obtained by combining the population age cohorts 0 – 14 years and 65+ and dividing by those in the age cohort 15 – 64, then multiplying the quotient by 100. The dependency ratio shows that most people in Ratlou were not economically active, meaning that the majority were still in school (i.e. those aged younger than 19 years), whilst others in the different age cohorts might have been unemployed or discouraged job seekers.

Figure 3.2: Population pyramid of Ratlou Local Municipality



Source: Author's computation from Census 2011 (Statistics South Africa, 2011) and Community Survey 2016 data (Statistics South Africa, 2016).

3.3.3 Living conditions of Ratlou Local Municipality residents

The average household size in Ratlou Local Municipality was 4.0 persons per household in 2011 (Statistics South Africa, 2018). Only few households (5%) had access to piped water inside the dwelling, and 10,6% had access to piped water inside the yard (Statistics South Africa, 2018). The 2011 Census results also indicated that 83,7% of households had access to electricity and they mainly use it for lighting (Statistics South Africa 2018). In terms of agricultural statistics, many households reported in 2011 that they are actively involved in poultry production (7,118 households) and/or livestock production (6,689 households) (Statistics South Africa, 2018).

3.4 Target population and sampling techniques, the sample size

3.4.1 Study population and sample size

The survey covered a representative sample of adolescent girls across villages in Ratlou Local Municipality. According to the 2011 census results, there were 8,231 adolescent girls in Ratlou Local Municipality (Statistics South Africa, 2011). According to Yamane, cited by Israel (1992), the equation for the sample size is presented as:

$$n = N/1+N(e)^2$$

whereby n represents the sample size, N is population size, and e the level of precision, equated to 0.05.

Therefore, sample size:

$$\begin{aligned} n &= \frac{N}{1 + N(e)^2} \\ &= 8231/1+8231(0.05)^2 \\ &= 381 \end{aligned}$$

Israel (1992) recommended that a researcher should add about 40% to the calculated sample size in order to cater for non-response and non-reachable respondents. Therefore, adding 39% to the sample, the sample size for this study was 530 respondents. However, the completed questionnaires were from 462 respondents, yielding an 87.2% response rate. The major challenge in not realising the full sample size during data collection was the issues related to the national restrictions implemented because of the COVID epidemic during 2020 – 2021.

3.4.2 Sampling procedures

The study used multistage sampling procedures; simple random sampling was used at the first stage to select 7 Wards within the local municipality. Stratified, proportional to size, sampling was used to select 10 villages out of 21 within the seven (7) selected Wards. The last sampling technique used was systematic, to list households with adolescent girls.

3.4.2.1 Simple random sampling

Simple random sampling was used to select seven (7) Wards out of 14 Wards. The seven selected Wards were Wards 1, 3, 4, 7, 8, 13, and 14.

3.4.2.2 Stratified sampling

Stratified sampling was done according to probability proportional to size in the following steps:

- Step 1. Supercross was used to extract the number of adolescent girls in each village in the Ratlou Local Municipality using census data.
- Step 2. Cumulative frequency was calculated by summing the number of adolescent girls across villages. Refer to Table 3.1.

Table 3.1: Computation of cumulative frequency across villages in the Ratlou Local Municipality

Village	Number of adolescent girls	Cumulative Frequency
Ratlou NU	95	95
Setlagole	327	$95+327= 422$
Thutlwane	127	$422+127= 549$
Ramabesa	182	$549+182 =731$
etc	etc	etc
	Total	Total

Step 3. The sample size to include in the study had to be determined. A number had to be chosen randomly, in this case 200. This was assigned to a village where the randomly selected number is not greater than the number of adolescent girls in the village, then that number has to be added to the quotient of the sum of cumulative frequency and the number of villages to be sampled.

For example:

Stage 1: Number selected randomly:- 200

Stage 2: Total number of girls in the 10 villages sampled / number of villages sampled:- $4841/10 = 484$

Stage 3: Add the randomly selected number and the calculated number for the cluster sample:- $200+484 = 684$

Stage 4: To get to the third cluster sampled, the calculated values are added: -
484 to 684.

Table 3.2: Computation of clustered sample

Village	Number of adolescent girls	Cumulative Frequency	Cumulative frequency per cluster
Ratlou NU	95	95	
Setlagole	327	422	200
Thutlwane	127	549	
Ramabesa	182	731	684
Madibogo	47	778	
Setlagole	756	1534	$484+684 = 1168$
Ratlou NU	8	1542	
Mabule	209	1751	$484+1168 = 1652$
Etc.	etc.	etc.	Etc.
	Total	Total	Total

Step 4. Probability of each cluster being sampled is calculated based on the number of clusters sampled. This step involves multiplication of the cumulative total for the

clusters sampled and the number of clusters, and the obtained answer is divided by the total number of adolescent girls in the sample.

For example:

Number of adolescent girls in the randomly selected village times the number of villages in the cluster -

$$\begin{aligned} & 327 \times 10 / 4841 \\ & = 3270 / 4841 \\ & = 0,67548 \times 100 \\ & = 68\% \end{aligned}$$

Step 5. The number of adolescent girls per cluster, was obtained by dividing sample size and targeted number of villages/cluster.

Thus $530 / 10 = 53$.

Step 6. To determine the probability of each individual being sampled in each cluster, the number of adolescent girls per cluster was divided by the total number in the cluster population.

For example:

Prob2(individual) = Number of adolescent girls per cluster / Total number in the cluster population

$$\begin{aligned} & = 53 / 237 \times 100 \\ & = 0,162080 \times 100 \\ & = 16\% \end{aligned}$$

Step 7. The last step was to calculate the overall weight of each sampled cluster, in order to validate all the steps followed in probability proportional to size stratified sampling and the representativeness.

Overall weight = $1 / (\text{Prob1}_{\text{Cluster}} \times \text{Prob2}_{\text{Individual}})$

$$\begin{aligned}
&= 1/(68*16) \\
&= 1/1088 \\
&= 0.000919*100 \\
&= 0.091
\end{aligned}$$

Table 3.3: Computation of probability proportional to size

Ward	Number of Households	Villages		Cumulative frequency	Clusters sampled	Prob1	Individual per cluster	Prob2	Overall weight
13	635	Ratlou NU	95	95					
13	911	Setlagole	327	422	200	68	53	16	0,09
13	455	Thutlwane	127	549					
13	453	Ramabesa	182	731	684	38	53	29	0,09
13	193	Madibogo	47	778					
14	2573	Setlagole	756	1534	1168	156	53	7	0,09
1	43	Ratlou NU	8	1542					
1	625	Mabule	209	1751	1652	43	53	25	0,09
1	300	Makgori	72	1823					
1	420	Tshidilamolomo	110	1933					
1	530	Masamane	144	2077					
4	684	Matloding	232	2309	2136	48	53	23	0,09
4	878	Logageng	272	2581					
4	342	Steil Hoogte	146	2727	2620	30	53	36	0,09
8	132	Maipeng	32	2759					
8	1160	Bathobatho	398	3157	3105	82	53	13	0,09
8	1655	Kraaipan	479	3636	3589	99	53	11	0,09
3	1780	Disaneng	568	4204	4073	117	53	9	0,09
7	1815	Madibogo Pan	619	4823	4557	128	53	9	0,09
7	65	Diolwane	18	4841					
Total	15649		4841						

3.4.2.3 Systematic sampling

The third and final procedure of sampling used was systematic sampling to randomly select households within sampled villages. In the villages included in the study sample, there were a total of 12,001 households. Thereafter, with systematic sampling, the Kth number ranging from

1 to 100 is randomly selected. In this study, the Kth number was 3. Thus, the first household was the 3rd one. Every 6th household was selected, The second household was the Kth plus 6, i.e. 3 was added to 6 amounting to 9, meaning the second household was number 9. Refer to Table 3.4.

Table 3.4: Household selection

Household rank	Calculation	Household number
1 st household	3	3
2 nd household	3+6	9
3 rd household	9+6	15
4 th household	15+6	21
Etc.	Etc.	Etc.

3.5 Method of data collection

3.5.1 Data collection tool

A structured questionnaire was used in this study, thus ensuring that all respondents were asked exactly the same set of questions in the same sequence. The structured questionnaire included questions about socio-demographic, behavioural, sexual and reproductive health, and family characteristics.

3.5.2 Recruitment of participants

The plan was to work closely with the Ratlou Service Point (Department of Social Development, North West Province). Also, the researcher's letter to the Department of Social Development requesting permission to conduct the research in the sampled villages was sent to all tribal authorities.

3.6 Description of study variables

3.6.1 Dependent variables

There are three dependent variables in the study: (a) use of contraceptives at first sex, (b) ever heard of dual contraception, and (c) ever used dual contraception. With reference to the first dependent variable, contraceptive use at first sex, the respondents were asked, “Did you use any contraception method during your first sexual intercourse?”, where they could respond “yes” or “no”; therefore, the categories for this variable were (1) No and (2) Yes, where “Yes” means that the respondent used contraception at first sexual intercourse, and “No” means otherwise. The second variable studied was ever heard of DMC (used as knowledge of contraceptive use in this study); the question posed was "Have you ever heard of DMC?" the responses were divided into two, (1) Yes and (2) No. The last dependent variable was the actual use of DMC. Respondents were asked whether they have “ever used dual method contraception”, and they responded by selecting (1) Yes, meaning they have ever used DMC and (2) No meaning they have not used the method.

3.6.2 Independent variables

The independent variables in this study include demographic, socio-economic, behavioural, and sexual and reproductive health variables. Contraceptive use at first sex and ever heard of dual method contraception were considered independent variables for "heard of dual method contraception" and "use of dual method contraception" respectively. Further description of the independent variables is given in Table 3.5.

Table 3.5 : Description of the study variables

Independent Variables	Description	Coding	Chapter
Age group	Age of respondent (years).	1=13–14	Chapter 4–6
		2=15–16	
		3=17–19	
School attendance	Respondents were asked whether they were attending school or not.	1=Yes	Chapter 4–6
		2=No	
Christian denomination	Religious affiliation of the respondent.	1=Catholic	Chapter 4–6
		2=Anglican/Episcopalian	
		3=Pentecostal/Evangelical/Prophetic	
		4=African independent church	
		5=Other	
		6=None	
Alcohol consumption status	Respondents were asked whether they consume alcohol or not.	1=Drinks alcohol	Chapter 6
		2=Does not drink alcohol	
Relationship Status	Respondents were asked whether they were in a relationship (dating) with a male or not.	1=In a relationship	Chapter 4–6
		2=Not in a relationship	
Age at first sex	Age at which the respondent started having sexual intercourse with a male partner.	1=Never had sex	Chapter 4–6
		2=11–13 years	
		3=14–16 years	
		4=17–19 years	
Contraception use at first sex	Respondents were asked whether they had used any method of contraception during their first sexual encounter with a male partner.	0=No	Chapter 5–6
		1=Yes	
Ever been pregnant	Respondents were asked if they had ever been pregnant before.	1=Yes	Chapter 5–6
		2=No	

Table 3.5 : Description of the study variables

Independent Variables	Description	Coding	Chapter
Ever heard of dual method contraception	Respondents were asked if they had ever heard of dual method contraception.	1=Yes	Chapter 6
		2=No	
Sex of household head	Respondents were asked whether their household head was male or female.	1=Male	Chapter 6
		2=Female	
Employment status of the household head	Current employment status of the adolescent's household head.	1=Working	Chapter 4 & 6
		2=Not working	
Village of residence	Respondent's place of residence.	1=Disaneng	Chapter 4–6
		2=Kraaipan	
		3=Mabule	
		4=Madibogo Pan	
		5=Mareetsane	
		6=Matloding	
		7=Moshawane	
		8=Ramabesa	
		9=Setlagole	

3.7 Data quality

The importance of quality of the data cannot be underestimated, since conclusions drawn from the collected data can be used to formulate policies locally and nationally. In this research, quality assurance was achieved using the following processes.

3.7.1 Research instrument

The research instrument used in the study was a closed-ended questionnaire comprising five sections derived from the study objectives that are aligned with the theoretical and conceptual framework. Both the promoter and co-promoter were given the questionnaire to assess content validity. After incorporating the supervisors' inputs, the revised version was forwarded to the Department of Population Studies at the School of Social Sciences. It was then forwarded to the Scientific and Ethics Committees.

3.7.2 Pilot testing of the Questionnaire

Survey questionnaires were piloted in two randomly chosen villages in Greater Taung Local Municipality that face the same social challenges as Ratlou Local Municipality. The main aim was to assess the level of sensitivity and appropriateness and to identify any potential problems with the questionnaire design. A total of 24 adolescent girls, aged between 18 and 19 years, were randomly selected in the villages of Mokgareng and Manokwane. The results were used to improve the quality and consistency of the questionnaire.

3.7.3 Training for the research assistants

The principal researcher recruited eight (8) postgraduate students in the field of Population Studies who have conducted research at both undergraduate and Honours levels. These field workers therefore had some background from their modules on data collection tools and the

importance of data quality. All recruited field workers were fluent in Setswana and English. Because of COVID-19 related restrictions, the training of field workers took place online via Zoom on the 10th of September 2021, facilitated by the principal researcher and Mr Marevhula from Statistics South Africa. All field workers received a training manual a week before the training. The training manual addressed issues of listing, coding, and interview skills. In addition, the trainer emphasised the importance of observing the participant's mood change and addressing that accordingly. If the participants wanted to take a break, they were allowed to discontinue the interview. During the training, each question in the questionnaire was explained to the Research Assistants. Before the commencement of field work, the research assistants practiced administering questionnaires among themselves repeatedly to be fully familiarized with the questionnaire and working within the set time frame.

3.7.4 Supervision of field work

The principal researcher was involved from the first day of field work until the last day. Every day, the research assistants were briefed at the destination village and after data collection; all questionnaires were checked before leaving the area. The main purpose of this exercise was to ensure that the consent forms, assent forms, and questionnaire were correctly completed. Incomplete and inconsistent questionnaires were returned for correction. Research assistants were also asked to share their experiences and to find out if they needed debriefing before the next trip.

3.7.5 Data Entry

The researcher set valid values and a data range in Microsoft Excel before the data entry to enhance data quality control and prevent typing and data entry errors.

3.8 Method of data analysis

Data was captured in Microsoft Excel and exported to Stata version 16 for analysis purposes. Three levels of analyses were used in the three analytical chapters, namely univariate, bivariate, and multivariate analyses. The univariate level was used to describe the outcome variables and composition of the study variables using frequencies and percentages. The bivariate analysis focused on determining the association between dependent and independent variables. The Chi-square test for independence was used to determine whether there was a significant association between the dependent and independent variables.

Below is the Pearson's chi-square model equation used in the study :

$$\chi^2 = \sum \frac{(O-E)^2}{E} \dots (iii)$$

Lastly, the study used binary logistic regression model to examine the relationship between the contraceptive use at first sex, heard of DMC, and use of DMC and selected independent variables namely age group, school attendance, Christian denomination, has a boyfriend, age at first sex, village, ever fallen pregnant before, sex of the household head, employment status of the household head, and alcohol consumption.

The regression equation applied to this study is expressed as follows:

$$\ln\left(\frac{p}{1-p}\right) = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \dots + \beta_i x_i$$

This regression model is represented by more than one outcome variable, that is, either binary, ordinal, nominal, etc. In this study, the three dependent variables (contraceptive usage at first

sex, knowledge of DMC, and use of DMC) are all represented by this model and are each examined individually ($\frac{p}{1-p}$). When all other variables (x_i) are held constant, the regression coefficient ($\beta_i x_i$) raises the natural logarithm (log-odds) for a one-unit increase in the predictor variable (x_i). The regression model evaluates how closely (x_i) and natural logarithm (log-odds) are related after adjusting for all other (x_i) variables.

3.9 Limitations

The desired sample size for the study was 530 adolescent girls in Ratlou Local Municipality. However, the questionnaires were completed by 462 respondents, yielding an 87.2% response rate. The field work took place during the COVID-19 epidemic, and some of the community members were uncomfortable to welcome field workers in their homes. Another barrier during field work was the refusal of parents to give consent for their children to participate in the study.

3.9.1 Access and availability

There were eligible participants in some households who were breastfeeding; however, the head of the households refused to allow them to participate in the study. Their main concern was the possibility of contracting COVID-19 infection. They said it was “not safe for nursing mothers to be in contact with strangers”. Secondly, access to adolescent girls, especially on a Saturday, was difficult because some girls were involved in community athletic activities, while others were sleeping at their boyfriends' places.

3.9.2 Consent

There were three forms of consent administered, Parental consent form, Participant (adolescent) consent form and assent form. The consent and assent forms describe the roles and responsibilities both the researcher and the research participant have towards each other throughout the research process. The parental consent and assent forms were used for participants younger than 18 years. In one case, both the guardian and the participant consented to participate in the study by signing the consent and assent form. However, one of the household members arrived in the middle of the interview, tore up the questionnaire and chased the field worker away. In his words, "you need to keep family matters out of my business, and I am the only one who can approve this". In a second case, the participant wanted to be interviewed alone (not in the presence of the parent) and the parent refused to sign the consent form.

3.10 Ethical Considerations

Ethical approval of the research study was sourced from the Faculty of Humanities and granted by the Human Social Sciences Research Ethics Committee (HSS-REC) at North-West University (ethics number NWU-00664-21-A7).

The researcher ensured that ethical considerations were addressed during the collection of data through the voluntary participation of respondents. The anonymity of respondents was ensured as they were not asked to write their names on the questionnaires. During editing, the data were anonymised to ensure that respondents cannot be traced through the results or in any other way.

CHAPTER 4: USE OF CONTRACEPTION AT FIRST SEX

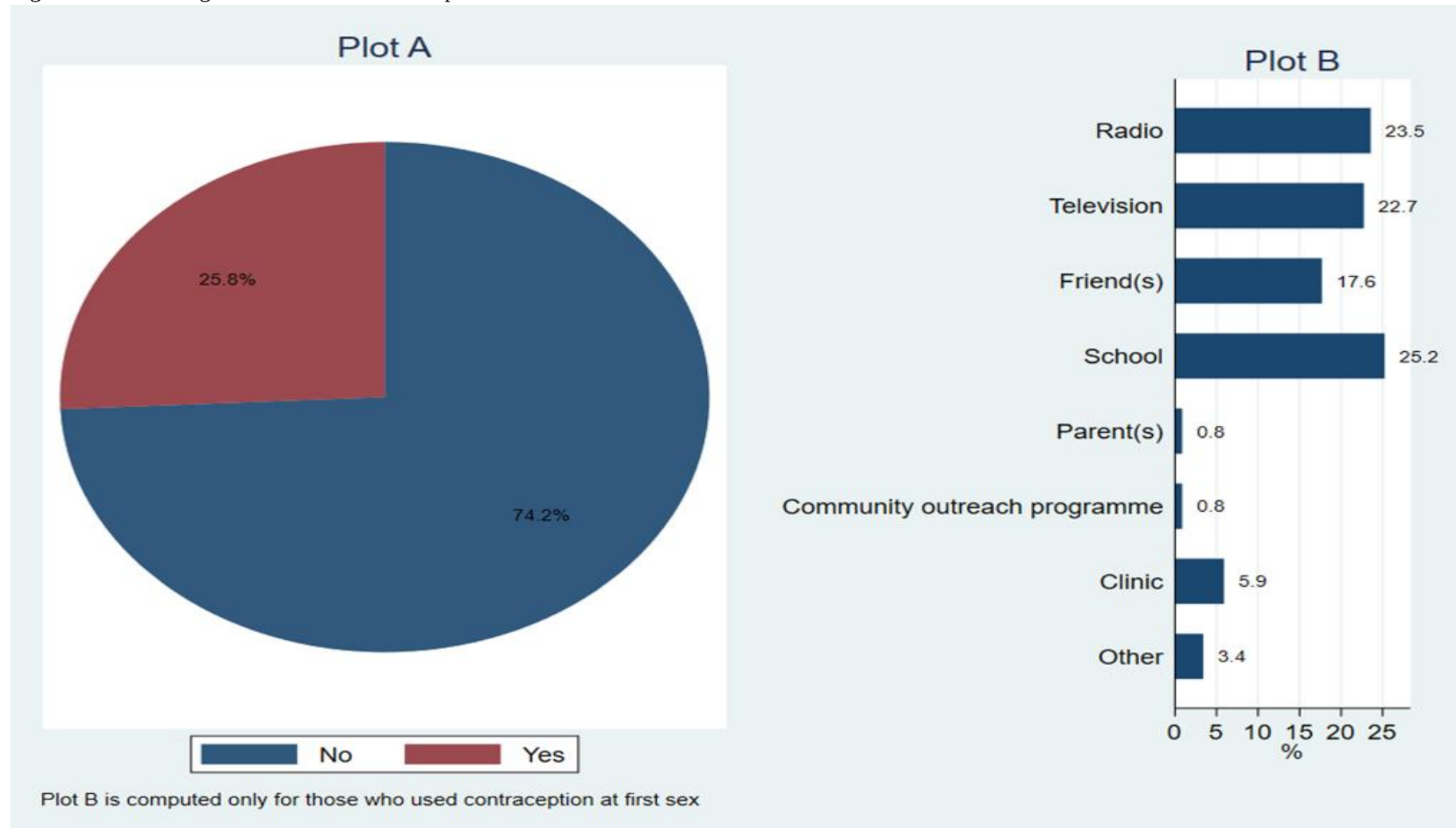
4.1 Introduction

The purpose of this chapter is to present the results of data analysis of the factors determining the use of contraception during first sex. The chapter aims to introduce the reader to the dynamics of the study area. It serves as a foundation for Chapters 5 and 6. The variable ‘contraception at first sex’ was derived from the question “Did you use any method of contraception during your first sexual intercourse?”. The chapter presents results at three levels of analysis: univariate, bivariate, and multivariate.

4.2. Descriptive analysis

Contraceptive knowledge and use at first sex predicts future sexual behaviour of the studied population. Plot A presented in Figure 4.1 shows the percentage distribution of contraceptive use at first sex among adolescent girls (13 – 19 years) in Ratlou Local Municipality. A total of 462 adolescent girls participated in the study; 26% of them reported using contraception during their first sexual encounter. Those who reported using contraception at first sex were asked questions about their source of information for contraception. The respondents indicated that they learned about the contraceptive method at school (25.2%), while others learned from the radio (24%) and television (23%) (Refer to Plot B in Figure 4.1). Parents are the most important role players at a family level; however, the parent-child relationship varies from one household to another. Only 0.8% of the respondents indicated that they learned about contraception from their parents.

Figure 4.1: Percentage distribution of contraception use at first sex and source of information



4.3 Prevalence and association of contraception use at first sex

Table 4.1 presents the prevalence and association of contraceptive use at first sex. The socio-demographic factors include age group, school attendance, Christian denomination, have a boyfriend, age at first sex, and village. Based on Pearson's chi-squared results, there was a slight statistical correlation between the age of the respondent and the use of contraception at first sex. Most of the participants (236) were aged between 17–19 years, followed by those aged 15–16 years (126). Surprisingly, more adolescents aged 13–14 years have used contraception at first sex in comparison to the following age group (15–16 years). The findings further revealed that there was a strong statistical relationship between education and contraception use at first sex. A total of 343 (74%) participants were attending school, but only 21% indicated that they used contraceptives during their sexual intercourse. In contrast, 38% of the adolescents who were not attending school at the time of the survey reported using contraception at first sex. Most of these participants were in the age group 17–19 years; some may have completed matric, whilst others may have dropped out of school.

The relationship between contraception use at first sex and Christian denomination is slightly significant. Interestingly, the majority (39%) of participants who were not affiliated with any Christian denomination reported that they had used contraception during their first sexual intercourse. Regarding relationship status, whether the participant had a boyfriend or not, and contraceptive use at first sex, the results showed that there was no association. The majority (302) of the respondents indicated they had a boyfriend at the time of the survey and 28% reported using contraception at first sex. The results further show a strong relationship between age at first sex and contraception at first sex. Girls in Ratlou Local Municipality start to have sex as young as 11 years of age. However, the use of contraception at first sex among those aged between 11–13 years (73%) was higher than those who first had sex when they were aged 17 year

and older, but did not use contraception at first sex (80%). In terms of participants' place of residence, represented by villages, the majority of the respondents were residing in Setlagole at the time of the survey. Setlagole is the largest village in Ratlou Local Municipality and was sampled twice. The adolescent girls who resided in Madibogo Pan and Moshawana reported that they had used contraception during their first sexual intercourse, with higher levels of 37% and 33% respectively.

Table 4.1: Percentage distribution of contraceptive use at first sex by selected socio-demographic characteristics

Variables	Contraceptive use at first sex		Number (%)	χ^2 (P-value)
	No	Yes		
	%	%		
Age group (years)				
13–14	79,0	21,0	100 (21.6)	8.0*
15–16	81,0	19,0	126 (27.3)	
17–19	68,6	31,4	236 (51.1)	
School attendance				
Yes	78,7	21,3	343 (74.2)	13.9***
No	61,3	38,7	119 (25.8)	
Christian denomination				
Catholic	78,6	21,4	42 (9.1)	12.5*
Anglican/Episcopalian	86,7	13,3	30 (6.5)	
Pentecostal/Evangelical/Prophetic	71,3	28,7	122 (26.4)	
African Independent Church	79,1	20,9	134 (29)	
Other	77,8	22,2	54 (11.7)	
None	61,3	38,8	80 (17.3)	
Relationship Status				
In a relationship	71,9	28,1	302 (65.4)	2.6
Not in a relationship	78,8	21,3	160 (34.6)	
Age at first sex (years)				
Never had sex	100,0	0,0	172 (37.2)	151.0****
11–13	27,1	72,9	70 (15.2)	
14–16	63,4	36,6	145 (31.4)	
17–19	80,0	20,0	75 (16.2)	
Employment status of the household head				
Working	79,5	20,5	166 (35.9)	3.8
Not working	71,3	28,7	296 (64.1)	
Village of residence				
Disaneng	75,5	24,5	53 (11.5)	10.1
Kraaipan	88,6	11,4	44 (9.5)	
Mabule	75,0	25,0	44 (9.5)	
Madibogo Pan	63,3	36,7	49 (10.6)	
Mareetsane	80,0	20,0	40 (8.7)	
Matloding	74,0	26,0	50 (10.8)	
Moshawane	66,7	33,3	45 (9.7)	
Ramabesa	71,7	28,3	46 (10)	
Setlagole	74,7	25,3	91 (19.7)	
Total	74,2	25,8	462 (100)	

Note: * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$

4.4 Determinants of contraceptive use at first sex

Table 4.2 shows the effect of socio-demographic and economic factors on contraceptive use at first sex by using a binary logistic model. A multicollinearity test was performed using the variance inflation factor (VIF) to test the presence (or absence) of collinearity between the independent variables, and the results showed no evidence of multicollinearity (mean VIF 1.38, minimum VIF 1.01, maximum VIF 1.95). The binary logistic model outcome showed that there was no relationship between the age of the respondent and contraception use at first sex. The results further show that adolescent girls between the ages of 13–14 years were more likely to use contraception during their first intercourse. This is based on an odds ratio of 1.44 (CI: 0,43-4,82) for those aged 15 and older. School attendance had no effect on contraception use at first sex. Participants who indicated that they were still in school at the time of the survey were 0.55 times (CI: 0,29-1,06) less likely to use contraception at first sex compared to those who were not attending school.

The study also examined the relationship between Christian denomination and contraceptive use at first sex. The results showed that Christian denomination has no effect on the use of contraception at first sex. The findings indicated that across all Christian denomination categories, those who stated that they were not affiliated to any denomination were more likely to have used contraception during their first sexual intercourse with an odds ratio of 1.48 (CI: 0,64-3,44). Relationship status, whether the participant had a boyfriend or not, was a strong predictor of contraception at first sex, with a p-level of 0.001. The findings depict that the likelihood of using contraception at first sex was lower (OR 0.211 CI:0,08-0,55) for adolescents who were in a relationship. In the case of age at first sex, the odds of the significant variables showed that age group 14–16 years were 0.29 times more likely to use contraception at first sex. Comparatively, the odds ratio for adolescent girls aged between 17–19 years was less than 0.13

(CI:0,13-0,64) compared to other age groups. In terms of the employment status of household heads, the data indicated that there was a relationship between outcome and the independent variable. Adolescent girls living in a household with an unemployed head of household were 2.37 (CI:1,27-4,41) times more likely to use contraception at first sex. Place of residence (village) was not a strong predictor of contraception use at first sex. There was only one village, Kraaipan, that showed a significant relationship. The findings further revealed that adolescent girls residing in Moshawane and Ramabesa were more likely to use contraception at first sex by 1.09 (CI: 0,34-3,49) and 1.04 (CI:0,34-3,17) respectively.

Table 4.2: Effect of socio-demographic variables on contraception use at first sex

Variables	Odds ratio	Std. err.	z	[95% CI]	
				Lower	Upper
Age group (years)					
13–14	1,44	0,89	0,59	0,43	4,82
15–16®					
17–19	1,33	0,56	0,68	0,59	3,03
School attendance					
Yes	0,55	0,18	-1,80	0,29	1,06
No®					
Christian denomination					
Catholic	0,72	0,40	-0,59	0,25	2,12
Anglican/Episcopalian	0,49	0,33	-1,07	0,13	1,81
Pentecostal/Evangelical/Prophetic®					
African Independent Church	0,79	0,32	-0,57	0,36	1,76
Other	0,85	0,44	-0,32	0,30	2,36
None	1,48	0,64	0,91	0,64	3,44
Relationship Status					
In a relationship	0,21***	0,10	-3,18	0,08	0,55
Not in a relationship®					
Age at first sex (years)					
Never had sex	-	-	-	-	-
11–13 years®					
14–16 years	0,29**	0,12	-3,06	0,13	0,64
17–19 years	0,13***	0,07	-4,05	0,05	0,34
Employment status of the household head					
Working®					
Not working	2,37**	0,75	2,71	1,27	4,41
Village					
Disaneng	0,35	0,21	-1,78	0,11	1,11
Kraaipan	0,26*	0,18	-1,96	0,07	1,00
Mabule	0,77	0,49	-0,41	0,23	2,64
Madibogo Pan®					
Mareetsane	0,72	0,46	-0,51	0,21	2,50
Matloding	0,46	0,27	-1,35	0,15	1,43
Moshawane	1,09	0,65	0,15	0,34	3,49
Ramabesa	1,04	0,59	0,07	0,34	3,17
Setlagole	0,53	0,27	-1,24	0,20	1,44
_cons	8,84	6,82	2,83	1,95	40,08

Note: * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$; ® = reference category; CI = confidence interval

4.5 Discussions of the findings

The study revealed that relationship status, age at first sex, employment status and village of residence were significant predictors of contraceptive use at first sex. The findings indicated that the majority of the respondents reported that they had a boyfriend at the time of participating in the study, and the majority of those who were in a relationship reported using contraceptives at first sex. The results implied that the likelihood of using contraception at first sex was lower for adolescents who were in a relationship. This finding is similar to a previous study by Manlove *et al.* (2004), which established that young women's odds of ever having used contraception in their first sexual relationships increased with the relationship duration, and decreased if they had not known their partner before dating him. In addition, the study found that the odds of consistent use were higher for women in more casual relationships than for those in committed relationships (Manlove *et al.*, 224). Similarly, a study among Nicaraguan adolescents gave evidence to suggest that having a partner and feeling comfortable talking about sexuality with the partner were associated positively with hormonal contraception use (Decat *et al.*, 2015).

In this study, the results show that there was a positive relationship between the employment status of the head of household and contraceptive use at first sex, so that adolescent girls from a home with an unemployed household head were more likely to use contraception at first sex compared to those from a home with an employed head of household. There is a growing literature on the role of employment status of head of household regarding adolescent sexual and reproductive health (Adebawale *et al.*, 2014; Fadebiyi *et al.*, 2022; UNFPA, 2016). Reviewed literature suggested that economic status and specifically, the employment status of the household head, is positively associated with reduced levels of risk-taking behaviour, including risky sexual behaviour among adolescents (Fadeyibi *et al.*, 2022).

The study also revealed a significant relationship between the age at first sex and contraception use at first sex. The finding is in line with that of a previous study (Martinez & Abma, 2020), which reported age at first sex to be a strong predictor of contraceptive use among teenagers. More specifically, the results indicated that out of the three age groups, girls who first had sex when they were 14–16 years were more likely to have used contraceptives. However, a study by Martinez and Abma (2020) showed that the percentage of teenagers aged 14 years and younger, who had ever used contraception at first sex, was lower compared to older teenagers (17–19 years) who had used a method of contraception at their first sexual intercourse. The findings by Martinez and Abma (2015) also showed a higher percentage of female teenagers who had first sexual intercourse when they were 18 or 19 years old used a method of contraception compared with those who were 17 years and younger at first sexual intercourse. Introduction of life orientation and life skills subjects in school could be the possible explanation for the findings of the study. Moreover, parents now are taking their children to a clinic for contraception, especially after the studied area (Ratlou Local Municipality) trended in the media for the high rate of adolescent pregnancies.

With regard to village of residence and contraception use at first sex, the results indicated a positive significant relationship in Kraaipan village. Kraaipan is one of the villages that are very close to Mafikeng, the capital city of North West Province. Past studies that investigated correlates of contraceptive use at first sex among adolescents reported place of residence as a major determinant of contraceptive use at first sex (Fawole & Adeoye, 2015; Nair & Devi, 2017; Ochako *et al.*, 2017). These studies suggested that living close to areas where reproductive health-related information can be easily accessed empowers adolescent girls to exercise greater power over their reproductive health.

4.6 Summary of the chapter

Chapter four investigated correlates of contraceptive use at first sex among adolescent girls in Ratlou Local Municipality. The descriptive analysis showed that the use of contraception at first sex was low, and school, radio and television were the main sources of information regarding contraception. The bivariate analysis revealed that employment of the household head, relationship status, and village of residence were not associated with contraceptive use at first sex. The binary logistic regression model analysis of the socio-demographic characteristics revealed that age, school attendance, and Christian denomination had no influence on use of contraception at first sex. There was no evidence of multicollinearity in all variables studied in multivariate analysis.

CHAPTER 5: DUAL METHOD CONTRACEPTION KNOWLEDGE

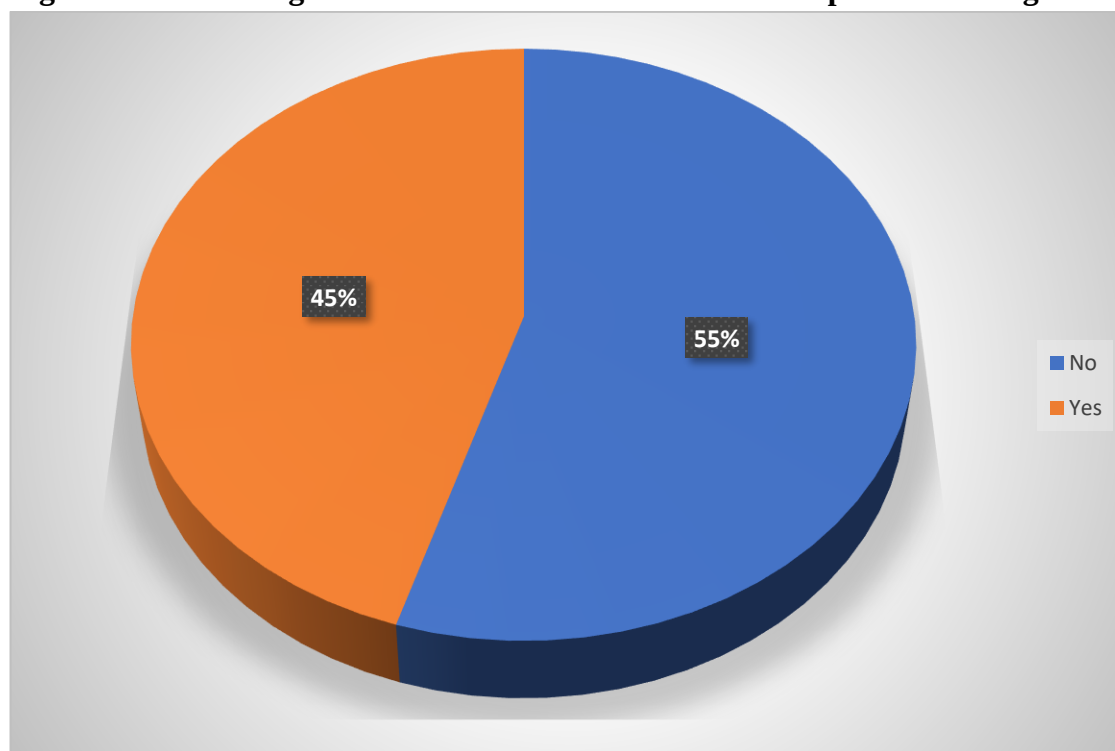
5.1 Introduction

This chapter provides the findings of dual method contraception knowledge and associated factors. The participants were asked if they had ever heard of dual method contraception, and they had to respond by selecting “yes” or “no”. The chapter presents the results at three levels of analysis, namely univariate, bivariate, and multivariate. The univariate analysis presents the percentage distribution of dual method contraception knowledge. The objective of univariate results is to describe the dependent variable. The second level of presentation of results is cross-tabulation and Pearson chi-square to examine the relationship between socio-demographic variables and dual method contraception knowledge. The presentation of the third and last level of results is a multivariate analysis using the binary logistic model to study the effect of selected socio-demographic variables on dual method contraception knowledge.

5.2 Descriptive analysis

Figure 5.1 presents the percentage distribution of dual method contraception knowledge among adolescent girls in the study area. In total, 462 adolescent girls participated in the study. About 55% had not heard of DMC, while 45% had heard about it.

Figure 5.1: Percentage distribution of dual method contraception knowledge



5.3 Prevalence and association of dual contraceptive method knowledge

Table 5.1 presents the distribution of study participants and factors associated with the knowledge of dual method contraception. The bivariate analysis shows a significant association ($p < 0,05$) between dual method contraception knowledge and selected variables, except for school attendance, contraceptive use at first sex, and village of residence. The findings revealed a highly significant association between age of the respondents and dual method contraception knowledge. The majority (55%) of the participants who had heard about dual method contraception were in the age group of 17–19 years, followed by those aged between 15–16 years, with 37%. The results revealed 74% of the participants were attending school, and 43% reported that they had knowledge of dual method contraception. It is observed that the Christian denomination had an influence on the knowledge of dual method contraception. About 73% of the respondents who were affiliated to the Anglican/Episcopalian denomination reported they have knowledge of dual method contraception. This was the highest percentage compared to

other Christian categories. The findings also show that relationship status was associated with knowledge of dual method contraception, with a significance level of 0.000.

The findings of the study also revealed that relationship status, i.e., whether the participant had a boyfriend, was highly associated with dual method contraceptive knowledge. About 65% of the study participants reported that they were in a relationship with a male partner. Amongst those who were in a relationship, 54% indicated that they had knowledge of dual method contraception. The association between age at first sex and knowledge of dual method contraception was strong, with a significance level of 0.000. The results show that most (31%) adolescents in the study first had sex when they were aged between 14–16 years. In terms of dual method contraception knowledge, the percentage distribution indicates that the majority (65%) of the adolescents in the age group 17–19 years had knowledge of dual method contraception.

The results revealed that there was no relationship between contraceptive use at first sex and knowledge of dual method contraception. Interestingly, the majority (47%) of those who did not use contraception at first sex reported that they had knowledge of dual method contraception. The results of the analysis indicated a slightly significant relationship between DMC knowledge and ever falling pregnant. The majority (53%) of girls who had ever been pregnant indicated that they had heard of dual method contraception. The village of residence showed no association with knowledge of dual method contraception. Compared to other villages, most (57%) of the adolescent girls in Disaneng reported that they had knowledge of dual method contraception.

Table 5.1: Distribution of study participants and factors associated with dual method contraception

Variables	Heard of dual method contraception		Number (%)	χ^2 (P-value)
	No	Yes		
	%	%		
Age group (years)				
13–14	68,0	32,0	100 (21,6)	19,5***
15–16	62,7	37,3	126 (27,3)	
17–19	44,9	55,1	236 (51,1)	
School attendance				
Yes	56,6	43,4	343 (74,2)	1,7
No	49,6	50,4	119 (25,8)	
Christian denomination				
Catholic	57,1	42,9	42 (9,1)	14,5**
Anglican/Episcopalian	26,7	73,3	30 (6,5)	
Pentecostal/Evangelical/Prophetic	50,8	49,2	122 (26,4)	
African Independent Church	62,7	37,3	134 (29)	
Other	51,9	48,1	54 (11,7)	
None	58,8	41,3	80 (17,3)	
Relationship status				
In a relationship	46,4	53,6	302 (65,4)	24,9***
Not in a relationship	70,6	29,4	160 (34,6)	
Age at first sex (years)				
Never had sex	69,8	30,2	172 (37,2)	30,1***
11–13	51,4	48,6	70 (15,2)	
14–16	49,0	51,0	145 (31,4)	
17–19	34,7	65,3	75 (16,2)	
Contraceptive use at first sex				
No	53,4	46,6	343 (74,2)	1,1
Yes	58,8	41,2	119 (25,8)	
Ever been pregnant				
Yes	46,8	53,2	124 (26,8)	4,4*
No	57,7	42,3	338 (73,2)	
Village of residence				
Disaneng	43,4	56,6	53 (11,5)	6,79
Kraaipan	56,8	43,2	44 (9,5)	
Mabule	47,7	52,3	44 (9,5)	
Madibogo Pan	61,2	38,8	49 (10,6)	
Mareetsane	57,5	42,5	40 (8,7)	
Matloding	56,0	44,0	50 (10,8)	
Moshawane	53,3	46,7	45 (9,7)	
Ramabesa	65,2	34,8	46 (10)	
Setlagole	53,8	46,2	91 (19,7)	
Total	54,8	45,2	462 (100)	

Note: * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$

5.4 Determinants of dual method contraceptive knowledge.

To examine the effect of socio-demographic variables on DMC knowledge, a binary logistic regression model was adopted, and the results are presented in Table 5.2. The multicollinearity test was performed using the variance inflation factor (VIF) to test the presence (or absence) of collinearity between the independent variables, and the results showed no evidence of multicollinearity (mean VIF 1.48, minimum VIF 1.02, maximum VIF 2.05). The binary logistic model output suggests that the age of the respondent was not associated with dual method contraception knowledge. Moreover, the findings showed that younger adolescents (13–14 years) were 0,98 (CI:0,53-1,82) times less likely to have knowledge of dual method contraception compared to those aged 15–16 years. The results also showed there was no relationship between school attendance and dual method contraception knowledge.

The findings further indicated that there was a relationship between Christian denomination and dual method contraception knowledge, except for those who were affiliated to the Pentecostal/Evangelical/Prophetic and other “unspecified” Christian denomination. The respondent who were affiliated with Catholicism were 0.30 (CI: 0,15-1,04) times more likely to have knowledge of dual method contraception. The results further revealed that relationship status had an influence on dual method contraception knowledge. Those who indicated that they were in a relationship at the time of the survey were 1.91 (CI: 1,10-3,32) times more likely to have knowledge of the method. With regard to age at first sex, the results showed that adolescents who had sex when they were older (17–19 years) were 3.43 (1,53-7,71) times more likely to have knowledge of dual method contraception compared to other age groups.

Contraceptive use at first sex was found to be a determinant of dual method contraception knowledge. The study participants who did not use contraceptives at first sex were 2.072

(CI:1,18-3,64) times more likely to have knowledge of dual method contraception. With regards to ever fallen pregnant and dual method contraception knowledge, the results indicated that there was a relationship between these two variables. The relationship between village of residence and dual method contraceptive knowledge was significant at the 0.01 level of significance. The participants residing in Ramabesa were 0.29 (CI:0,11-077) times less likely to have knowledge of dual method contraception than adolescent girls living in the other villages of Ratlou Local Municipality.

Table 5.2: Effect of socio-demographic variables on dual method contraception knowledge

Variables	Odds ratio	Std. err.	z	[95% CI]	
				Lower	Upper
Age group (years)					
13–14	0,98	0,31	-0,07	0,53	1,82
15–16®					
17–19	1,41	0,43	1,11	0,77	2,57
School attendance					
Yes	1,14	0,33	0,46	0,65	2,00
No®					
Christian denomination					
Catholic	0.30*	0,17	-2,18	0,10	0,88
Anglican/Episcopalian®					
Pentecostal/Evangelical/Prophetic	0,40	0,19	-1,88	0,15	1,04
African Independent Church	0.27**	0,13	-2,67	0,11	0,71
Other	0,40	0,21	-1,75	0,14	1,12
None	0.27**	0,14	-2,56	0,10	0,73
Relationship status					
In a relationship	1.91*	0,54	2,28	1,10	3,32
Not in a relationship®					
Age at first sex (years)					
Never had sex®					
11–13	3.18**	1,21	3,04	1,51	6,71
14–16	2.20*	0,76	2,30	1,12	4,32
17–19	3.43**	1,42	2,99	1,53	7,71
Contraceptive use at first sex					
No	2.07**	0,59	2,54	1,18	3,64
Yes®					
Ever been pregnant					
Yes®					
No	1,11	0,35	0,32	0,59	2,07
Village of residence					
Disaneng	1,16	0,52	0,33	0,48	2,81
Kraaipan	0,50	0,24	-1,45	0,20	1,28
Mabule®					
Madibogo Pan	0,49	0,23	-1,53	0,20	1,22
Mareetsane	0,68	0,33	-0,81	0,26	1,75
Matloding	0,64	0,29	-0,98	0,26	1,57
Moshawane	0,71	0,33	-0,75	0,29	1,75
Ramabesa	0.29**	0,14	-2,50	0,11	0,77
Setlagole	0,83	0,33	-0,47	0,37	1,83
_cons	0,51	0,38	-0,91	0,12	2,17

Note: * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$; ® = reference category; CI = confidence interval

5.5. Discussions of the findings

The summary descriptive statistics for dual method contraception knowledge are given in Table 5.1. The binary regression logistic analysis showed a significant association ($p < 0.05$) between dual method contraception knowledge and selected variables, except age of the respondent, school attendance, and ever fallen pregnant. The results show that Christian denominations influenced the knowledge of dual method contraception. The analysis revealed that respondents who identified themselves as either Anglican/Episcopalian reported that they had heard about dual method contraception compared to study participants affiliated to other Christian denominations. This finding is consistent with previous research, which showed Christian religious belief to significantly influence contraception attitudes (Osuafor & Mturi, 2013). Studies steered in this direction suggested that when adolescents attend religious services more frequently, they are more likely to wait longer to have first sexual debut and first non-sexual intercourse debut (Osuafor & Mturi, 2013; Borch *et al.*, 2011; Yancey & Emerson, 2018). In fact, researchers (Borch *et al.*, 2011; Yancey & Emerson, 2018) have argued that frequently attending religious services, and particularly in denominations that talk frequently about marriage, abstinence, or conservative sexual attitudes may indirectly negatively impact contraceptive knowledge. The fact that these denominations (Anglicans/Episcopalians) of the Church tend to advocate literal biblical beliefs, such as being anti-premarital sex and anti-abortion, and view procreation as the primary goal of sex (Burdette *et al.*, 2005; Pearce & Thomson, 2007), is a factor that may explain the finding in the present study.

The study also tested the relationship between relationship status and dual method contraception knowledge. The results showed evidence to suggest that relationship status was positively associated with knowledge of dual method contraception. The finding was supported by previous studies (Johnson *et al.*, 2014), which established that being in a steady relationship was

associated with consistency of dual method contraception use. Not being ready for undesirable sexual intercourse outcomes, such as an unwanted pregnancy, may implicitly have motivated those in a steady relationship to seek additional information on how to achieve their sexual relationship goals. While being in a steady relationship may increase knowledge about dual method contraception, it does not, however, always predict dual method contraception use. On the contrary, Casola *et al.* (2022) reported that being in a steady relationship was found to be negatively associated with dual method contraception use among females.

The relationship between age at first sex and knowledge of dual method contraception was significant. The results showed that adolescent girls who first had sex when they were older (17–19 years) were more likely to have knowledge of dual method contraception. This finding suggests that knowledge about contraception may be on the upward swing, which should be considered good news since adolescents have previously been reported as having the lowest level of contraceptive knowledge and use (Bitzer *et al.*, 2017; WHO, 2020). In a study conducted by Casmir *et al.* (2021), they found that adolescent girls and young women expressed a strong desire for protection at first sex. This may reflect that the participants may have been exposed to reproductive health information, which is necessary for them to negotiate safe sex with a partner. Furthermore, the study tested whether there was a relationship between contraceptive use at first sex and dual method contraception knowledge. The analysis of results indicated that contraceptive use at first sex was a significant predictor of dual method contraception knowledge.

The relationship between village of residence and knowledge of dual method contraception was also examined in this study. The results showed a positive relationship between place of residence and knowledge of dual method contraception, suggesting that knowledge of dual method contraception was higher among adolescent girls resident in Kraaipan village than those

who live in other villages. Kraaipan village is one of the villages that is very close to Mahikeng town, which is the capital city of North West province. The finding was in line with some previous studies, that found that there was a higher likelihood for people who lived in the urban centres to have more knowledge of effective methods of dual protection than rural dwellers (Ashore *et al.*, 2022; Maharaj & Cleland, 2004). One of the likely reasons for this finding might be adolescent girls who live close to the urban areas have easier access to services and information about dual contraception through various outlets, such as the social media and interpersonal relations. This is not the case for their peers who, because they live far away from the cities, are less aware about reproductive health information, including knowledge about effective methods of protection.

5.6 Summary of the chapter

The previous chapter presented the findings on the correlates of contraception use at first sex. In this chapter contraception use at first sex served as an independent variable. Chapter 5 examined the determinants of knowledge of dual method contraception. The percentage of those adolescent girls who reported that they had knowledge of dual method contraception was low. The analysis of bivariate analysis indicated that socio-demographic characteristics such as the age of the respondent, Christian denomination, relationship status, age at first sex, and ever been pregnant were associated with dual method contraception knowledge. Even though school attendance and contraception use at first were not significant, the percentage of participants with dual method contraception knowledge was higher for the adolescent girls who used contraception at first sex compared to their counterparts. The percentage of respondents who were attending school at the time of the survey scored higher for knowledge of dual method contraception than those not attending school.

The last method of analysis applied in this chapter was the binary logistics model to measure the relationship between socio-demographic characteristics and dual method contraception knowledge. Before selecting a variable for the regression model, a multicollinearity test was done and the results showed no evidence of multicollinearity. The outcome of the binary logistic regression showed that the age of the respondent, school attendance, and ever fallen pregnant were not significant predictors of dual method contraception knowledge.

CHAPTER 6: DUAL METHOD CONTRACEPTION USE

6.1 Introduction

The previous chapters examined factors associated with contraceptive use at first sex and dual method contraception knowledge respectively. The main aim of those two chapters (Chapter 4 and Chapter 5) was to introduce the core of the study, which is the use of dual method contraception. The objective of this chapter is to measure the effect of socio-demographic and economic factors on dual method contraceptive use. Three stages of analysis were undertaken: univariate, bivariate, and multivariate. The bivariate analysis gives the summary of descriptive statistics, namely cross-tabulation (frequency and percentage relationship of two variables) and Pearson's chi-square. In order to achieve the objective of this chapter, the researcher applied a binary logistic regression model.

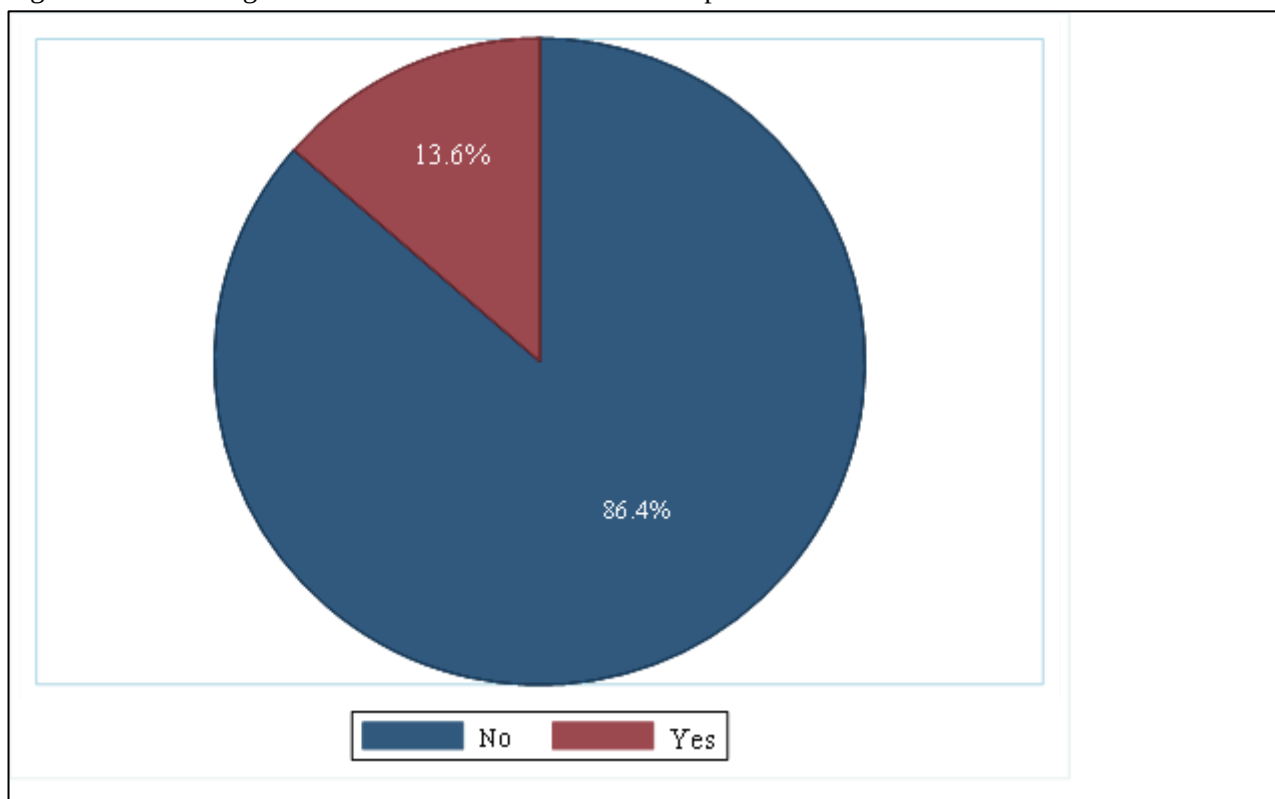
6.2 Univariate results

The univariate analysis gives the basic description of the dependent variable as a percentage, for dual method contraceptive use, type of dual method contraceptive used, the motive for using dual contraception method, and the partner's reaction towards dual method contraception use.

6.2.1. Dual method contraception use

Figure 6.1 shows the percentage distribution of dual method contraceptive use among adolescent girls in Ratlou Local Municipality. The results show that 86% of the participants had never used dual method contraception and only 14% had used the method.

Figure 6.1: Percentage distribution of dual method contraception use



6.2.2. Type of dual method contraception used, motive, and partner's reaction

Table 6.1 presents the percentage distribution of the type of dual method contraceptive used, the motive for using DMC, and the partner's reaction toward dual method contraception use. The results show that 63 respondents had used dual method contraception. Most (44) of the respondents used condoms and injections, followed by condoms and implants. When participants were asked about their motive for using DMC, the majority (42) stated that they feared getting pregnant and getting HIV/AIDS. However, when respondents were given the choice of "afraid to get pregnant" or "afraid to get HIV/AIDS" as separate categories, many (17) respondents selected the option "afraid to get pregnant". Participants were also asked about the reaction of their partners when they proposed the use of dual method contraception. Out of 63 respondents who indicated that they had used dual method contraception, 30 participants reported that their partners were excited. Twenty two participants stated that they did not tell

their partners. However, only one participant indicated that her partner was angry when she proposed the use of dual method contraception.

Table 6.1: Percentage distribution of type of dual method contraception used, motive, and partner's reaction

Variables	Frequency	Percent (%)
Type of dual method used		
Never used dual contraception	399	86
Condom & Pills	9	2
Condom & Injection	44	10
Condom & Implant	6	1
Other	4	1
Total	462	100
A motive for dual method		
Never used dual method contraception	399	86
Afraid to get pregnant	17	4
Afraid to get HIV/AIDS	4	1
All of the above	42	9
Total	462	100
Partner's reaction to dual method		
Never used dual contraception	399	86
Excited	30	7
Disappointed	4	1
Angry and refused	1	0.2
Angry but agreed	6	1
Did not tell him	22	5
Total	462	100.00

6.3. Prevalence and association of dual contraceptive use

Table 6.2 shows the percentage distribution of dual method contraception use by selected socio-demographic characteristics of adolescent girls in Ratlou Local Municipality. The results revealed that the age of the respondent was associated with dual method contraceptive use ($p < 0.001$). The results showed that use of dual contraception increased with age. Those aged 17–19 years had a higher prevalence (21%) of using dual method contraception, while those aged 13–14 years had a lower prevalence (3%) of using dual method contraception.

With regard to alcohol consumption status, there was a slight difference between the participants who reported consuming alcohol and their counterparts. The results further showed that alcohol consumption status was statistically associated with dual method contraceptive use. The majority (20%) of those who drank alcohol indicated that they had used dual method contraception. Moreover, the study examined the association between dual contraceptive method use and knowledge of dual method contraception. There was a statistically significant association ($p < 0.001$) between knowledge of dual method contraception and DMC use. Among the participants who reported knowing about dual method contraception, only 30% used it. The results of the analyses indicated that there was no association between use of dual method contraception and contraceptive use at first sex. The percentage of adolescent girls who had used dual method contraception and had used contraceptives at first sex was lower (9%) as compared to those who did not use contraceptives at first sex. Regarding dual method contraceptive use and ever fallen pregnant, the results showed a significant association. A majority (25%) of the respondents who had ever been pregnant indicated that they had used dual method contraception.

The findings show that household characteristics such as sex and employment status of the head of the household were not associated with dual method contraceptive use. The small differences were reflected in the results pertaining to the use of dual method contraception by sex of the household head, 13.8% being for adolescent girls from male-headed households and 13.6% being for adolescent girls from female-headed households. The difference in dual method contraceptive use by employment status was seemingly small. Those whose household heads were working (15%) showed a difference of 2% from those who were not working (13%). Study results also showed that village of residence was not associated with ever using DMC. Even though Setlogole was sampled twice due to the large population, the use of DMC was less when compared to Mabule and Matloding.

Table 6.2: Percentage distribution of use of dual method contraception by selected socio-demographic characteristics

Variables	Use of dual method contraception		Number (%)	χ^2 (P-value)
	No	Yes		
	%	%		
Age group (years)				
13–14	97,0	3,0	100 (21,6)	24,5****
15–16	92,1	7,9	126 (27,3)	
17–19	78,8	21,2	236 (51,1)	
Alcohol consumption status				
Drinks alcohol	79,9	20,1	224 (48,5)	15,4****
Does not drink alcohol	92,4	7,6	238 (51,5)	
Heard of dual method contraception				
No	100,0	0,0	253(54,8)	88.3****
Yes	69,9	30,1	209(45,2)	
Contraceptive use at first sex				
No	84,8	15,2	343 (74,2)	2,6
Yes	90,8	9,2	119 (25,8)	
Ever been pregnant				
Yes	75,0	25,0	124 (26,8)	18,6****
No	90,5	9,5	338 (73,2)	
Sex of household head				
Male	86,2	13,8	123 (26,6)	0
Female	86,4	13,6	339 (73,4)	
Employment status of the household head				
Working	84,9	15,1	166 (35,9)	0,4
Not working	87,2	12,8	296 (64,1)	
Village of residence				
Disaneng	90,6	9,4	53 (11,5)	7,9
Kraaipan	88,6	11,4	44 (9,5)	
Mabule	79,5	20,5	44 (9,5)	
Madibogo Pan	91,8	8,2	49 (10,6)	
Mareetsane	85,0	15,0	40 (8,7)	
Matloding	86,0	14,0	50 (10,8)	
Moshawane	82,2	17,8	45 (9,7)	
Ramabesa	93,5	6,5	46 (10)	
Setlagole	82,4	17,6	91 (19,7)	
Total	86,4	13,6	462 (100)	

Note: * = p<0.05; ** = p<0.01; *** = p<0.001

6.4 Determinants of dual method contraception use

Table 6.3 presents the results of the regression model on the effect of socio-demographic and economic variables on dual method contraceptive use. The study adopted a binary logistic regression model to examine the effect of socio-demographic and economic variables on the use of dual method contraception. A multicollinearity test was performed using the variance inflation factor (VIF) to test the presence (or absence) of collinearity between the independent variables, and the result showed no evidence of multicollinearity (mean VIF 1.19 minimum VIF 1.03, maximum VIF 1.42). Knowledge of dual method contraception was collinear with the outcome, hence it was removed from the regression model. The results showed that respondents' age influenced dual method contraception use, and use of dual method contraception increased with age. The respondents who were 15–19 years old were 0.38 (95% CI: 0,17-0,86) times less likely to use dual method contraception compared to those aged 17–19 years.

The study revealed that there was no relationship between alcohol consumption status and the use of dual method contraception. The results also indicated that those who drink alcohol were more likely to use dual method contraception. Factors related to reproductive behaviour, contraceptive use at first sex, and ever fallen pregnant had an influence on the use of dual method contraception. The findings revealed that the likelihood of using dual method contraception was 0,44 (CI: 0,22-0,88) times lower for adolescents who had never fallen pregnant. The findings further revealed that sex and employment status of the household head were not related with the use of dual method contraception. However, the results showed that adolescents whose head of the household was female were more likely to use dual method contraception. The relationship between village of residence and the use of dual method contraception was slightly positive. Young girls who lived in Kraaipan village had lower odds (0.27, CI: 0,07-0,96) of using dual method contraception compared to those who lived in Mabule village. Moreover, those who

lived in Ramabesa village had lower odds (0.18, CI:0,04-0,78) of using dual method contraception compared to all other villages.

Table 6.3: Effect of socio-demographic and economic variables on dual method contraception use

Variables	Odds ratio	Std. err.	z	[95% CI]	
				Lower	Upper
Age group (years)					
13–14	0.17**	0,11	-2,69	0,05	0,62
15–16	0.38*	0,16	-2,32	0,17	0,86
17–19®					
Alcohol consumption status					
Drinks alcohol	1,91	0,63	1,95	1,00	3,66
Does not drink alcohol®					
Contraceptive use at first sex					
No®					
Yes	0.31**	0,12	-2,93	0,14	0,68
Ever been pregnant					
Yes®					
No	0.44*	0,16	-2,32	0,22	0,88
Sex of household head					
Male	0,88	0,30	-0,37	0,45	1,73
Female®					
Employment status of the household head					
Working	0,95	0,30	-0,17	0,51	1,78
Not working®					
Village of residence					
Disaneng	0,35	0,22	-1,63	0,10	1,24
Kraaipan	0.27*	0,17	-2,02	0,07	0,96
Mabule®					
Madibogo Pan	0,33	0,22	-1,64	0,09	1,24
Mareetsane	0,54	0,34	-0,99	0,16	1,82
Matloding	0,49	0,30	-1,18	0,15	1,60
Moshawane	0,88	0,52	-0,21	0,28	2,81
Ramabesa	0.18*	0,14	-2,30	0,04	0,78
Setlagole	0,87	0,44	-0,29	0,32	2,32
_cons	0,73	0,41	-0,55	0,24	2,21

Note: * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$; ® = reference category; CI = confidence interval

6.5 Discussions of the findings

The findings showed that use of dual method contraception increased with age. According to the results, adolescent girls in the age group 15–16 years, were more likely to use dual method contraception, followed closely by those in the age group 13–14 years old. This finding is similar to previous studies that have found that being younger is positively associated with preventive sexual behaviours, such as dual method contraception use (Hood *et al.*, 2014; Lemoine *et al.*, 2017; Osuafor & Maputle, 2017; Sieving *et al.*, 2007). A straightforward explanation of this finding would be that the fear of an unplanned and early pregnancy and its consequences, which usually come with a great deal of financial and social burdens, might have contributed to the use of dual method contraception for protection during sexual interactions among the young girls sampled in this study. The findings also showed contraceptive use at first sex to be significantly associated with dual method contraceptive use among adolescent girls in Ratlou Local Municipality. The finding was somewhat expected, as it supported previous studies which reported that contraception use at first sex predicted later use of dual method contraception (Manning *et al.*, 2000; Peipert *et al.*, 2011).

The use of dual method contraception was significantly correlated to ever been pregnant, suggesting that girls who had ever been pregnant were more likely to use dual method contraception. The results differ from prior research which found that women who had ever been pregnant were less likely to use dual method contraception (Harris *et al.*, 2022). In contrast, the findings in this study were supported by previous studies that found that having ever been pregnant was related to contraceptive use (MacPhail *et al.*, 2007; Munsakul *et al.*, 2016). Previous unintended pregnancies due to the non-use of dual method contraception are likely to strengthen the decision to prioritize DMC as a strategy to reduce the risk of future unintended pregnancy. The results indicated a positive significant association between place of residence and contraceptive use at first sex only at Kraaipan Village. Further analysing the results suggests

that adolescent girls residing in Moshawane and Ramabesa were more likely to use DMC than girls residing in other villages surveyed in the study. Past studies that investigated correlates of DMC use among adolescents reported place of residence as a major determinant of DMC use (Fawole & Adeoye, 2015; Nair & Devi, 2017; Ochako *et al.*, 2017).

6.6 Summary of the chapter

This chapter examined the effect of socio-demographic characteristics such as age, alcohol consumption status, contraceptive use at first sex, ever fallen pregnant, sex of the household head, employment status of the household head, and village of residence on dual method contraception use. The chapter also described the type of dual method contraception used, the motive, and the partner's reaction. The results showed a lower percentage of dual method contraceptive use among the participants. The participants reported using condom and injection, mostly to prevent pregnancy and HIV/AIDS. The bivariate analysis revealed that age of the respondent, alcohol consumption status, knowledge of dual method contraception and ever fallen pregnant were significantly associated with the use of dual method contraception. The effect of socio-demographic characteristics on dual method contraception was further analysed using a binary logistic model. The model revealed that age, contraceptive use at first sex, ever fallen pregnant, and village of residence were significant predictors of the use of dual method contraception.

CHAPTER 7: SUMMARY AND RECOMMENDATIONS

7.1 Introduction

The present study investigated the correlates of DMC among adolescent girls in the Ratlou Local Municipality in the North West Province, South Africa. The study was designed to achieve three specific objectives, namely, to examine the influence of socio-demographic factors on contraceptive use at first sex among adolescent girls; to establish the relationship between socio-demographic factors and knowledge of dual method contraception among adolescent girls, and lastly, to examine the influence of socio-demographic factors on dual method contraceptive use among adolescent girls.

7.2 Synthesis of main findings

7.2.1 The role of socio-demographic factors on contraceptive use at first sex

The study examined the effect of socio-demographic and economic factors on the use of contraception during the first sexual intercourse. Relationship status as a predictor of contraceptive use at first sex was statistically significant. The results suggested that the likelihood of contraceptive use at sexual debut increased among adolescent females who have a male partner with whom they were romantically involved. This finding did not reflect the trend reported in a study conducted by Manning *et al.* (2000) from a study on 1593 females who had their first sexual experience before turning 18 years old. Manning *et al.* (2000) reported, among other findings, that more than 50% of the girls who had just had their sexual debut used no contraception. The results also showed a statistically significant association between employment status of the head of household and contraceptive use at first sex. The result revealed that adolescent girls living in households with an unemployed head of household were more likely to use contraception at first sex. This outcome was contradictory to findings generally

reported in the literature. The majority of the past studies reported that women from poor homes were much less likely to use contraception than their counterparts from more well-to-do home (Adebowale *et al.*, 2014; Adebowale *et al.*, 2016).

In terms of village of residence and contraceptive use at first sex, the results showed that adolescent girls living in Kraaipan Village were significantly associated with contraceptive use at first sex. The adolescent girls living in Moshawane and Ramabesa were more likely to use contraception at first sex.

7.2.2 The role of socio-demographic factors on knowledge of dual method contraception

The second objective of the study was to examine whether socio-demographic factors (age group, school attendance, Christian denomination, relationship status, age at first sexual encounter, contraceptive use at first sex, ever fallen pregnant and place of residence) influences dual method contraceptive knowledge. This was also tested using binary logistic regression and the results revealed significant associations between selected socio-demographic variables and dual method contraceptive knowledge. The findings indicated that only, Christian denomination, relationship status, age at first sex and place of residence were significant predictors of dual method contraception knowledge.

The findings showed that participants who identified themselves as either Anglican/Episcopalian were more likely compared to other Christian denominations to have heard about dual method contraception. The finding was consistent with previous research, which suggests that Christian religious belief predicted attitudes to contraception (Osuafor & Mturi, 2013). In the context of this study, the finding was an indication that Anglicans and Episcopalians probably talked more frequently about marriage and abstinence, leading to an increase in the knowledge of contraceptives among congregants, particularly young females.

Relationship status and DMC knowledge were also examined. In the study, relationship status was positively associated with knowledge of DMC. This finding is consistent with prior studies showing that male awareness of and support for use of modern contraceptives was associated with the desire of their female partners to use contraception (Ezeanolue *et al.*, 2015). This finding strongly suggests that the partner's contraception knowledge is directly related to the female's knowledge of contraception.

7.2.3 The role of socio-demographic factors on the use of dual method contraception

Objective three of the study aimed to determine associations between socio-demographic factors and dual method contraceptive use among adolescent girls. The results showed that the age of the respondent, ever been pregnant, contraception use at first sex and the village of residence contributed significantly to dual method contraceptive use. In terms of age group association with dual method contraceptive dual method contraceptive use, younger adolescent girls were more likely to use dual method contraception. This result was supported by the findings of Osuafor and Maputle (2017), who conducted a study in the Mafikeng Municipality and found that younger women within the age bracket of 15–24 years of age were more likely to use dual protection compared to older women. One explanation was that younger females tended to be more sexually active and were therefore more motivated to use dual protection to avoid unintended consequences such as pregnancy and STIs.

The study findings indicated that there was a statistically significant association between ever been pregnant and dual method contraceptive use. The study results suggests that compared to those who had never been pregnant, adolescent girls who had ever been pregnant were significantly more likely to use dual method contraception. The finding is supported by previous studies, which revealed that contraceptive use increased among women who had ever been pregnant in the past more than among those who had never had a pregnancy (MacPhail *et al.*,

2007; Munsakul *et al.*, 2016). It may be those adolescent girls who had ever been pregnant might not have wanted that outcome and thus ensured that they used dual protection to reduce a recurrence.

7.3 Conclusion

Use of dual method contraception has great potential in reducing adolescent fertility. This study had revealed the use of contraception was generally low among adolescent girls. The binary results for contraceptive use at first sex and knowledge of dual method contraception depicted that education was not associated with use of contraception. The study reaffirmed the saying that “experience is the best teacher”, as the results revealed that contraceptive use at first sex and ever fallen pregnant variables were positively associated with dual method contraceptive use among adolescent girls. Other study variables that were found to have influence on the dual method contraceptive use included age and village of residence.

7.4 Limitations of the study

The study adopted a cross-sectional design, which limits the ability to draw causal inferences. The implication is that the study could only look for associations, not for cause and effect. The self-reporting approach was used for data collection. This could have led to under-estimates or over-estimates of some information, which could undermine the true prevalence of dual method contraception knowledge and use among the study participants. The retrospective measure of characteristics around first sexual intercourse might have had an impact on the findings, as adolescent girls may recall their sexual debut as more or less serious, because of the way the first sexual relationship ended, or pregnancy as an outcome. While it may be slightly difficult to ask adolescent girls about the nature of their relationship precisely when they had first sexual

intercourse, being able to do this will help in avoiding recall problems that can negatively impact the findings.

7.5 Contribution

The study will provide empirical evidence of the issues outlined in the statement of the problem; specifically, the issues that were trending in the media, during the conceptualisation of this study, concerning the increasing high adolescent pregnancy rates in Ratlou Local Municipality (UNFPA, 2016). The study contributes to the literature on the correlates of dual method contraception knowledge and use, and contraceptive use at first sex among adolescent girls in a rural setting. The findings of the study will be shared with the North West Department of Social Development and other relevant government departments for enhancing capacity building and advocacy programmes with respect to reproductive health that are relevant to rural areas in the province.

7.6 Recommendations

The following are the recommendations emanating from this research:

- i. There is a need for departmental collaboration in advocating for the use of dual method contraception. The Departments of Social Development and Health should lead the dialogue on dual method contraception, its benefits and effects, so that adolescents can have better insight and relevant information to make informed decisions with respect to their reproductive health.
- ii. The Population Studies Subject group at the North West University should conduct advocacy sessions jointly with traditional leaders that aim at raising awareness about the

consequences of early childbearing on the socio-economic development of young girls and on the province at large.

- iii. There should be an adolescent community forum where experience of early childbearing, contraceptive use, dual method contraceptive use, and other social challenges faced by adolescents can be discussed, and possibly have a social platform linked to relevant sectors/departments, such as Health, Social Development, South Africa Policy services, and relevant NGOs.
- iv. Policy-makers should come up with adult education training programmes for rural areas focusing on family planning. This will revive the proverb that says "It takes a village to raise a child"; this will help in dealing with social ills (e.g., rape) experienced mostly by the girl child. This recommendation is endorsed by the response of a participant who was raped and then tested positive for HIV; she decided to sleep around as a way to get revenge. She said that instead of her mother supporting her, she was accused of being useless, and not dressing properly.
- v. Participants asked for intervention of the department responsible for housing, as they share small spaces and are exposed to sexual activities at a household level. A participant said that she became sexually active due to what she heard and saw happening in the house at night.
- vi. Future research should investigate causal relationships among the study variables using a longitudinal design to detect how changes in the predictor variables influence change in knowledge and use of DMC by adolescent girls.

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APPENDICES

Appendix 1: Title registration

 **NWU**[®]
NORTH-WEST UNIVERSITY
YUNUS KHAYI WA TEGENOT-BOPTUWA

Private Bag X6001, Potchefstroom
South Africa, 2520

Tel: (018) 299-1111/2222
Web: <http://www.nwu.ac.za>

Higher Degree Administration
Tel: 0183852698
Email: 27085282@nwu.ac.za
Enquiries: MR TE MASEMOLA

2020/02/06

Dear MISS NGAKE

MODIFIED TITLE

At the recent meeting of the NWU Faculty of Humanities your title was approved as follows:

Correlates of dual method of contraception among adolescent girls in Ratlou Local Municipality, South Africa

The above-mentioned title may under **no circumstances** be changed without consulting your supervisor/promoter and obtaining the approval from the Faculty Board.

Should you wish to submit for examination, please inform your Supervisor? Upon approval of your supervisor, please submit the Notice of Submission form THREE months in advance, if you intend on submitting. The Notice of Submission-form is available at the Higher Degree Administration Office or the administrative manager of the faculty.

Your attention is drawn to the following publications / web addresses:

- A Rules
- Manual for Postgraduate Studies

We wish you a pleasant and successful period of study.


Me
for REGISTRAR



7.1.11.

Appendix 2: Ethics approval letter



Private Bag X1290, Potchefstroom
South Africa 2520

Tel: 018 299-1111/2222
Fax: 018 299-4910
Web: <http://www.nwu.ac.za>

Senate Committee for Research Ethics
Tel: 018 299-4849
Email: nkosinathi.machine@nwu.ac.za

25 June 2021

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the North-West University Human Social Sciences Research Ethics Committee (NWU-HSS-REC) on 25/06/2021, the North-West University Human Social Sciences Research Ethics Committee hereby approves your study as indicated below. This implies that the North-West University Senate Committee for Research Ethics (NWU-SCRE) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: CORRELATES OF DUAL METHOD CONTRACEPTION AMONG ADOLESCENT GIRLS IN RATLOU LOCAL MUNICIPALITY, SOUTH AFRICA.																												
Supervisor: Prof I. Sabiti																												
Co-supervisor: Dr M. Tsawe																												
Student: M. Ngake (20851219)																												
Ethics number:	<table border="1"><tr><td>N</td><td>W</td><td>U</td><td>-</td><td>0</td><td>0</td><td>6</td><td>6</td><td>4</td><td>-</td><td>2</td><td>1</td><td>-</td><td>A</td><td>7</td></tr><tr><td colspan="3">Institution</td><td colspan="3">Study Number</td><td colspan="3">Year</td><td colspan="3">Status</td></tr></table> Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation	N	W	U	-	0	0	6	6	4	-	2	1	-	A	7	Institution			Study Number			Year			Status		
N	W	U	-	0	0	6	6	4	-	2	1	-	A	7														
Institution			Study Number			Year			Status																			
Application Type: Single Study	Risk Category: <table border="1"><tr><td>Medium - High</td></tr></table>	Medium - High																										
Medium - High																												
Commencement date: 25/06/2021																												
Expiry date: 25/12/2021																												
Approval of the study is initially provided for six months, after which continuation of the study is dependent on receipt and review of <u>six-monthly</u> (or as otherwise stipulated) <u>monitoring report</u> and the concomitant issuing of a letter of continuation.																												

Special in process conditions of the research for approval (if applicable):

- Translation of the informed consent document to the languages applicable to the study participants should be submitted to the NWU-HSS-REC (if applicable).
- Any research at governmental or private institutions, permission must still be obtained from relevant authorities and provided to the NWU-HSS-REC. Ethics approval is required BEFORE approval can be obtained from these authorities.

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- The study leader/supervisor (principal investigator)/researcher must report in the prescribed format to the NWU-HSS-REC:
 - annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and
 - without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.
- The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the NWU-HSS-REC, prior to

implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.

- Annually a number of studies may be randomly selected for an external audit.
- The date of approval indicates the first date that the study may be started.
- In the interest of ethical responsibility, the NWU-SCRE and NWU-HSS-REC reserves the right to:
 - request access to any information or data at any time during the course or after completion of the study;
 - to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;
 - withdraw or postpone approval if:
 - any unethical principles or practices of the study are revealed or suspected;
 - it becomes apparent that any relevant information was withheld from the NWU-HSS-REC or that information has been false or misrepresented;
 - submission of the annual (or otherwise stipulated) monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and / or
 - new institutional rules, national legislation or international conventions deem it necessary.
- NWU-HSS-REC can be contacted for further information or any report templates via 21081719@nwu.ac.za / 13128388@nwu.ac.za.

The NWU-HSS REC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the NWU-HSS REC or the NWU-SCRE for any further enquiries or requests for assistance.

Yours sincerely



Prof. Jacques Rothmann
Chairperson NWU Human Social Sciences Research Ethics Committee

Original details: (22351930) C:\Users\22351930\Desktop\ETHICS APPROVAL LETTER OF STUDY.docm
8 November 2018

Current details: (22351930) M:\DSB\185339\Monitoring and Reporting Cluster\Ethics\Certificates\Templates\Research Ethics Approval Letters\9.1.5.4.1 NWU-HSS-REC Ethical Approval Letter.docm
5 December 2018

File reference: 9.1.5.4.2

31 October 2021

**FEEDBACK ON APPLICATION OF AMENDMENT TO RESEARCH STUDY FROM THE
NORTH-WEST UNIVERSITY HUMAN AND SOCIAL SCIENCE RESEARCH ETHICS
COMMITTEE (HSSREC) OF THE FACULTY OF HUMANITIES**

Study title: "Correlates of dual method contraception among adolescent girls in Ratlou Local Municipality, South Africa".

Study leader/supervisor: Prof Ishmael Kalule-Sabiti

Co-supervisor: Dr Mluleli Tsawe

Student: Ngake, M.

Application type: Single Study (PhD).

Risk level: Medium-High.

Ethics number: NWU-00664-21-A7,

Kindly use the ethics reference number provided above in all future correspondence or documents submitted to the administrative assistant of the North-West University HSSREC.

Dear Ms Ngake,

The Human and Social Sciences Research Ethics Committee (HSSREC) has reviewed the monitoring report and application for an amendment to your study and reached the conclusion that your application is *approved with minimal changes* and that your study may continue pending the submission of the below correction in your monitoring report to the HSSREC.

You indicated that the overall thematic focus and methodology will remain unchanged. You applied to make an amendment to the questionnaire to address a minor exclusion/error in the initial questionnaire approved by the HSSREC on 25/06/2021. The change relates to the "skip pattern on question D02(SEXUAL ENGAGEMENT)", to ensure a logical progression in the completion of the questionnaire on the part of the respondent, depending on their answer to question D02. The previous skip pattern stated that if the respondents noted that they have never engaged in sexual activities with a male (i.e. answer is "no"), then the interview ends. That meant that you could lose vital information that is central to the study. Now, the skip pattern has been modified to state that if the answer is "no", then the respondent should skip to question D11 (i.e. knowledge about dual-contraception). You justified this change by noting that knowledge of contraception does not depend on whether one has engaged in sexual intercourse or not.

The original questionnaire, however, indicated that if you answer "No", you should proceed to D16, which is not the end of the questionnaire. The amendment, however, addresses this error. Please indicate this point on the Monitoring Report and resubmit the correction to the HSSREC in order for us to issue you with the updated HSSREC ethics approval letter.

Other than this, your amendment request is in order.

Kindly send copies of the full revised monitoring and amendment application form to Ms Yvette van der Merwe and Prof Jacques Rothmann as soon as possible for final approval.

Please do not hesitate to contact us if you have any concerns or questions.

Yours sincerely



Professor Jacques Rothmann
Chairperson
Human and Social Sciences Research Ethics Committee (HSSREC)

 SURVEY QUESTIONNAIRE CORRELATES OF DUAL METHOD OF CONTRACEPTION AMONG ADOLESCENT GIRLS IN RATLOU LOCAL MUNICIPALITY, SOUTH AFRICA	
BACKGROUND INFORMATION	
I am Keselwetse Mirriam Ngake, a PhD student at North-west University, Mafikeng Campus. May I kindly request you to be part of my study by providing me with the information needed on the questionnaire? Please do not state your name. I assure you that, your information will be shared with participating organisation and institutions only. Student number: 20851219 Ethics approval number: NWU-00664-21-A7	
K00: QUESTIONNAIRE INFORMATION QUESTIONNAIRE NUMBER K M N <i>E.g. KMN0001</i> Province: North West Ward number: Name of village: Surname and initial(s) of fieldworker:	K01: DATE OF INTERVIEW Day of interview: (e.g. 24) Month of interview: (e.g. January) Year of interview: 2021
K02: CONSENT Do you consent to participate in this study? 1 = YES ☐ Please write the number corresponding to your response in the box <i>Before coming to the questionnaire, consent letters will be read & explained to all parties. Only those who consent will be interviewed (hence the "NO" option is missing here).</i>	K03: PERMISSION FOR PRIVACY Would it be possible to interview the participant alone (without the parent / friend / guardian)? 1 = YES 2 = NO, parent present 3 = NO, friend present ☐ Please write the number corresponding to your response in the box 4 = NO, guardian present

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

Read Out: Now, I am going to ask you for basic information about yourself.

A00: STAYED NIGHTS (VISITORS) Have you been staying here (in this household) for at least four nights on average per week during the last four weeks? 1 - YES ☐ Please write the number corresponding to your response in the box 2 - NO ☐ Please write the number corresponding to your response in the box	A05: SCHOOL ATTENDANCE Are you currently attending school? 1 - YES → Go to A06 ☐ Please write the number corresponding to your response in the box 2 - NO → Go to A07 ☐ Please write the number corresponding to your response in the box
A01: DATE OF BIRTH In which year were you born? (e.g. 1960) In which month were you born? (e.g. January) On which day were you born? (e.g. 24)	A06: CURRENT GRADE ATTENDING At which grade are you CURRENTLY attending? 1 - Grade 4 2 - Grade 5 3 - Grade 6 4 - Grade 7 5 - Grade 8 6 - Grade 9 7 - Grade 10 8 - Grade 11 9 - Grade 12 ☐ Please write the number corresponding to your response in the box
A02: AGE IN COMPLETED YEARS What is your age in completed years? (e.g. 27) Age in completed years is the your age at your last birthday. For example, if you are 25 years and 6 months old, write 25 for age.	A07: HIGHEST LEVEL OF EDUCATION What is your HIGHEST level of education? 1 - No schooling 2 - Some primary (Grade 0-5) 3 - Completed primary (Grade 7) 4 - Some secondary (Grade 8-11/Level 2-3/N1-2) 5 - Completed Secondary (Grade 12/Level 4/N3) 6 - Other ☐ Please write the number corresponding to your response in the box
A03: MARITAL STATUS What is your PRESENT marital status? 1 - Never married 2 - Living together 3 - Married 4 - Other, specify ☐ Please write the number corresponding to your response in the box	A08: RELIGIOUS DENOMINATION Which Christian denomination, if any, do you identify with most closely? 01 - Catholic 02 - Anglican/Episcopalian 03 - Lutheran 04 - Methodist 05 - Pentecostal/Evangelistic (e.g. Assemblies of God, Apostolic Faith mission, etc.) 06 - Prophetic ministry 07 - African Independent Church/African Initiated Church (e.g. ZCC, etc.) 08 - Jehovah's Witness 09 - Seventh Day Adventist 10 - Mormon (e.g. Church of Jesus Christ of Latter Day Saints) 11 - Reformed Church (e.g. Dutch Reformed Church, etc.) 12 - None (no religious affiliation/belief) ☐ Please write the number corresponding to your response in the box 13 - Other, specify
A04: POPULATION GROUP Which of the following is your race? 1 - BLACK/AFRICAN 2 - COLOURED 3 - INDIAN 4 - ASIAN 5 - WHITE ☐ Please write the number corresponding to your response in the box	

SECTION B: HOUSEHOLD & FAMILY CHARACTERISTICS

Read Out: Now, I am going to ask you for basic information about you and your family.

B01: SEX OF HOUSEHOLD HEAD What is the gender of the household head? 1 - MALE ☐ Please write the number corresponding to your response in the box 2 - FEMALE	B06: EDUCATION LEVEL OF HEAD OF HOUSEHOLD What is the HIGHEST level of education of the household head? 1 - No schooling 2 - Some primary (Grade 0-6) 3 - Completed primary (Grade 7) 4 - Some secondary (Grade 8-11/Level 2-3/N1-2) 5 - Completed Secondary (Grade 12/Level 4/N3) 6 - Higher (Diploma, Degree, Honours, Masters & PhD) 7 - Other ☐ Please write the number corresponding to your response in the box
B02: AGE IN COMPLETED YEARS OF HEAD OF HOUSEHOLD What is the household head's age in completed years? (e.g. 48) Age in completed years is the your age at the last birthday. For example, if you are 57 years and 6 months old, write 57 for age.	B07: EMPLOYMENT STATUS OF HEAD OF HOUSEHOLD Is the head of the household working? 1 - YES → Go to C01 2 - NO → Go to B08 ☐ Please write the number corresponding to your response in the box
B03: RELATIONSHIP TO HEAD OF HOUSEHOLD What is your relationship to the head of household? I am the... 01 - Head 02 - Husband 03 - Wife 04 - Mother 05 - Father 06 - Grandparent 07 - Brother 08 - Sister 09 - Child (daughter) 10 - Foster child 11 - Not related 12 - Other relative ☐ Please write the number corresponding to your response in the box	B08: SOURCE OF INCOME OF HEAD IF HOUSEHOLD HEAD IS UNEMPLOYED What is the source of income if the household head is unemployed? 1 - Respondent (I take care of the household expenses) → Go to B09 2 - External family (aunts, uncles, cousins) 3 - Child support grant 4 - Foster care grant 5 - Child maintenance 6 - Old-age grant 7 - Other, specify ☐ Please write the number corresponding to your response in the box → If 2-7, go to C01
B04: HOUSEHOLD SIZE How many people are there in your household (INCLUDING YOU)? (e.g. 5)	B09: RESPONDENT'S SOURCE OF INCOME What is your source of income? 1 - Work 2 - Child support grant 3 - Foster care grant 4 - Child maintenance 5 - Boyfriend support me 6 - Other, specify ☐ Please write the number corresponding to your response in the box
B05: TYPE OF RELATIONSHIP WITH HEAD OF HOUSEHOLD How can you describe the relationship you have with the household head? 1 - I am the head of household 2 - Open (we can discuss any topic) 3 - Distant (we can talk about most of the things but not issues of dating and sex) 4 - Closed (we only talk when there is a household need to be attended to) ☐ Please write the number corresponding to your response in the box	

SECTION C: BEHAVIOURAL INFORMATION

Read Out: Now, I am going to ask you for basic behavioural information.

C01: SMOKING STATUS

Do you smoke?

- 1 - YES → Go to C02
2 - NO → Go to C03

Please write the number corresponding to your response in the box

C02: TYPE OF TOBACCO OR SUBSTANCE SMOKED

Which of the following do you **MAINLY** smoke?

- 1 - Cigarette
2 - Boxer
3 - Whoonga
4 - Nyaope
5 - Other, specify

Please write the number corresponding to your response in the box

C03: ALCOHOL INTAKE

Do you drink any alcoholic beverages?

- 1 - YES → Go to C04
2 - NO → Go to D01

Please write the number corresponding to your response in the box

C04: ALCOHOL CONSUMPTION HABITS

How often do you have a drink containing alcohol?

- 1 - Every day
2 - Once a week
3 - 2-3 times per week
4 - 4-5 times per week
5 - Only on weekends
6 - On special occasions

Please write the number corresponding to your response in the box

C05: REASONS FOR ALCOHOL CONSUMPTION

Why did you start consuming alcohol?

- 1 - Peer pressure
2 - Curiosity
3 - Because you 'felt like it'
4 - Influence of an adult
5 - Other, specify

Please write the number corresponding to your response in the box

SECTION D: SEXUAL AND REPRODUCTIVE HEALTH INFORMATION

Read Out: Now, I am going to ask you for information about sexual and reproductive health.

D01: BOYFRIEND Do you have a boyfriend? 1 - YES ☐ Please write the number corresponding to your response in the box 2 - NO ☐	D06: CONTRACEPTIVE USE Did you use any method of contraception during your first sexual intercourse? 1 - YES → Go to D07 ☐ Please write the number corresponding to your response in the box 2 - NO → Go to D11 ☐
D02: SEXUAL ENGAGEMENT Have you ever engaged in penetrative sex with a male (man)? 1 - YES → Go to D03 ☐ Please write the number corresponding to your response in the box 2 - NO → Go to D11 ☐	D07: CONTRACEPTIVE METHOD USED AT FIRST SEX Which method of contraception did you use at your first sexual intercourse? 1 - Female condom 2 - Male condom 3 - Diaphragm 4 - Injection 5 - Pill 6 - IUD 7 - Implant 8 - Withdrawal 9 - Other, specify ☐ Please write the number corresponding to your response in the box
D03: AGE AT FIRST SEX How old were you, when you first engaged in sexual activities? 1 - 11 years 2 - 12 years 3 - 13 years 4 - 14 years 5 - 15 years 6 - 16 years 7 - 17 years 8 - 18 years 9 - 19 years ☐ Please write the number corresponding to your response in the box	D08: ANY USE OF OTHER CONTRACEPTIVE METHOD Have you used any OTHER method apart from the contraception method stated above (question D07)? 1 - YES → Go to D09 ☐ Please write the number corresponding to your response in the box 2 - NO → Go to D10 ☐
D04: CONSENT AT FIRST SEX Was your first penetrative sex with a male by consent? 1 - YES 2 - NO, it was forced by a boyfriend 3 - NO, it was forced by a stranger 4 - NO, it was forced by a relative or family member 5 - NO, it was forced by the husband 6 - NO, it was forced by other ☐ Please write the number corresponding to your response in the box	D09: TYPE OF OTHER CONTRACEPTIVE METHOD USED Which OTHER method of contraception did you use? 1 - Female condom 2 - Male condom 3 - Diaphragm 4 - Injection 5 - Pill 6 - IUD 7 - Implant 8 - Withdrawal 9 - Other, specify ☐ Please write the number corresponding to your response in the box
D05: SEXUAL PARTNERS IN THE LAST 12 MONTHS How many male sexual partners have you had in the past 12 months? 1 - 1 2 - 2 3 - 3 4 - 4 5 - 5 6 - 6 or more ☐ Please write the number corresponding to your response in the box	D10: KNOWLEDGE OF CONTRACEPTIVE METHODS Where did you learn about that contraceptive method? 1 - Radio 2 - Television 3 - Friend(s) 4 - School 5 - Facebook 6 - Parent(s) 7 - Community outreach programme 8 - Clinic 9 - Other, specify ☐ Please write the number corresponding to your response in the box

SECTION D: SEXUAL AND REPRODUCTIVE HEALTH INFORMATION... continued

D11: HEARD OF DUAL CONTRACEPTION Have you ever heard of dual contraceptive methods? 1 - YES 2 - NO ☐ Please write the number corresponding to your response in the box	D16: PERCEPTION ON SAFETY OF DUAL CONTRACEPTION Do you think the use of dual contraception methods is a good idea? 1 - YES 2 - NO ☐ Please write the number corresponding to your response in the box
D12: EVER USED DUAL CONTRACEPTION Have you ever used a dual contraception method before? 1 - YES → Go to D13 2 - NO → Go to D16 ☐ Please write the number corresponding to your response in the box	D17: REASONS - PERCEPTION ON SAFETY OF DUAL CONTRACEPTION Please provide reason(s) for your answer to the question above:
D13: TYPE OF DUAL CONTRACEPTION METHOD USED Which dual method of contraception did you use? 01 - Condom & Pills 02 - Condom & Patch 03 - Condom & Diaphragm 04 - Condom & Injection 05 - Condom & Pills 06 - Condom & IUD 07 - Condom & Implant 08 - Condom & Ring 09 - Condom & Sponge 10 - Other, specify ☐ Please write the number corresponding to your response in the box	
D14: PARTNER'S REACTION TO DUAL CONTRACEPTION What was your partner's reaction when you proposed a secondary method of contraception? 1 - Excited 2 - Disappointed 3 - Angry and refuse 4 - Angry but agreed 5 - Did not tell him ☐ Please write the number corresponding to your response in the box	
D15: MOTIVATION FOR DUAL CONTRACEPTION What motivated you to opt for dual method contraception? 1 - Afraid to get pregnant 2 - Afraid to get STD 3 - Afraid to get HIV/AIDS 4 - All of the above 5 - Other, specify ☐ Please write the number corresponding to your response in the box	

SECTION E: PREGNANCY & CHILDBIRTH

Read Out: Now, I am going to ask you for information about pregnancy and childbirth.

E01: EVER BEEN PREGNANT

Have you ever fallen pregnant before?

1 - YES

2 - NO → **END OF INTERVIEW**

Please write the number corresponding to your response in the box

E02: PERSON RESPONSIBLE FOR PREGNANCY

Who got you pregnant?

1 - A boyfriend

2 - Husband

3 - A stranger

4 - A relative/family member

5 - Other, specify

Please write the number corresponding to your response in the box

E03: FREQUENCY OF PREGNANCY

How many times have you ever been pregnant?

1 - 1

2 - 2

3 - 3

4 - 4+

Please write the number corresponding to your response in the box

E04: LIVE BIRTH

Did your pregnancy/pregnancies result in a live birth or live births (i.e. child born alive)?

1 - YES

2 - NO → **END OF INTERVIEW**

Please write the number corresponding to your response in the box

E05: AGE AT FIRST BIRTH

How old were you when you gave birth to your first child?

1 - 12 years or less

2 - 13 years

3 - 14 years

4 - 15 years

5 - 16 years

6 - 17 years

7 - 18 years

8 - 19 years

Please write the number corresponding to your response in the box

END OF INTERVIEW

THANK YOU