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DUAL CONTRACEPTION AMONG SEXUALLY ACTIVE FEMALES FOR PROTECTION AGAINST PREGNANCY AND HIV/STI

BY:

WELBECK AMOANI TWUM
(10551315)

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DECLARATION

I, Welbeck Amoani Twum, declare that except for other investigations which have been duly acknowledged, this dissertation is the result of my own original work carried out under supervision, and that this dissertation, either in whole or in part has not been presented anywhere else for another degree.

NAME OF STUDENT: WELBECK AMOANI TWUM

STUDENT'S SIGNATURE:……

DATE:……

NAME OF SUPERVISOR: PROF. AUGUSTINE ANKOMAH

SUPERVISOR'S SIGNATURE:……

DATE:……

DEDICATION

I dedicate this research work to my wife Mrs. Gifty Amoani Twum who supported me through the hard times at school. I also dedicate this to my children, Ivan Adu Amoani Twum and Alvin Offei Amoani Twum.

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ABSTRACT

Dual contraception or dual method refers to the use of condom with hormonal contraceptives or an intrauterine device to ensure enhanced protection and prevention of both unintended pregnancies and STI/HIV. When used consistently and correctly, it is capable of ensuring healthy sexual life devoid of the challenges of morbidity and mortality associated with unprotected sex. Notwithstanding, the extent of use of dual contraceptivesmethod use in Ghana is not known. The overarching objective of this research was to assess the knowledge, extent of use, reasons for use and factors affecting dual contraception among sexually active females within the ages of 18 – 49 years in the La-Nkwantanang-Madina Municipality.

This was a community based cross-sectional survey that involved the use of multi-stage random sampling to select study participants. Structured questionnaires were administered to elicit information on the use of dual contraception during their last sexual encounter, knowledge, and challenges of access to dual contraception services. Data were entered into Microsoft Excel 2013 and analyzed with Stata version 13. Bivariate and multivariate logistic regression analysis were performed to establish associations between variables.

The prevalence of dual contraceptive utilization was found to be 12.9% among sexually active females. Among the never married (single) dual contraceptive utilization was 11.9%, married 15.0% and among the separated, divorced and widowed prevalence was 13.0%. Prevalence of general contraceptive use was 54.2% with 48.3% among the never married and 60.0% among the married. Controlling for age, marital status and occupation, the odds of a respondent using dual method of contraception is 3.3 times as great as the odds of that respondent using a condom [aOR = 3.3 (95% CI = 1.41 – 7.50), $p<0.05$] and the odds of a

respondent adopting dual method of contraception is about 5.7 times as great as the odds of the person using the pill [aOR = 5.7 (95% CI = 2.51 – 13.08), p<0.001]. Notable reasons for contraceptive preference included ease of obtaining, ease of use, reduced or no side effect and partner preference. Knowledge and use of dual method of contraception is low. Many of the factors that affect the choice and utilization of dual contraception are mainly based on individual preferences and perceptions. Most people would not use any barrier method because they could prevent pregnancy using hormonal contraceptives such as the pill without compromising on their sexual pleasures. This sexual practice increases the risk of Sexually Transmitted Infections (STI) and HIV.

Knowledge on dual contraception is low among study participants. Respondents contraceptive preference (choice and use) were based largely on ease of use of the method, the ability to easily obtain the contraceptive and contraceptives that will not reduce their sexual pleasure. Less than 15% consider prevention of STI as a priority for contraceptive use. The large majority will consider prevention of pregnancy as the main focus for contraceptive use. It is recommended that education on contraception should be increased with improved strategies.

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LIST OF ABBREVIATIONS

HIV	Human Immunodeficiency Virus
STI	Sexually Transmitted Infection
EC	Emergency Contraceptives
FP	Family Planning
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization
HSV	Herpes Simplex Virus
HPV	Human Papilloma Virus
CHPS	Community Based Health Planning and Services
UP	Unintended/Unwanted Pregnancy
IUCD	Intra-Uterine Contraceptive Device

DEFINITION OF TERMS

1. Contraception: The use of various devices, drugs, agents, sexual practices, or surgical procedures to prevent conception or impregnation (pregnancy)
2. Contraceptive: A method, device or drug that serves to prevent pregnancy
3. Dual contraception/Dual Method/Dual Contraceptive Utilization: Refers to using condoms as well as another modern method of contraception - hormonal birth control or non-hormonal intrauterine device.
4. Dual Protection: It is the simultaneous use of modern effective contraception by both partners which could be an ideal way to prevent both pregnancy and sexually transmitted infections and diseases.
5. Emergency contraception: Contraception after unprotected sexual intercourse to prevent unintended pregnancy.
6. Sexually active: Engaging in sexual intercourse of having a previous history of peno-vaginal or peno-anal sexual intercourse within the last six (6) months.
7. Unintended pregnancy: Pregnancy occurring without ones intention to have it.
8. Knowledge: Awareness of the existence of dual contraception, how they are used and their efficacy.
9. Peer influence: Is influence on a peer group, observers or individual that encourages others to change their attitudes, values, or behaviours to conform to groups.
10. Sexual encounter: Any act between 2 or more persons involving sexual contact with genitalia and/or oral mucosa
11. Parous: having borne one or more viable offspring.
12. Nulliparous: Never having borne a child.

CHAPTER ONE

INTRODUCTION

1.1 Background

Many modern contraceptives are available globally and in Ghana to be specific. None of these modern contraceptives have proven to be capable of providing a 100% protection against the many consequences that may arise from coitus (Centers for Disease Control and Prevention, 2011). According to the World Health Organization (WHO), dual contraception or dual method use "involves always using a condom plus another method that has a lower contraceptive typical-use failure rate" (WHO, 2004) while Tyler et al refers to it as the use of condom with hormonal contraceptives or an intrauterine device (Tyler et al., 2014) to increase the level of protection against both unintended pregnancies and STI/HIV. Condoms are essentially the most effective dual protection family planning (FP) tool for the prevention of pregnancies and STI/HIV among sexually active people. When used consistently and correctly, it is capable of ensuring healthy sexual life devoid of most challenges associated with unprotected sex (Winskell, Obyerodhyambo, & Stephenson, 2011). The use of condoms with other contraceptive methods such as pills or injectable have proven to be the most effective and beneficial (Pazol, Kramer, & Hogue, 2010). Maximum conceptual protection is therefore ensured when dual contraception/method is adhered to (Hood, Hogben, Chartier, Bolan, & Bauer, 2013).

The acquisition of STI does not only increase the transmission rate of HIV but can also leads to other diseases including cervical cancers, infertility, complicated pregnancies and chronic abdominal pain. The biological positioning of the female reproductive system

coupled with social and cultural factors make them principally susceptible to the acquisition of STI (Ohene & Akoto, 2008). Sexually active women are placed at high risks in their reproductive lives due to unplanned pregnancies (Ong, Temple-smith, Wong, Mcnamee, & Fairley, 2012). Among Ghanaian females in their reproductive age about 24% encounter mistimed pregnancies while 7% are unwanted (GDHS, 2014). Fifteen percent of Ghanaian women aged 15-49 are said to have had an abortion at least once in their life (Adjei et al., 2015). Unsafe abortion is ranked a leading cause of maternal mortality and a woman's lifetime risk of maternal death in Ghana is 1 in 45, compared to 1 in 5,000 in the U.S (Payne et al., 2013). The Ghana Maternal Health Survey in 2007 reported unsafe abortion as the second largest maternal mortality cause in Ghana.

Among the younger age group, important characteristic of this stage of life is heightened sexual desires that require guidance and education to bring under control. Unintended pregnancies and Human Immunodeficiency Virus (HIV)/sexually transmitted infections (STIs) are significant and serious challenges in public health (MacDonald, 2013). The advice is that young women practice self-control and delay the onset of sex to times when they are fully matured physically and economically to manage the consequences associated with consensual sex while the older group ensure precaution in protecting themselves fully against STI/HIV (Blythe & Diaz, 2007). This however has proven to be difficult in achieving across almost every country in the world (Blythe & Diaz, 2007).

STIs are therefore a common feature in the sexually active age group. This happens because of obliviousness about how to protect oneself and the lack of knowledge on appropriate methods to use in preventing pregnancy and sexually transmitted infections. Unfortunately

the family planning (FP) clinics provide more counseling on the use of contraception to married people than provision of services targeted at younger people (Hesse & Samba, 2006). Conversely in the worldwide effort to save the lives of children, only a little is heard concerning young sexually active people(United Nations Children's Fund, 2011). Comprehensive education on sex with the provision of health services and commodities including dual contraception are important for the preparation of both young people and adults for responsible sexual life. The absence of these essential services and programmes as part of the fundamental human right poses a threat on their health.(McCall & McKay, 2004).

A considerable number of abortions arising due to unprotected or ill-protected sex are performed by untrained health workers under substandard conditions resulting in post-abortion complications and in some cases death (Ghana Statistical Service, 2013). While 37.8% of abortions are performed at the abortionist's clinic under deplorable conditions, 4.5% are performed at home and 26.7% are self-induced (Hagan & Buxton, 2012). Amongst women in Ghana, 58% of them induced abortion or terminated the current pregnancy either by seeking the help of untrained health workers under substandard conditions resulting in complications. Others died as a result of self-induced abortions with no assistance (Tesfaye, Hambisa, & Semahegn, 2014). These crude abortions are the cause of over 30% of all deaths among the younger age groups. The odds of teenage girls dropping out of school due to unintended pregnancy or STI is high and are likely to be confronted with social and economic crisis which aggravates the ability to produce and raise children (Hagan & Buxton, 2012). More than half of all unintended pregnancies

among the women could be prevented if caution is taken to use contraceptives (Dean, Lassi, Imam, & Bhutta, 2014; Raine et al., 2005). In many instances couples become complacent as the relationship stays longer and so the tendency to ignore the use of barrier contraception such as condoms increases (Benson, Martins, Kozloski, & Gilliam, 2011). The challenges with the non-use and the failure of single contraceptives warrants that sexually active individuals adopt the use of dual methods to reinforce their protection. Even though promoting and encouraging the adoption of dual contraception may be accompanied by some biological and physical challenges (Chakrapani et al., 2011), the benefits outweighs the odds especially in Ghana where the incidence of unintended pregnancies are high and the prevalence of HIV/STI are also high among the age group of 18 – 49 years (National AIDS/STI Control Programme, 2013).

1.2 Problem Statement

In Ghana, about 47.5% of all pregnancies are unplanned and another 23% are mistimed according Omane-Adjepong et al, 2012. Another research found 70% of pregnancies being unintended (Eliason, Baiden, Yankey, & Asare, 2014). This results in more 300,000 births being unplanned. More than half of the population of reproductive age women face the risk of unwanted pregnant (Omane-adjepong & Oduro, 2012). As many as 67% of university students have had an abortion with more than half of them having done it more than once. Most of them (90%) had their abortions under unsafe conditions (Appiah-Agyekum, 2014). Even though education on sexual reproductive health and Sexually Transmitted Infections have improved over the years more women find themselves getting pregnant unintendedly (Asare, 2007). According to the 2013 Annual Reproductive and Child Health Report of the

Ghana Health Service, trends in the percentage of unintended pregnancies have not decreased by the 10% as targeted. Rather recorded incidence of unintended pregnancies have doubled over the five years ranging from 44,246 (2009), 50,611 (2010), 61,077 (2011), 69,333 (2012), and 86,069 (2013).

In a study conducted in 2008 among sexually active young people, 12% of them reported of having a history or symptoms of STI (Ohene & Akoto, 2008). The median prevalence of HIV and syphilis among pregnant women in Ghana are 1.8% and 0.1% respectively (NACP Ghana Health Service, 2016). Among STI infected patients HIV infection is 3.2% (NACP Ghana Health Service, 2016). It was estimated that in 2013, the national adult HIV prevalence was 1.3% culminating into 224,488 persons living with HIV and AIDS including 189,931 adults and 34,557 children (National AIDS/STI Control Programme, 2013). Estimated new HIV infections were 7,812 including 5,405 Adults and 2,407 Children. Annually, about 10,074 AIDS deaths are recorded involving 7,826 Adults and 2,248 children under 15 years (National AIDS/STI Control Programme, 2013).

Health problems attributable to sexual behaviours such as early initiation of sex, multiple sex partners, and high-risk partners are widespread among sexually active people in sub-Saharan Africa (Bearinger et al. 2007; Hindin and Fatusi, 2009). Many of such behaviours result in unwanted pregnancies leading to unsafe abortion (Shah and Åhman, 2012). These unsafe abortions result in increased morbidity and mortality as a result of complications (Haddad and Nour, 2009; WHO, 2011). Young people account for 20% of all deaths, most of which occur primarily due to pregnancy complications, post abortion complications, and ignorance stemming from poor sexual and reproductive health (Hesse & Samba, 2006).

The consequences of unintended pregnancies include increased morbidity and mortality that comes with attempts at abortion and the discomforts of raising children with the lack of adequate resources. This tends to have negative effects on the quality of life of the individual involved. Using modern contraceptives only may prevent unwanted pregnancies but does not offer protection against HIV/STIs. The most reliable way of preventing both unintended pregnancies and HIV/STI is to adopt the use of dual method of contraception. Data on dual contraception use among sexually active Ghanaians are unavailable presenting difficulty in obtaining basic information for planning and for further researches. Public Health professionals should be concerned about such measures of preventing unintended pregnancies, HIV/STI and the associated morbidity and mortality hence the importance of studying dual contraception and dual protection among sexually female adults.

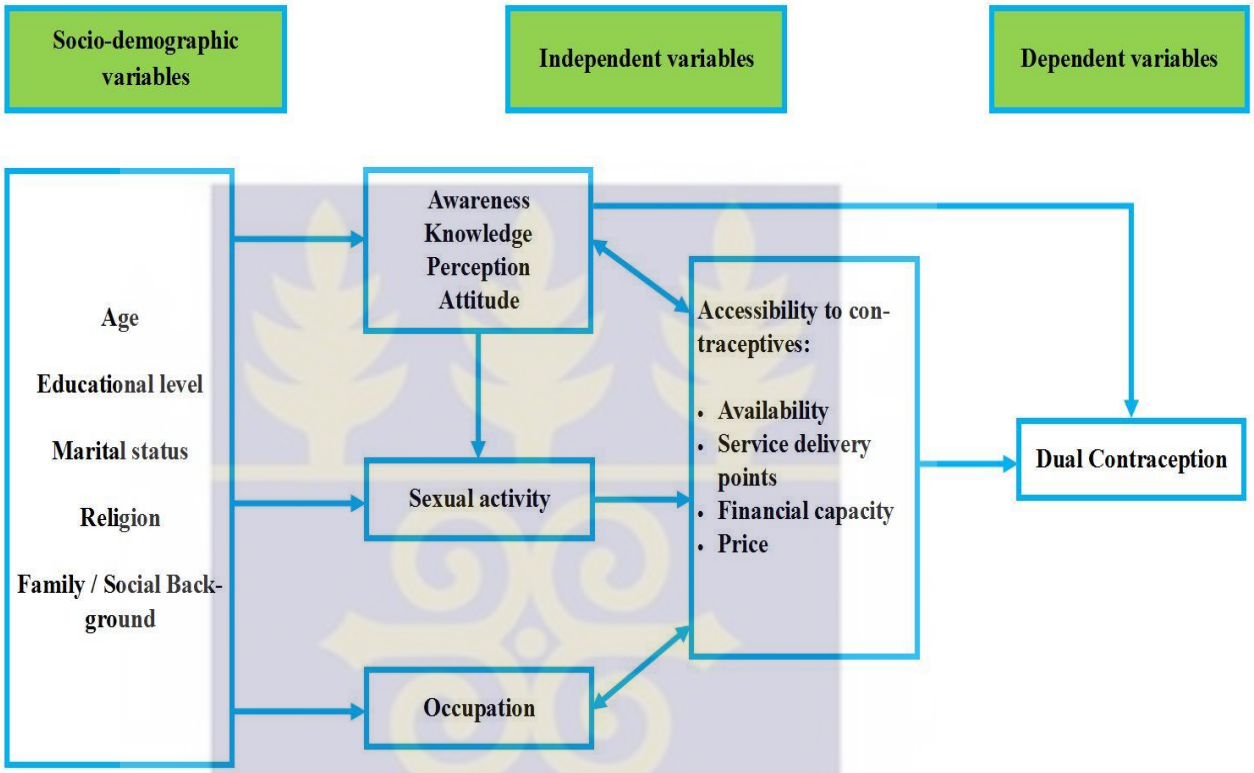
1.3 Research Questions

This study sought to find answers to the following questions:

a. To what extent do women in the reproductive age know about dual contraception?
b. What is the level of dual contraceptive use among sexually active females?
c. What is the protection priority for the use of contraception – pregnancy or HIV/STI?
d. What factors influence the knowledge and use of contraceptives for dual protection?
e. What are the barriers to contraceptive acquisition and usage among sexually active females?

1.4 Conceptual Framework

FIGURE 1: Conceptual Framework Showing Linkages between the Identified Variables



Adopted from Somba et al., 2014

1.4.1 Conceptual Framework Narrative

One of the most important variables as far as the use of contraceptives for dual protection is concerned in the discussion of sexual practices is age (Asiimwe et al, 2014). The most sexually active individuals fall between the ages 18 and 49 years. The age in addition to other socio-demographic factors such as educational level, marital status, religious affiliation and the family/social background of the individual have determining effect on the knowledge and awareness of contraceptives. These factors also shape the perceptions and individual attitudes towards contraceptive use. Sexual activity and the safety of sexual

encounters are largely influenced by the level of knowledge, perception and attitude towards protection against unwanted pregnancies and sexually transmitted infections (Ya et al, 2011). It is expected that the more knowledgeable an individual is as far as sexual safety is concerned the more likely the person is to use contraceptives. It is known that many people learn to acquire knowledge through formal education while the awareness level is influenced by their exposure to other factors such as television, social media, print and electronic media and many other informal means. The socio-demographic background influences the choice of occupation and by extension the income level. A combination of the knowledge, sexual activity and financial capability influences the ability to access available contraceptive services. When the issue of accessibility is overcome then the uptake of contraceptives for dual protection is increased. People who are exposed to information about the benefits of dual contraceptive use will tend to adopt positive sexual lifestyle with the use of dual contraception to prevent both unintended pregnancies and HIV/STI. Those who have otherwise negative information and experience with any contraceptive may be less likely to adopt the use of contraception.

The ability to protect themselves during high risk sexual activities are important in avoiding unwanted pregnancies and HIV/STI and by extension prevent needless abortions, morbidity and mortality associated with unprotected or inadequately protected sex (Bankole et al, 2007). These however can be minimized with increased accessibility to dual contraception. The level of dual contraceptive utilization is a determinant on the ability of sexually active persons to increase their chances of preventing unwanted pregnancies and

diseases associated with unprotected sex while reducing the morbidity and mortality associated with them.

1.5 Justification

The condom is a known effective barrier method that provides dual protection against both pregnancy and STI. This protection is however undermined in the event of rupture, leakage or slipping off unknowingly (WHO, 2004). Any form of failure of a condom renders the user completely unprotected. The typical use of the barrier method has failure rate as high as 14% while consistent and correct use can result in about 3% failure rate (WHO, 2004). Effective contraception is a major component for ensuring reduction in maternal mortality. Use of contraceptives with maximum protection can avert more than 44% of maternal deaths annually (Ahmed et al., 2010).

According to the HIV Sentinel Survey for 2015, Ghana's HIV prevalence is 1.8%. This figure represents a 0.2% increase from the previous year (NACP Ghana Health Service, 2016). The highest prevalence of HIV is found among the most sexually active age group of 25 – 49 years with a peak of 3.4% among those 35-39 years of age. The prevalence is however higher in the urban parts of the country (2.4%) than in the rural parts (1.4%). Syphilis prevalence is as high as 1.8% in certain parts of Ghana (NACP Ghana Health Service, 2016).

In the midst of these challenges of high unwanted pregnancies and unsafe abortions, increase maternal deaths and inconsistent use of condoms and high STI/HIV prevalence among the sexually active population, it is prudent to adopt dual contraceptive utilization

which has been proven to be the most effective prevention strategy in reproductive health (Demissie, 2015).

Many researches have been done on contraceptive use but none had studied dual contraception in Ghana. It is important to have scientific basis for the development of public health strategies that address the challenges associated with sexual activities especially among those in the reproductive age group. This research sought to assess the extent of awareness and use of dual contraception for maximum protection and assessed the knowledge to their proper use. It will also inform the formulation of appropriate policies to make accessible adequate sexual and reproductive health services and commodities to sexually active females towards reducing unintended pregnancies leading to needless unsafe abortions that is devastating the lives of sexually active young people. It will also ensure a reduction in morbidity and mortality resulting from STIs and HIV and ensure healthy sexual lifestyle among the young working class in our society.

1.6 Objectives

1.6.1 General Objective

The overarching objective of this research was to determine dual contraceptive utilization and associated factors among sexually active females in the La-Nkwantanang-Madina Municipality.

1.6.2 Specific Objectives

Specifically this research intends:

a. To assess the knowledge level on dual contraception
b. To identify factors that determine contraceptive preference
c. To determine the level of dual contraceptive utilization among sexually active females
d. To determine the protection priority for the use of contraception – pregnancy or HIV/STI
e. To identify barriers to accessing contraceptives for dual method use

CHAPTER TWO

LITERATURE REVIEW

As many as 340 million sexually transmissible infection (STI) cases comprising 2.6 million HIV infection occur worldwide each year (UNAIDS, 2010). For these reasons high risk sexual intercourse is ranked as the second most important cause of disease, disability or death especially among the poor countries of the world (Warner, Gallo, & Macaluso, 2012). Globally it is estimated that 40 percent of the about 850 million pregnancies are unintended. Half of these approximately 340 million unintended pregnancies result in abortions while 38 percent give birth without any preparation or planning and the remaining 12 percent result in miscarriages (Sedgh, Singh, & Hussain, 2014). The burden of unplanned pregnancies are directly linked with several adverse health, socio-economic and psychosomatic consequences for both the pregnant woman and the child(ren) (Norwood, 2014).

The use of condoms with other types of modern hormonal birth control methods or non-hormonal intrauterine device is referred to as dual contraception (Lopez et al, 2014). Under normal circumstances, condoms alone when used consistently and correctly as a birth control method could serve as dual protection and is able to assure the user of adequate protection from unintended pregnancies to about 85% (Chakrapani et al., 2011). Many women in the reproductive age group, particularly those in less resourced parts of the world have unmet needs of effective contraceptive methods and engage in unprotected sex. This leads to increased incidence of unintended pregnancies, disease, disability and mortality

due to STI/HIV (Lopez et al, 2014). The risk of infertility increases with contraction of STIs (Higgins & Cooper, 2012).

2.1 Importance of dual contraception

One of the principal consequence of unintended pregnancies is abortion, and approximately 50% of all pregnancies that are unintended result in abortion. It is therefore important that very safe method available including the use of condoms plus another modern contraceptive (Chandra-Mouli, Camacho, & Michaud, 2013) is used to prevent pregnancy as well as the transmission of HIV/STI.

The occurrence of unintended and unwanted pregnancies may be accompanied by adverse health, social, and psychological challenges that may affect both the mother and child. Unwanted children are less likely to have had a secure family life (Yazdkhasti et al, 2015). Notwithstanding the high prevalence of sexually transmitted infections (STIs) such as Gonorrhea, syphilis, and *Chlamydia trachomatis* among sexually active individuals, the sense of carelessness with regards to the dangers associated with risky sexual behaviours are still high (Abel & Brunton, 2005).

It is highly suggested by clinical medicine guidelines that dual contraceptive use should be recommended through proper counseling and encouragement to ensure reduction in pregnancies that are unintended by the use of hormonal contraceptives and prevent STD/HIV through the use of condoms (Brown et al., 2011). Young women who may have a higher risk of pregnancy and sexually transmitted infections (e.g. those with a previous pregnancy) were less likely to use dual methods at last sex (Tyler et al., 2014). In one

prospective clinical study of 462 women with a mean age of 22 years, adherence to dual-method use was 9.3% among the participants over 12-24 months. This decreased both pregnancy and STI (Williams & Fortenberry, 2013). In another study by Hood et al. (2013), it was observed that dual contraceptive use is only 9-15% among the sexually active, giving the impression that it has become fewer than it used to be. About 70% of all pregnancies among young people are unintended with 39% being mistimed and 31% being unwanted. There were more unintended pregnancies reported among younger (90%) than older women (80%), ($P < 0.001$). There was a trend towards reduced unintended pregnancies with increasing level of education (Eliason, Baiden, Yankey, & Awusabo-Asare, 2014). While condoms are effective in preventing STIs, they are only moderately effective in preventing pregnancy (Davies et al., 2006). Conversely, intrauterine devices and hormonal contraception provide better protection against pregnancy but do not protect against STIs. Therefore, condoms should be used with a hormonal contraceptive or intrauterine device to prevent both pregnancy and STIs (Kemp, 2014). The hidden nature of STIs means that in most instances young people will be unaware of members of their peer group who have acquired an STI. The ease with which STIs are treated ensures that this information need never come into the public domain. They are, however, aware of their peers becoming pregnant, having to leave school as a result, and undergoing the consequences of early and unexpected parenthood (Abel & Brunton, 2005). Approximately half of new human immunodeficiency virus (HIV) infections are in youth aged 15 to 24 years (Undesa, 2014).

2.2 Effectiveness of Dual Contraception

The use of only one type of contraception does not guarantee absolute protection from an STI or pregnancy. The condom is known to provide dual protection by forming a protective barrier for the prevention of body fluids exchange. It is however not totally protective against herpes simplex virus (HSV) and the human papilloma virus (HPV)(Blythe & Diaz, 2007).

Some types of prescribed medication can lower the efficacy of modern hormonal contraceptives (Blythe & Diaz, 2007). The correctness and the consistency of use of any contraceptive determines the effectiveness of it in ensuring that unplanned pregnancies do not occur (Schiffert Health Center, 2010). The effectiveness rate for both the female and male condoms ranges from 79-95% and 85-99% respectively (Centers for Disease Control and Prevention, 2011). Hormonal oral contraceptives present with effective rates between 92 to 99.7% depending on whether it is used consistently or sparingly. With the male sterilization only 1 out of 2000 may fail as against 1 out of 200 female tubal ligations and this does not protect against any STIs (National Collaborating Centre for Infectious Diseases, 2010). These imply that a condom that fails can expose its users to increased risk of unintended pregnancies and the transmission of STIs while all the other methods of contraception do not guarantee protection against STIs.

Ironically the use of dual contraception is higher among those in their teen ages than those older. Among users this maximum protection is mostly considered in recent sexual encounters and tend to reduce as the relationship progresses (Hood et al., 2013). The use of condoms among people who use hormonal contraceptives tend to reduce especially

when they perceive the alternative contraceptive to be effective in preventing unwanted pregnancies (Hood et al., 2013).

2.3 Failure rate of single contraception

According to the Centers for Disease Control and Prevention (CDC), each contraceptive or family planning method has a failure rate that generally ranges from as low as 0.05% to 28% (Centers for Disease Control and Prevention, 2011). These failure rates are related to their capability of preventing pregnancies but not HIV/STIs. The highest failure rates were recorded as 28% and 24% for the use of spermicides and rhythm methods respectively. The failure rates for withdrawal method is 22% while that of female condom is 21% and male condom is 18%. Approximately 12-24 out of 100 women will get pregnant when using the sponge depending on whether they are parous or nulliparous. The failure rate for the diaphragm is 12%, ring is 9%, patch is 9%, while the pill is 9% and injectable 6%. The most effective methods with low failure rates are the implant (0.05%), intrauterine device (0.2%), male sterilization (0.15%) and female sterilization (0.5%) (Centers for Disease Control and Prevention, 2011).

In study conducted by Buckle et al., they identified that among 7486 women on different contraceptives, 334 had unintended pregnancies while using pills, patch, or ring representing a failure rate of 4.55 out of every 100 participant years. It was also observed that failure rate was nearly two times higher among younger women less than 21 years of age than among those older (Buckel et al., 2012).

2.4 Condom use and reasons for non-use

Increased advocacy on the consistence and correctness of condom use has become much more necessary due to the HIV pandemic, STIs and increasing rates of unintended pregnancies (Sanders et al., 2012). Male condoms are the best method for reducing STIs/HIV providing a 98% effectiveness in preventing pregnancies when used consistently and 85% reliability when used commonly with a failure rate of about 15% (WHO, 2015). Even though condoms offer dual protection about 49% of all men use condoms incorrectly reducing the effectiveness of use and exposing couples to the same challenges they intend to avoid (Higgins et al., 2014). There have been complaints from both men and women on the inability of condoms to provide sexual excitement, reduce erectile function and lubrication, and reduces overall sexual pleasure (Herbenick et al., 2013). Other also complain on orgasm challenges, condom being too loose or too tight, unpleasant smell, uncomfortable sound or wetness (Hensel, Stupiansky, Herbenick, Dodge, & Reece, 2012). The inability of users to put on condoms correctly results in increased failure rate including breakage, leakage and slippage than deficiencies of the condoms themselves (Sanders et al., 2012). Couples tend to reduce the frequency of condom use with increase in the number of sexual encounters with the same partner (Higgins et al., 2014). Sexually active individuals who engage in risky and multiple sexual relationship require consistent use of condoms and other relatively inexpensive contraceptives (Widman, Noar, Choukas-bradley, & Francis, 2014).

The use of condoms and hormonal contraceptives whether individually or as part of dual contraception requires a substantial amount of communication in the best way possible to generate understanding about protection against HIV/STI and unintended pregnancies

(Widman et al., 2014). Concerns expressed by many women concerning decisions to stop the use or change contraceptives include abnormally copious menstrual bleeding, prolonged missed menses, weight gain and fatigue. Others also believe that contraceptives causes sterility and negatively affect the health of children being breastfed (Chebet et al., 2015). These negative side effects become barriers for choosing hormonal contraception especially among women who are yet to use them (Chebet et al., 2015).

2.5 Side Effects of Dual contraception

An important factor in the promotion of good maternal health, reducing new born mortality and ensuring child wellbeing is the effective use of contraceptives. Many women have however complained about unfavorable side effects becoming a barrier to their use (Chebet et al., 2015).

The Ghana Demographic and Health Survey, 2014 indicates that about 25% of Ghanaian women who use contraceptives stop using them after a year of initiation. These phenomenon has been attributed to many reasons including adverse reactions and health consequences (GDHS, 2014).

Progesterone has affinity for 5- α-reductase, an enzyme that ensures increased production of dihydrotestosterone which is a more active form and reduction in the activity of testosterone. Hormonal contraceptives often contain low levels of progesterone causing increased dihydrotestosterone levels which may result in masculinization of the brain with respect to function, structure and behaviour (Pletzer, Kerschbaum, & Garcia-segura, 2014).

There is the possibility of masculinization or feminization effects on users depending on whether the contraceptives contains androgenic progestins or anti-androgenic progestins

(Pletzer et al., 2014). These phenomena can result in brain structure being re-organized especially the neurochemical function when artificial steroids occurring in hormonal contraceptives are used (Pletzer et al., 2014). Oral contraceptives have been reported to cause changes in mood, depression, nervousness, exhaustion, anxiety and anger (Pletzer et al., 2014). Divani et al indicate that there is the possibility of an increase in the inflammatory cytokine C-Reactive proteins when hormonal contraceptives are used in the combined form(Divani et al, 2015).

2.6 Summary

The inability for anyone contraceptive method to prevent unintended pregnancy and STIs simultaneously provides evidence for the use of dual contraception. This method of contraception produces higher effective rate in providing protection against pregnancy and STIs.

CHAPTER THREE

METHODS

3.1 Study Design

A cross-sectional study approach was used to assess the knowledge, extent of use, reasons for use and factors affecting dual contraception among sexually active females in the La-Nkwantanang-Madina Municipality.

3.2 Study Area

The La Nkwantanang-Madina Municipality, located in the Greater Accra Region is one of the 16 Metropolitan, Municipal and District Assemblies in the region and was created in 2012 as part of the newly created Assemblies. The La Nkwantanang -Madina Municipality is located at the northern part of the Greater Accra Region covering a total land surface area of 70.887 square kilometers. It is bordered on the West by the Ga East Municipal, on the East by the Adentan Municipal, the South by Accra Metropolitan Area and the North by the Akwapim South District. The municipality is 84 percent urban and 16 percent rural. The total population of the Municipality in 2010 was 111,926 comprising 48.5 percent males as against 51.5 females, giving a sex ratio of 94.1 percent compared with 93.6 in the region and 95.2 at the national level. The sexually active reproductive population (15-49 years) constitute 68,112 (56.92%) with 33,057 males and 35,055 females (Ghana Statistical Services, 2014).

3.2.1 The People

The indigenous people of the La Nkwantanang Madina Municipality are Ga-Dangmes and the main language spoken is Ga-Adangbe. There are two main Traditional Areas; namely the La Traditional Area and the Teshie Traditional Area. In addition to these major

traditional divisions, there are other areas in the Municipality whose historical allegiance is to other groups. All these are part of the indigenous Ga-Dangme people who settled in the area in the 16th and 17th Centuries covering a large area from the coast to the southern edge of the Akwapim – Togo Range. It is mainly a patrilineal society. Their livelihoods traditionally are farming and trading.

3.2.2 Economic Activities

The main economic activities in the La Nkwantanang Madina Municipality are commerce, agriculture, services and manufacturing. Trading is one of the main economic activities in the Municipality with the Madina market as the main trading centre. It generates employment and revenue to the people in the Municipality. There are many manufacturing industries in the Municipality. They include the Nkulenu Industry, Mechanical Lloyd, Royal Aluminum Company, Special Ice Water Company, and Voltic Water Bottling among others. The items produced include food processing, packaging and fabrication. The services sector covers areas such as financial institutions, hospitality, personal care and beauty, telecommunications, graphic design, food services and professional services among others. This sector employs large numbers of skilled people and it is one of the rapidly growing sectors of the Municipal economy. There is also a constructional industry in the Municipality engaged in businesses such as block factories, stone quarrying and the sale of building materials in addition to the provision of skills such as masonry, carpentry, tiling and many other associated skilled jobs in the industry.

3.2.3 Health Facilities in the Municipality

The municipality has a total of thirty-nine (39) health facilities most (32) of which are private with 2 polyclinics, 3 health centres and 1 Community Based Health Planning

(CHPS) compound and a specialized psychiatrist hospital at Pantang. The total fertility rate is 2.5 with a crude birth rate of 22.5 per 1000 population, slightly lower than the regional rates (TFR 2.6 and TDR 22.7 per 1000 respectively). Mortality level is high in the Municipality. About six out of every ten persons in the Municipality are migrants, mostly from the Eastern region. The municipality's HIV/AIDS prevalence rate is 4.8% (La-Nkwantanang Madina Municipal, 2013).

3.3 Variables

3.3.1 Dependent variable

- Dual contraception

3.3.2 Independent variables

- Age
- Educational level
- Awareness and Knowledge of dual contraception
- Perceptions about dual contraception
- Family/Social background
- Sexual activity
- Peer influence
- Accessibility to contraceptives

3.4 Study Population

The population of Madina, the capital of the La-Nkwantanang-Madina Municipality, is the largest population of 79,832 (71.3% of the total population). This consists of 38,515 males

and 41,317 females (Ghana Statistical Services, 2014). The sexually active population (15-49 years) constitute 68,112 (56.92%). There are 33,057 males and 35,055 females which contains the target population for this study (Ghana Statistical Services, 2014).

3.5 Sampling

3.5.1 Sample Size Calculation

Using the Cochran's formula for sample size calculation (Cochran, 1977) an estimated minimum of 197 female adults between the ages of 18-49 years were randomly selected from the capital La-Nkwantanang Madina Municipality. The sample size was calculated based on the following assumptions:

- Proportion of sexually active females who use contraceptives for dual contraception (P) is taken to be 14% for obtaining the maximum sample size. This was the highest proportion obtained from similar researches in Africa. Figures obtained from literature ranged from 3.8% in a research conducted in Zimbabwe (Mutowo, Kasu, & Mufunda, 2014) to 14% in another research on contraceptive preference in Soweto, South Africa (Mutowo & Kasu, 2015)
- Z=1.96 at 95% confidence interval,
- d= the level of precision (0.05), and
- response rate = 90%;
- then the total sample size will be 197 (minimum)

- Sample size (n_0)= $\frac{Z^2p(1-p)}{d^2}$

$$= \frac{1.96^2 \times 0.14\ (1 - 0.14)}{0.05^2}$$

$$= 177.9 \quad (\sim 178)$$

Assuming a population (N) of 35,055

Applying the finite population correction factor:

$$N = \frac{n_0}{1 + (n_0 / N)}$$

The minimum sample size required $= \frac{178}{1 + (178/35{,}055)}$

$= 177$

Assuming a 90% response rate $= 177/0.9$

$= 197$

3.5.2 Sampling Procedure/Method

The La-Nkwantanang Municipality was divided into five sub-clusters namely North, South, East, West and Central. Equal numbers (approximately 40 females each) were sampled from each sub-cluster using a multi-stage random sampling approach. Household numbers were obtained from the planning department of the La-Nkwantanang Madina Municipality and fed into a Microsoft Excel sheet. The first 40 randomized house numbers in each sub-cluster were used for the study. One sexually active female who was ready to consent was selected from each household to respond to the study questionnaire. A ballot system was adopted to select one female in households with more than one eligible

respondent. Where there were no eligible females in a selected household, the closest household with eligible respondent was selected for the study.

3.6 Data Collection Techniques/Methods and Tools

Structured questionnaires were administered by the researcher to elicit information on the use of contraceptive during their last sexual encounter. Sexual encounter in this regard means a vaginal or anal sex within the previous six (6) months. Respondents knowledge about dual contraception, factors that influence their choice of contraceptives and factors that influence the choice of contraceptives. Questionnaires also assessed sources from which information on contraceptives are obtained and the challenges in assessing contraceptive services. In addition, bio data of each participant including age, sex, and level of education were taken.

3.7 Quality Control

3.7.1 Questionnaire Pre-Testing

The questionnaire was pre-tested among 30 females within the Legon-Mempeasem community. This was to help gather information and comments on the effectiveness and quality of the instrument and to incorporate all corrections into the final questionnaire before the substantive field survey began.

3.7.2 Inclusion and Exclusion Criteria

The Target population for this survey was sexually active females within Madina community aged between 18 and 49 years inclusive. Those excluded were all males and females outside the specified age bracket. Currently pregnant females were also excluded. Those under age 18 are deemed as minors and not as sexually active and experienced with the use of contraceptives. The group above 49 years are mostly menopausal women whose sexual activity may be lower and will not be keen on contraceptive use.

3.8 Data Processing and Analysis

3.8.1 Statistical Analysis

Information gathered were entered into Microsoft Excel and imported into Stata statistical software version 13.1. All statistical analysis were done with Stata statistical software, version 13.1. The level of significance (alpha) was set at 0.05. Percentages, means, frequencies, and standard deviations were used to describe the demographic features of the study participants. Chi-square and Fisher's Exact tests were adopted to compare general contraceptive use with contraceptives for dual protection among study participants and other variables. Tables, charts, and graphs were used as appropriate outputs to describe the data collected.

3.9 Ethical Consideration/Issues

Ethical approval was sought from the Ghana Health Service Ethical Review Committee. For purposes of this study only females between the ages of 18 and 49 were included. Participants were given full information on the purpose of the study and asked to sign a consent form. Eligible women who did not accept to provide signed consent were excluded

from the study. Participants were assured that they lose nothing for staying out of the study. Research information were explained in participant's language to ensure full understanding before administration. The surveys are done anonymously and no participant was to disclose his/her name or identity. Participants were given assurance of confidentiality. All data collected in hardcopy were to be stored use for the purpose of the study alone. Hardcopies were filed and stored in locked cabinet. Only the principal investigator and the researcher had access to these research information.

CAHPTER FOUR

RESULTS

4.1 Sociodemographic Characteristics

In all, 212 potential respondents were approached out of which 201 responded to the study questionnaires. This yielded a response rate was 94.8%. The largest number of participants (71/201) were within the ages of 25 – 30 years, representing 35.3% of the total respondents. Those between the ages of 18 – 24 were 61 (30.4%) while those within 31 – 36, 37 – 42 and 43 – 49 were 35 (17.4%), 24 (11.9%) and 10 (5.0%) respectively. As shown in Table 1, the mean age of respondents was 29 years with a standard deviation (SD) of 6.9 years. The majority of respondents were single 118 (58%) and married 60 (29.9%). The others were separated, divorced and widowed. Majority of respondents 147 (73.1%) were Christians, 42 (20.9%) were Muslims, 5 (2.5%) were Traditionalists and 7 (3.5%) were affiliated to other religions. The largest proportion of respondents 77 (38.3%) had some form of tertiary education while 73 (36.3%) had secondary education, 36 (17.9%) had primary education and 15 (7.5%) have no education. Respondents were grouped into various occupations including trading 40 (19.9%), Student 49 (24.4%), Unemployed 29 (14.4%) and Self Employed 25 (12.4%).

Majority of the respondents 164 (81.6%) resided in the urban areas of the municipality while 37 (18.4%) resided in the rural areas. This included 79 (39.3%) Ga/Dangbe, 59 (29.4%) Akans, 35 (17.4%) Hausa, 24 (11.9%) Ewe and 4 (2.0%) of other ethnic groups. 66 (32.8%) of these sexually active females lived with their partners, 61 (30.4%) lived by themselves, 60 (29.9%) live with their parents, and 13 (6.5%) lived with their guardians.

Table 1: Sociodemographic Characteristics of Participants (N=201)

Characteristics	Frequency (n)	%
Age of Participants	29.0 (6.9)*	
Age Group (years)		
18 – 24	61	30.4
25 - 30	71	35.3
31 - 36	35	17.4
37 - 42	24	11.9
43 - 49	10	5.0
Marital Status		
Single	118	58.7
Married	60	29.9
Separated	13	6.5
Divorced	4	2.0
Widowed	6	3.0
Religion		
Christian	147	73.1
Muslim	42	20.9
Traditionalist	5	2.5
Other	7	3.5
Level of Education		
Tertiary	77	38.3
Secondary	73	36.3
Primary	36	17.9
None	15	7.5
Occupation:		
Trader	40	19.9
Student	49	24.4
Unemployed	29	14.4
Self Employed	25	12.4
Administrative	13	6.5
Health	17	8.5
Corporate	8	4.0
Teacher	10	5.0
Business	9	4.5
Other	1	0.5
Ethnic Group		
Akan	59	29.4

Ga/Dangbe	79	39.3
Ewe	24	11.9
Hausa	35	17.4
Other	4	2.0
Place of Residence		
Urban	164	81.6
Rural	37	18.4
Who do you stay with		
Parents	60	29.9
Guardian	13	6.5
Partner	66	32.8
By myself	61	30.4
Other	1	0.5

*Mean (Standard Deviation)

4.2 Awareness and use of any contraceptive method

As shown in Table 2, all 201 (100%) respondents have heard of contraceptives. Almost all of them 200/201 (99.5%) have heard of the condom, 187 (93.0%) have heard of the pill, 148 (73.6%) have heard of the injectable, 147 (73.1%) have heard of the implant, 112 (55.7%) are aware of the use of periodic abstinence and 108 (53.7%) have heard of the withdrawal method. Others have also heard of the female sterilization (48.3%), IUCD (48.3%), male sterilization (44.3%), diaphragm (34.8%), rhythm (34.3%), and spermicides (27.4%).

The most popular source of information on contraceptives were the radio 178 (88.6%), from health workers 133 (66.2%), and friends 130 (64.7%). Other sources of information on contraceptives included the print media 71 (35.3%), teacher 69 (34.3%), television 69 (34.3%), partner 48 (23.9%), family members 44 (21.9%), and seminars and workshops 39 (19.4%).

The study found 109 respondents representing 54.2% had used at least one contraceptive method in the past six (6) months. Condoms were used by 59 (29.4%) of respondents while 48 (23.9%) have used the pill, 18 (9.0%) have used the implant, 17 (8.5%) used injectable, 13 (6.5%) used withdrawal and 10 (5.0%) used the rhythm method. Contraceptive use was lowest for IUCD and female sterilization (3, 1.5% each), 1 (0.5%) for periodic abstinence and none of the respondents had used neither the diaphragm, spermicide nor male sterilization.

Ninety-two (45.8%) respondents have not used any form of contraceptives. Reasons given by respondents who do not use or have not used contraceptives in the past six (6) months included religious beliefs, infrequent sex and trust in partners accounting for 29 (14.4%), 26 (13.0%) and 22 (11.0%) respectively. Reasons such as reduction in sexual pleasure 13 (6.5%), complicated to use 12 (6.0%), partner opposition 9 (4.5%), high cost 7 (3.5%), attitude of service providers 3 (1.5%) and difficulty acquiring contraceptives 1 (0.5%) were also given. A total of 11 (5.5%) of respondents indicated that they either wanted to get pregnant, they were involved in unplanned sexual intercourse or they were menopausal.

Most of the respondents 154 (76.6%) will use contraceptive primarily to prevent pregnancy. 30 (14.9%) will use contraceptives primarily to prevent STI/HIV while 17 (8.5%) cited other primary reasons for using contraceptives.

Table 2: Awareness and use of any contraceptive method (N=201)

Characteristics	Frequency (n)	%
Ever heard of contraceptives		
Yes	201	100
Types of contraceptive heard*		
Condoms	200	99.5
Pills	187	93
Diaphragms	70	34.8
Injectable	148	73.6
IUCD	97	48.3
Implant	147	73.1
Rhythm	69	34.3
Withdrawal	108	53.7
Spermicides	55	27.4
Female Sterilization	97	48.3
Male Sterilization	89	44.3
Abstinence (Periodic)	112	55.7
Source of information about contraceptives*		
Radio	178	88.6
Print Media	71	35.3
Teacher	69	34.3
Health worker	133	66.2
Family member	44	21.9
Partner	48	23.9
Friends	130	64.7
Seminar/Workshop	39	19.4
Television	69	34.3
Journals/Books	3	1.5
Use of any contraceptive method in the past six (6) months		
Yes	109	54.2
No	92	45.8
Types of contraceptives used*		
Condoms	59	29.4
Pills	48	23.9
Diaphragms	0	0.0
Injectable	17	8.5
IUCD	3	1.5
Implant	18	9.0
Rhythm	10	5.0

Withdrawal	13	6.5
Spermicides	0	0.0
Female Sterilization	3	1.5
Male Sterilization	0	0.0
Abstinence (Periodic)	1	0.5
Reasons for non-use of contraceptives*		
Religious Beliefs	29	14.4
Partner oppose using	9	4.5
Difficulty acquiring contraceptives	1	0.5
Trust my partner	22	11.0
Expensive	7	3.5
Attitude of service providers	3	1.5
Infrequent sex	26	13.0
Reduces sexual pleasure	13	6.5
Too complicated to use	12	6.0
Others	11	5.5
Primary consideration for contraceptive use		
To prevent pregnancy	154	76.6
To prevent STI/HIV	30	14.9
Other	17	8.5

*Respondents could choose multiple responses

4.3 Knowledge and use of dual contraception

Only 89 (44.3%) of respondents have heard of dual contraception. Majority 116 (57.7%) did not know what dual contraception was. Table 3 shows that only 49 (24.4%) of respondents who have heard of dual contraception knew the correct definition of dual contraception.

Most of the respondents 170 (84.6%) have never used dual method and only 26 (12.9%) have ever used dual method. On the types of contraceptives used for the dual method, 20 (10.0%) have used condom with the pill, 5 (2.5%) use condom with injectable, 3 (1.5%) use condom with implant and only 1 (0.5%) use condom with IUCD. Prior to the study, 3

(1.5%) had used dual contraception within the last one week, 10 (5.0%) had used dual contraception between 2 weeks to 1 month, 3 (1.5%) had used it between 3 months to 6 months and 4 (2.0%) had used it in the past 6 months.

Table 3: Knowledge and use of dual contraceptives (N=201)

Characteristics	Frequency (n)	%
Ever heard of dual contraception		
Yes	89	44.3
No	112	55.7
Definition of dual contraception by participants		
Using Condom with other contraceptives	49	24.4
Using two modern contraceptives	32	15.9
Doing anything to avoid pregnancy	4	2.0
Don't know	116	57.7
Use of dual contraception		
Yes	26	12.9
No	170	84.6
Don't Remember	5	2.5
Dual contraception practice - condom with		
Pill	20	10.0
Injectable	5	2.5
IUCD	1	0.5
Implant	3	1.5
Last time of Dual Contraception use		
Within one week	3	1.5
2 weeks to 1month	10	5.0
More than 1 month to 3months	3	1.5
More than 3 month to 6months	5	2.5
More than 6 months	4	2.0
None	176	87.6

4.4 Contraceptive preferences among respondents and challenges in accessibility

Respondents were asked to indicate their personal contraceptive preference independent of any other influences. Table 4 shows that 72 (35.8%) of respondents would prefer to use the condom, 60 (29.9%), 22 (11.0%), 19 (9.5%), 15 (7.5%), and 14 (7.0%) would prefer the pill, injectable, implant, withdrawal and rhythm respectively. Only 4 (2.0%) would prefer female sterilization and 2 (1.0%) each would prefer male sterilization and abstinence respectively. 20 (10%) would prefer not to use any contraceptive at all.

Respondents indicated that the most important reasons for contraceptive preference for dual method included ease of use 75 (37.3%), easy to obtain 48 (23.9%), and contraceptives that will not reduce sexual pleasure 42 (20.9%). Contraceptives that do not present side effects were cited among 37 (18.4%) of respondents, those that will not present discomfort among 32 (15.9%), partner preference among 24 (11.9%) and those that will enhance sexual pleasure were cited among 5 (2.5%) of respondents.

The study found that 69 (34.3%) of respondents had challenges accessing contraceptives. Such challenges included shyness to go for contraceptive services 25 (12.4%), unfriendly service providers 19 (9.5%), partners not interested 11 (5.5%), and cultural or religious opposition 10 (5.0%) among the most cited challenges. Others included limited access to family planning services, partners feeling of distrust and gender-based barriers forming 8 (4.0%), 4 (2.0%) and 2 (1.0%) respectively. The pattern of challenges in accessing contraceptives are as shown graphically in Table 4.

Table 4: Contraceptive preferences and challenges (N=201)

Characteristics	Frequency (n)	%
Contraceptives preferences by respondents (without external influence)		
Condoms	72	35.8
Pills	60	29.9
Diaphragm	0	0.0
Injectable	22	11.0
IUCD	6	3.0
Implant	19	9.5
Rhythm	14	7.0
Withdrawal	15	7.5
Spermicides	0	0.0
Female Sterilization	4	2.0
Male Sterilization	2	1.0
Abstinence (Periodic)	2	1.0
None	20	10.0
Reasons for Contraceptive Preference for dual method use		
Easy to obtain	48	23.9
Easy to use	75	37.3
Has no side effects	37	18.4
Partner prefers that	24	11.9
Does not reduce sexual pleasure	42	20.9
Does not make me feel uncomfortable	32	15.9
Increases sexual pleasure	5	2.5
Other	2	1.0
Challenges accessing contraceptives		
Yes	69	34.3
No	125	62.2
Not sure	7	3.5
Types of challenges in accessing contraceptives		
Limited access to family planning services	8	4.0
Fear or experience of adverse effects	23	11.4
Cultural or religious opposition	10	5.0
Unfriendly service providers	19	9.5
Gender-based barriers	2	1.0
Feel shy to go for services	25	12.4
Partner is not interested	11	5.5
Partner will feel I don't trust him	4	2.0

4.5 Sexual health characteristics of respondents

Table 5 shows that majority of respondents, 148 (73.6%) had a maximum of 2 sexual partners in the past six (6) months. A total of 11 (5.5 %) of respondents had more than three sexual partners. This comprised of 7 (3.5%) having three (3) or four (4) sexual partners and 4 (2.0%) had more than six (6) sexual partners in the past six (6) months. None had 5 or 6 partners while 42 (20.9%) declined to provide response on the number of sexual partners.

Table 5 also depicts that majority, 78 (38.8%) were in steady relationships, 49 (24.4%) were in casual dating relationships with their sexual partners while 15 (7.5%) were friends with their sexual partners. Seven (3.5%) of the respondents had sex with people they just met and 7 (3.5%) were involved in sex in exchange for money or some material gains. 96 (48.0%) declined to provide information on their relationship with sexual partners.

Twenty-four (24) respondents representing 12.0% had a maximum of 2 sexual encounters with their partners. 14 (7.0%) had between 3 and 4 sexual encounters, 9 (4.5%) had between 5 and 6 sexual encounters. The majority, 57 (28.5%) had more than 6 sexual encounters with their sexual partners. 96 (48.0%) of respondents declined to provide responses on the number of times they've had sexual encounters with their partners.

A large majority, 128 (64.0%) of respondents did not know the STI status of their partners at the time of sexual encounters, 10 (5.0%) knew their partners had an STI and 62 (31.0%) had no idea on the STI status of their sexual partners.

Table 5: Sexual relationship of respondents

Characteristics	Frequency (n)	%
Number of sexual partners in the past six (6) months		
1-2	148	73.6
>3	11	5.5
Decline	42	20.9
Type of relationship with partner at the last penile-vaginal/anal episode		
Steady partner	78	38.8
Casual dating partner	49	24.4
Friend	15	7.5
Someone just met	7	3.5
Transactional	7	3.5
Decline	45	22.4
Number of sexual intercourse with partner		
1-2	24	12.0
3-4	14	7.0
5-6	9	4.5
>6	57	28.5
Decline	96	48.0
STI status of partner(s)at the time of sexual encounter		
No	128	64.0
Yes	10	5.0
No idea of partner's STI status	62	31.0

4.6 Comprehensive Knowledge about HIV Transmission and Prevention

In reference to table 6, about 80% of the respondents had good knowledge on HIV prevention and transmission. About 86% knew that having sex with only one uninfected partner reduces risk of HIV infection. Another 81% knew that using condoms every time they have sex can reduce the risk of HIV. However, as high as about 20% of respondents have no or low knowledge on the prevention and transmission of HIV.

Table 6: Comprehensive Knowledge about HIV Transmission and Prevention

Characteristics	Frequency (n)	%
Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?		
Yes	173	86.1
No	14	7.0
Don't know	14	7.0
Can a person reduce the risk of getting HIV by using a condom every time they have sex?		
Yes	163	81.1
No	29	14.4
Don't know	9	4.5
Can a healthy-looking person have HIV?		
Yes	188	93.5
No	5	2.5
Don't know	8	4.0
Can a person get HIV from mosquito bites?		
Yes	2	1.0
No	190	94.5
Don't know	9	4.5
Can a person get HIV by sharing food with someone who is infected?		
Yes	1	0.5
No	197	98.0
Don't know	3	1.5

4.7 Prevalence of contraceptive use

Table 7 shows the prevalence of any form of contraceptive use among sexually active females within the last six (6) months in this study. The highest prevalence was recorded among single females (28.4%) and that among the married represent 17.9%. The prevalence among the separated, divorced and widowed were 4.5%, 1.0% and 2.5% respectively. The overall prevalence recorded for general contraceptive use was 54.2% (109/201).

Table 7: Prevalence of contraceptive use

			Any contraception use			
Marital Status	Total	%	No	%	Yes	%
Single	118	58.7	61	51.7	57	48.3
Married	60	29.9	24	40.0	36	60.0
Others	23	11.4	7	30.4	16	69.6
	201	100	92	45.8	109	54.2

$\chi 2$ (4) = 5.7285 Pr = 0.220

			Use of dual contraception			
Marital status	Total	%	No	%	yes	%
Single	118	58.7	101	85.6	14	11.9
Married	60	29.9	51	85.0	9	15.0
Others	23	11.4	18	78.3	3	13.0
	201	100	170	84.6	26	12.9

$\chi 2$ (8) = 20.2853 Pr = 0.009

Among singles only 7.0% have used dual method in the last six (6) months and among the married only 4.5% have used dual method (Table 7). A zero prevalence was recorded among the separated and divorced while a 1.5% prevalence was recorded among the widowed. The overall prevalence of dual contraception use was 12.9% (26/201). There was

no significant association between marital status and any contraceptive use. This suggests that the marital status of respondent does not influence the use of any contraceptive. However, a significant association was found to exist between marital status and dual contraception usage ($\chi 2$ (5) = 20.3, $p < 0.01$). This also suggests that marital status significantly influences the use of dual method for contraception.

4.8 Demographic factors associated with general and dual contraceptive use

Table 8 describes the various demographic factors and their associations with general contraceptive usage and dual method for contraception among the study population using two-sided Fisher's Exact test. The age of a sexually active female was significantly associated with the use of any form of contraception with 54.2% (109/201), compared to 45.8% (92/201) for non-use of contraceptives ($p < 0.05$). The older the respondent, the more likely it is for her to use some form of contraceptive. However, the age was does not have any significant association with the use of dual method of contraception. Residing in either the urban or rural area shows a significant relation to the use of contraceptives with 54.2% (109/201), compared to 45.8% (92/201) for non-use of contraceptives ($p = 0.006$) in general but not with dual contraceptive use. Similarly, the occupation and the people with whom respondents stay have significant association with general contraceptive use ($p < 0.05$ and $p = 0.00$) respectively. Their associations with dual contraceptive use were however not statistically significant. Respondents' religion, level of education, and ethnic background did not show any significant associations with general contraceptive use or dual contraception.

Table 8: Demographic factors associated with general contraceptive use and dual contraception

Characteristics	Used Any Contraceptive		Dual Contraceptive Use	
	n (%)			
	Yes	No	Yes	No
Demographics				
Age				
18 to 24	24 (22.0)	37	6 (23.1)	54
25 to 30	41 (37.6)	30	7 (26.9)	62
31 to 36	20 (18.3)	15	7 (26.9)	26
37 to 42	17 (15.6)	7	3 (11.5)	21
43 to 49	7 (6.4)	3	3 (11.5)	7
Statistical Test	Fisher's exact, p = 0.049		Fisher's exact, p = 0.406	
Marital Status				
Single	57 (52.3)	61	14 (53.8)	101
Married	36 (33.0)	24	9 (34.6)	51
Separated	9 (8.3)	4	0 (0.0)	11
Divorced	2 (1.8)	2	0 (0.0)	4
Widowed	5 (4.6)	1	3 (11.5)	3
Statistical Test	Fisher's exact, p = 0.226		Fisher's exact, p = 0.039	
Religion				
Christian	80 (73.4)	67	19 (73.1)	124
Muslim	21 (19.3)	21	5 (19.2)	36
Traditionalist	4 (3.7)	1	1 (3.8)	4
Other	4 (3.7)	3	1 (3.8)	6
Statistical Test	Fisher's exact, p = 0.699		Fisher's exact, p = 0.956	
Level of Education				
Tertiary	40 (36.7)	37	12 (46.2)	63
Secondary	35 (32.1)	38	7 (26.9)	65
Primary	23 (21.1)	13	6 (23.1)	28
None	11 (10.1)	4	1 (3.8)	14
Statistical Test	Fisher's exact, p = 0.191		Fisher's exact, p = 0.625	

Ethnic Group				
Akan	32 (29.4)	27	7 (26.9)	52
Ga/Dangbe	48 (44.0)	31	10 (38.5)	66
Ewe	13 (11.9)	11	6 (23.1)	17
Hausa	15 (13.8)	20	3 (11.5)	31
Other	1 (0.9)	3	0 (0.0)	4
Statistical Test	Fisher's exact, p = 0.348		Fisher's exact, p = 0.461	
Place of Residence				
Urban	81 (74.3)	83	23 (88.5)	137
Rural	28 (25.7)	9	3 (11.5)	33
Statistical Test	Fisher's exact, p = 0.006		Fisher's exact, p = 0.616	
Occupation				
Trader	27 (24.8)	13	7 (26.9)	32
Student	15 (13.8)	34	4 (15.4)	45
Unemployed	15 (13.8)	14	4 (15.4)	24
Self Employed	15 (13.8)	10	3 (11.5)	21
Administrative	7 (6.4)	6	3 (11.5)	10
Health	11 (10.1)	6	1 (3.8)	16
Corporate	5 (4.6)	3	1 (3.8)	6
Teacher	7 (6.4)	3	2 (7.7)	8
Business	7 (6.4)	2	1 (3.8)	7
Other	0 (0.0)	1	0 (0.0)	1
Statistical Test	Fisher's exact, p = 0.017		Fisher's exact, p = 0.604	
Dependant				
Parents	22 (20.2)	38	3 (11.5)	56
Guardian	2 (1.8)	11	2 (7.7)	11
Partner	43 (39.4)	23	9 (34.6)	57
By myself	41 (37.6)	20	12 (46.2)	45
Other	1 (0.9)	0	0 (0.0)	1
Statistical Test	Fisher's exact, p = 0.000		Fisher's exact, p = 0.067	

4.9 Sexual Behavioural factors associated with the use of contraceptives and dual contraception

The associations between the sexual behaviour patterns of study participants are described in Table 9. The number of sexual partners one had in the past six (6) months showed a

significant association with both general contraceptive use and dual contraceptive use ($\chi 2$ (4) = 27.01, $p < 0.001$ and $\chi 2$ (4) = 21.94, $p < 0.05$) respectively. The higher the number of sexual partners the higher likelihood of a respondent to use any form of contraception or use dual method for contraception. The type of relationship existing between respondents and their sexual partners, whether a steady relationship, casual, friend, transactional or someone just met, showed strong association with any contraceptive usage ($\chi 2$ (5) = 23.95, $p < 0.001$) and use of dual contraception ($\chi 2$ (5) = 40.12, $p < 0.001$). The probability of contraceptive use increases with relationships that are perceived to be temporal and non-steady. Even though analysis show an association between the number of sexual encounters a participant was engaged in and the use of any form of contraceptive ($\chi 2$ (4) = 15.28, $p < 0.05$), the association between the number of sexual encounters and use of dual contraceptive method was not statistically significant. Knowledge about partners STI status was statistically significant with the use of any contraceptive type ($\chi 2$ (3) = 9.05, $p < 0.01$). Respondents were more likely to use contraceptives when they know their partners STI status. The knowledge of partners STI status was however not statistically significant in the use of dual contraceptive methods.

Table 9: Sexual Behaviour factors associated with general and dual contraceptive use

Characteristics	Used any contraceptive		Dual Contraceptive Use	
	n (%)			
	Yes	No	Yes	No
Number of sexual partners the past six (6) months				
1-2	93 (62.8)	55	23 (15.9)	122
3-4	4 (57.1)	3	0 (0)	7
5-6	0 (0)	0	0 (0)	0

>6	2 (50)	2	2 (66.7)	1
Decline	10 (29.4)	24	1 (3.0)	32
Statistical Test	$\chi2 = 27.01$, $p = 0.00$		$\chi2 = 21.94$, $p = 0.04$	
Respondent-Partner relationship				
Steady partner	46 (59.0)	32	10 (12.8)	68
Casual dating partner	35 (71.4)	14	6 (12.8)	41
Friend	10 (66.7)	5	2 (13.3)	13
Someone just met	3 (42.9)	4	4 (57.1)	3
Transactional	4 (57.1)	3	2 (40.0)	3
Statistical Test	$\chi2 = 23.95$, $p = 0.001$		$\chi2 = 40.12$, $p = 0.000$	
Number of sexual encounters with partner				
1-2	10 (41.7)	14	3 (13.0)	20
3-4	12 (85.7)	2	3 (23.0)	10
5-6	8 (88.9)	1	2 (22.2)	7
>6	34 (59.6)	23	9 (16.1)	47
Decline	41 (47.1)	46	8 (9.4)	77
Statistical Test	$\chi2 = 15.28$, $p = 0.05$		$\chi2 = 20.488$, $p = 0.20$	
Knowledge about partner's STI status				
No	79 (61.7)	49	21 (16.7)	105
Yes	6 (60.0)	4	2 (22.2)	7
Don't know	24 (38.7)	38	3 (5.0)	57
Statistical Test	$\chi2 = 9.05$, $p = 0.01$		$\chi2 = 8.2$, $p = 0.08$	

4.9 Multi-variate analysis between use of single contraceptives and dual contraceptive use

An analysis of the association between the use of individual contraceptives and dual contraceptive use was done. Only variables (condom use and pill use) that showed significant association with the use of dual contraception on bivariate analysis were selected for the multi-variate analysis. These variables were controlled for with demographic factors including age, sex and occupation of respondents to show their effect

on the statistical significance between the use of single contraceptives and dual contraceptive use.

Table 10a Association between general use of condom and dual contraceptive use

Dual contra. Use	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Condom Use	3.250297	1.386196	2.76	0.006	1.408965	7.498008
Age	1.185489	0.2590138	0.78	0.436	0.7725405	1.819173
Marital Status	1.306009	0.329103	1.06	0.289	0.7969864	2.140138
Occupation	1.008156	0.0840909	0.1	0.922	0.8561082	1.187209
_cons	0.0488356	0.0302064	-4.88	0	0.0145292	0.164147

Logistic regression	Number of obs	=	201
	LR chi2(4)	=	10.14
	Prob > chi2	=	0.0382
Log likelihood = -81.356169	Pseudo R2	=	0.0586

The association between the use of condom and dual contraception is as shown in Table 10a. The use of condoms by a respondent is a strong predictor of the person using dual contraceptive method. This is because after controlling for age, marital status and occupation, the odds of a respondent using dual method of contraception is 3.3 times as great as the odds of that respondent using a condom [aOR = 3.3 (95% CI = 1.41 – 7.50), $p<0.05$]. Similarly, Table 10b shows that odds of a respondent adopting dual method of contraception is about 5.7 times as great as the odds of the person using the pill [aOR = 5.7 (95% CI = 2.51 – 13.08), $p<0.01$]. Even though the number of sexual partners a respondent has and the type of relationship between sexual partners showed significant association with dual method of contraception on bivariate analysis, they do not show statistical significance when controlled for age, marital status and respondents' occupation.

Table 10b Association between general use of contraceptive pill and dual contraceptive use

Dual contra. Use	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Pill Use	5.725282	2.412846	4.14	0.000	2.506507	13.0775
Age	1.230393	0.2839851	0.9	0.369	0.7826715	1.934231
Marital Status	1.154443	0.3047712	0.54	0.586	0.6881079	1.936816
Occupation	0.9937839	0.0858672	-0.07	0.942	0.8389663	1.177171
_cons	0.048694	0.0294227	-5	0	0.0148987	0.159149

Logistic regression	Number of obs	=	201
	LR chi2(4)	=	19.74
	Prob > chi2	=	0.0006
Log likelihood = -76.555318	Pseudo R2	=	0.1142

CHAPTER FIVE

DISCUSSION

This study examined the dual contraceptive utilization among sexually active females in the La-Nkwantanang-Madina Municipality.

General awareness about contraceptives is high and universal among the study population with condom (99.5%), pills (93.0%), injectable (73.6%) and implant (73.1%) among the highest known. Awareness on contraceptives is also shown to be universal with almost all Ghanaian women (99%) knowing of at least one method of contraception (GDHS, 2014). This high level of awareness does not translate into a corresponding high usage level with as high as 46% of respondents not using any form of contraceptives in the last six (6) months. Condom was found to be the most used (29.4%) and the pill accounting for 23.9%. These results were similar to those obtained in the study of sexual behaviour and contraceptive knowledge among females in Tanzania where condom usage was 24.3% and the pill was 16.8% (Somba et al., 2014). These low contraceptive uptake bring into question the effectiveness of the myriad of projects and programmes that seek to promote contraceptive uptake. Project and programme managers should expend resources in undertaking researches into the implementation gaps and to address the specific challenges of contraceptive uptake.

Even though a number of researches on dual contraception have been conducted in other parts of Africa among different age groups and settings, the general trend reveals a low dual contraceptive utilization. Reviewed literature showed dual contraception prevalence ranged from 3.8% in a research conducted in Zimbabwe (Mutowo et al., 2014) to 14% in another research on contraceptive preference in Soweto, South Africa (Mutowo & Kasu,

2015). The present research showed a prevalence of 12.9% dual contraceptive use among the sexually active female population. This result depict the use of a barrier method of contraception (male or female condom) simultaneously with another modern contraception method in the past six (6) months. It does not provide information on the frequency and effectiveness of use of the contraceptives. Studies on dual contraception among persons living with HIV (PLHIV) showed higher levels of use. In a study on dual contraceptive method use among PLHIV in Thailand, the prevalence was 29.6% (Munsakul et al., 2016) and a similar one in Ethiopia yielded 32% prevalence (Demissie, 2015). However, 54% of these group of sexually active females have used at least one type of contraceptive in the past six (6) months prior to the study. This proportion is far lower than the 96% prevalence of contraceptive use among sexually active females in a similar research in Victoria, Australia (Ong et al., 2012). This huge difference may be attributed to difference in geographical setting. Australian females may also have access to more information and services than participants in this study. Another research in Ethiopia also found the use of contraceptive by sexually active respondents to be 64.4% which is higher than that recorded in this study (Shoa, Mokagtle, & Motuma, 2014). According to the GDHS 2014, 44.5% of sexually active unmarried women use some form of contraceptives. This study recorded a 48.3% (57/118) use of any form of contraceptives among sexually active females which is not significantly different from the GDHS figure.

Among the proportion of never married sexually active females in relation to the total sampled population, the prevalence of contraception was 28.4% (57/201) and this reduced to 7.0% (14/201) for dual contraceptive utilization. Among the married the prevalence was 17.9% (36/201) for any contraceptive use and only 4.5% (9/201) for dual contraception.

The high disparity between prevalence of general contraceptive use and dual contraception could be attributed to the low knowledge about dual contraception and its benefits. It could also be attributed to the high premium placed on preventing unwanted pregnancies (76.6%) rather than preventing STI/HIV (14.9%). This may be the cause of high unprotected sex rate and the increased use of hormonal and emergency contraceptives. Among the married in the reproductive age, decreased dual contraceptive use may be attributed to the desire for pregnancy and childbirth and the perceived trust among couples.

This research did not find a significant association between age and use of any contraceptive and the use of dual contraceptive methods. This finding is consistent with a study by (Marrone et al, 2014) on the predictors of contraceptive use among females in Ghana. The low level of contraceptive use and for this matter dual contraceptive utilization is cause for concern especially in Ghana where unwanted pregnancies and STI are high. Reasons cited by respondents in this study included religious beliefs (14.4%), infrequent sex (13.0%), trust in partners (11.0%), and reduction in sexual pleasure (6.5%). The fear of adverse effects of contraceptives (11.4%) and individuals' inability to freely access professional contraceptive services is the feeling of shyness (12.4%) to discuss matters on sexuality and contraceptives. Similar reasons were also found in the study of the trends and determinants of contraceptive use among women of reproductive age in Ghana (Nonvignon & Novignon, 2014). The high proportion of respondents citing religious beliefs as reasons for non-use of contraceptives is quite intriguing. This outcome calls for an increase and better strategies of engaging religious bodies on issues of contraceptives and their use. This action is necessary to enhance contraceptive uptake especially among those who are

religiously entrenched on such matters. The role of religion and its effect on contraceptive use has been assessed and established in a study conducted to access the influence of religion on contraceptive uptake (Srikanthan & Reid, 2008). This research by Srikanthan et al concluded that religion has the potential of negatively affecting contraceptive uptake. A sizeable number of respondents believe that infrequent sex does not pose any risk with regards to unwanted pregnancies and STI transmission. For this reason they do not use any form of contraception on those "infrequent" occasions. This perception and practice can however be inimical to effective pregnancy and STI prevention strategies. Those who have trust in their partners with the belief that they are less likely to have any STD have lower propensity to use any form of contraceptive for protection.

Many respondent indicated preference for contraceptives that will not reduce or interfere with their sexual pleasure. For this same reason many do not use the condom and others would not use any form of contraception at all. The desire for uninterrupted sexual pleasure reduces the preference for barrier methods that can provide dual protection. The over-reliance on hormonal contraceptives to prevent pregnancies and the risky behaviour of unprotected sex poses an increased risk for the transmission of STIs including HIV. Similar outcome was observed in a study of multiple method of contraception use conducted in the United States among African-Americans (Brown et al., 2011). The Ghana Demographic and health Survey (GDHS, 2014), indicates that as high as 21% of contraceptive users discontinue use due to side effects and health concerns. Increased education on the importance of contraceptive use especially among the sexually active is critical in addressing these issues especially on the side effects and accessibility. These reasons may be attributed more to personal attitude towards contraceptive use rather than lack of

knowledge or reduced accessibility to services. Even though many respondents indicated their trust in partners for non-use of any form of contraceptives, as high as 95% did not know the STI/HIV status of their sexual partners. This may be an indication of high risky sexual behaviours among respondents.

Contraceptives commonly used is the condom (29.4%), the pill (23.9%) and injectable (8.5%). In comparison to a research on sexual and reproductive health in Accra, prevalence of condom was 14.1%, injectable (6.1%) and pill (3.3%) (Adanu, Seffah, Anarfi, Lince, & Blanchard, 2012). A lower prevalence of contraceptive use was found in the research by Adanu et al than in this research. While condom remained the most popular, this study found more respondents using the pill than the injectable as opposed to the higher utilization of the injectable than the pill in the study by Adanu et al (2012).

This study found that the highest priorities of contraceptive preference were based on their ease of use (37.3%) and the ability to obtain them easily (23.9%). This implies that family planning programmes should make available and promote contraceptives that are easy to use while training service providers to make contraceptives that require minor procedures easy to obtain for users. Even though the intention to use contraception is to prevent unwanted pregnancies and STI, sexually active persons also want to experience un-interrupted sexual pleasure. This is one of the most important reasons which determines non-use of contraceptives. Manufactures of contraceptives especially the barrier ones should undertake more research into producing condoms that do not interfere with sexual pleasure but provides high protection rate. Many discontinue contraceptive use due to the discomfort associated with them. In the African context, especially in Ghana, male partners are important in deciding what contraceptives a woman chooses. The GDHS, 2014 cites

that about 2.7% of women discontinue contraceptive use due to disapproval from their male partners while another 2.1% discontinue use due to the inconvenience of the method. Men should therefore be an important target group in the promotion and education of contraceptives.

The strong association existing between the use of condom and pill and the use of dual contraceptive methods as shown by the results of this study provides evidence on the need to scale up condom uptake as a means to achieve dual contraceptive utilization. Interventions towards increasing dual contraceptive method uptake has the likelihood of increasing dual contraception by 3.3 and 5.7 times respectively. This provides a strong evidence to inform actions in increase efforts towards higher contraceptive uptake especially among the sexually active reproductive age group. The anticipated outcome will be a substantial decline in STI/HIV prevalence as well as reduction in unwanted and unplanned pregnancies. This will also contribute to the improvement of the health of women and children.

5.1 Limitations

There were a few limitations to this study. Respondents provided self-reports on their contraceptive use status in the past six months. These information could not be verified in anyway and so there is the probability of bias in the provision of answers to the survey questionnaires. Many respondents found it difficult providing responses to questions that sought to gather information on sexual practices. This led to a sizeable number declining to answer those sections of the survey. This may have affected the result analysis. The

sampled population of sexually active females in the La-Nkwantanang Madina Municipality may not be representative of the entire Ghanaian population due to differences in cultures and exposures to contraceptives. A study on a larger scale is therefore required to understand the dual contraceptive utilization pattern among Ghanaian sexually active women. The involvement of women mostly in the urban centre with a higher proportion being literate in the study could bias the results.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Knowledge on dual contraception is low among study participants. Less than half of respondents have heard of dual contraception and less than a quarter of respondents have correct knowledge of what dual contraception means. The other 75.6% either have no idea or have a wrong perception on what dual contraception is. This study concluded that only 12.9% of the study participants had ever used dual contraception. The most used dual contraceptive combination was condom with the pill.

Respondents contraceptive preference (choice and use) were based largely on ease of use of the method, the ability to easily obtain the contraceptive and contraceptives that will not reduce their sexual pleasure. The most frequently mentioned challenges in accessing contraceptives were shyness to go for services. This finding indicated that there is still the existence of substantially high levels of uneasiness in discussing issues that bothers on sex within our society. The fear of the side effect of contraceptives also poses a high level of challenge to accessing contraceptives. Unfriendly service providers also pose a challenge to easy accessibility to contraceptive uptake. Service providers should be positioned to be more receptive in order to overcome such barrier.

Only less than 15% consider prevention of STI as a priority for contraceptive use. The large majority will consider prevention of pregnancy as the main focus for contraceptive use while a very few would want to use contraception for such reasons as a means of gaining weight and preventing menstruation.

6.2 Recommendations

The findings from this study will need to be addressed with interventions capable of providing multiple solutions. The following are some recommended interventions:

i. Improved contraceptive messaging strategy and increased education to improve the knowledge and understanding on the benefits of contraception especially contraception for dual protection.

ii. Scale up advocacy programs to change risky sexual behaviours and negative attitudes towards the use of contraceptives for dual protection.

iii. Train family planning service providers on good counseling skills and enhance their competency in performing procedures for certain contraceptives such as the implants and IUCD. They should also be given training on good client reception to improve uptake of contraceptives at the facilities.

iv. Engage in awareness raising on the risks STI/HIV among the sexually active and the need to use contraceptives for dual protection.

v. Engage men on contraceptive education and use and to encourage them to support their women to use contraceptives.

vi. Further research should be conducted on the utilization of dual contraceptive method on a larger scale and across a wider age group in order to provide wider scientific evidence for the promotion of dual contraceptive utilization.

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APPENDICES

APPENDIX I: Consent Information

DEPARTMENT OF POPULATION, FAMILY AND REPRODUCTIVE HEALTH

SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA, LEGON

Dual Contraception among sexually active females for Protection against Pregnancy and HIV/STI

CONSENT INFORMATION

PURPOSE OF RESEARCH

You are invited to participate in a research study of Dual Contraception for Protection against Pregnancy and HIV/STI. We hope to learn about what females in their reproductive age know about methods used in preventing having children they don't intend to have and infections that come about through sex. This study is to help inform us on necessary interventions to put in place to support the health of women. You were selected as a possible participant in this study because you meet our selection criteria and you were retained in our random sampling. This research study is looking for a minimum of 430 females between the ages of 18-45 years living within the Madina Community.

VOLUNTARY PARTICIPATION

Your participation in this study is entirely voluntary. Your decision not to participate will not have any negative effect on you. You can decide to participate now, but withdraw your

consent later and stop being in the study without any loss of benefits or medical care to which you are entitled.

DURATION OF STUDY INVOLVEMENT

This research study is expected to take approximately 2 months to interact with selected participants and to gather necessary information. Responses will be put together and analyzed for results in the next month. Final report should be complete by the end of July, 2015.

PROCEDURES

If you choose to participate, the research officer will describe all the procedures to be followed in a language you understand. You will be given the opportunity to ask all questions you may have and further explanations given.

Signing or Thumb printing of Questionnaire

If you agree to participate, you will be requested to sign a consent form or thumb print if you wish to indicate that you fully agree to part.

Administration of Questionnaire

A set of questions will be asked by the research officer for which you will be requested to provide genuine answers as much as possible. You can however decide not to answer questions you feel uncomfortable with. Each questionnaire will take a maximum of 20 minutes to complete.

Risks

There are no risks attached to responding to the questionnaires. Your name will not be taken in this study, however for purposes of data analysis each form will be given a peculiar identification number.

PARTICIPANT RESPONSIBILITIES

As a participant, your responsibilities include:

- Follow the instructions of the research officer
- Complete your questionnaires as instructed
- Ask questions as you think of them
- Tell the research officer if you change your mind about staying in the study

WITHDRAWAL FROM STUDY

If you first agree to participate and then you change your mind, you are free to withdraw your consent and discontinue your participation at any time. Your decision will not affect your ability to receive medical and you will not lose any benefits to which you would otherwise be entitled.

POSSIBLE RISKS, DISCOMFORTS, AND INCONVENIENCES

Even though there are no risks attached to participating in this study, we will be asking questions bothering your personal life and experiences especially with sex and family planning. These may generate some discomfort and inconveniences. These deserve careful thought. You should talk with the research officer if you have any such discomforts and ask questions whenever you want for clarification.

POTENTIAL BENEFITS

We cannot and do not guarantee or promise that you will receive any benefits from this study. We hope however that results outcome could be used to advice on policies that bother on women's sexual health especially that which protect them against unintended pregnancies and sexually transmitted diseases including HIV. This is to benefit the entire community as a whole.

PARTICIPANT'S RIGHTS

You should not feel obligated to agree to participate. Your questions should be answered clearly and to your satisfaction. If you decide not to participate, tell the research officer.

CONFIDENTIALITY

The results of this research study may be presented at scientific or medical meetings or published in scientific journals. Your identity and/or your personal information will not be disclosed except as authorized by you or as required by law. No response given will be disclosed to any unauthorized persons. Neither your name nor your any identity traceable to you will be indicated on the survey forms.

CONTACT INFORMATION

Questions, Concerns, or Complaints: If you have any questions, concerns or complaints about this research study, its procedures, risks and benefits, or alternative courses of treatment, you should ask the research officer.

Independent Contact: If you are not satisfied with how this study is being conducted, or if you have any concerns, complaints, or general questions about the research or your rights as a participant, please contact:

Prof. Augustine Ankomah
School of Public Health
University of Ghana, Legon
Tel: 0261524407
Email: augankomah@gmail.com

Or

Welbeck Amoani Twum
School of Public Health
University of Ghana, Legon
Tel: 0244138096
Email: bmswelbeck@yahoo.com

Or

Hannah Frimpong
Administrative Secretary,
Ghana Health Service Ethics Review Committee
Tel: 0507041223

APPENDIX II: Statement of Consent

I have read this consent form or it has been read and explained to me. I have had the opportunity to discuss this research study with …… and or his/her study staff. I have had my questions answered by them in language I understand. The risks and benefits have been explained to me. I believe that I have not been unduly influenced by any study team member to participate in the research study by any statement or implied statements. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to participate in this research study.

I understand that information regarding my personal identity will be kept confidential.

By signing this consent form, I have not waived any of the legal rights that I have as a participant in a research study.

Participant signature/Thumb print_____

Date _____

(Day / month / year)

Participant Name: _____

APPENDIX III: Questionnaire

QUESTIONNAIRE
SCHOOL OF PUBLIC HEALTH
UNIVERSITY OF GHANA

CODE:…….

Dual Contraception among sexually active females for Protection against Pregnancy and HIV/STI

	Date:……		Age: ……..	
	Section 1: Biodata			
1	**Religion:** Christian	**1**	Traditionalist	**3**
	Muslim	**2**	Other	**4**
2	**Marital status:** Unmarried	**1**	Divorced	**3**
	Married	**2**	Widowed	**4**
3	**Level of Education:** Tertiary	**1**	Primary	**3**
	Secondary	**2**	None	**4**
4	**Ethnic Group:** Akan	**1**	Hausa	**4**
	Ga/Dangbe	**2**	Other (Specify)	**5**
	Ewe	**3**		
5	**Place of Residence:** Urban	**1**	Rural	**2**
6	**Occupation:** Trader	**1**	Apprentice	**4**
	Student	**2**	Civil Servant	**5**
	Unemployed	**3**	Other (Specify)	**6**
7	**Who do you stay with:** Parents	**1**	By myself	**4**
	Guardian	**2**	Other (Specify)	**5**
	Partner	**3**		
	Section 2: General Contraceptive Awareness and Use			
8	**Have you ever heard of any contraceptive?**			
	Yes	**1**	No	**2**
9	**Which Type have you heard of?**			

	Condoms	1	Withdrawal	8
	Pills	2	Spermicides	9
	Diaphragms	3	Female Sterilization	10
	Injectables	4	Male Sterilization	11
	IUCD	5	Abstinence	12
	Implant	6	Other (Specify)	13
	Rhythm	7		
10	**Where did you hear of them?**			
	Radio	1	Partner	6
	Print Media	2	Friends	7
	Teacher	3	Seminar/Workshop	8
	Health worker	4	Other (Specify)	9
	Family member	5		
11	**Which contraceptives have you used in the past six (6) months?**			
	Condoms	1	Withdrawal	8
	Pills	2	Spermicides	9
	Diaphragms	3	Female Sterilization	10
	Injectables	4	Male Sterilization	11
	IUCD	5	Abstinence	12
	Implant	6	Other (Specify)	13
	Rhythm	7	None	14
12	**If None, why don't you use any contraceptive?**			
	Religious Beliefs	1	Attitude of service providers	6
	Partner oppose using	2	Infrequent sex	7
	Difficulty in acquiring contraceptives	3	Reduces sexual pleasure	8
	Trust my partner	4	Too complicated to use	9
	Expensive	5	Other (Specify)	10
13	**What is the main consideration for using contraceptives?**			
	To prevent pregnancy	1		
	To prevent STI/HIV	2		
	Other Specify	3		
	Section 3: Knowledge about dual contraception			
14	**Have you ever heard of dual contraception?**			
	Yes	1	No	2

15	**If yes, what do you know about Dual Contraception?**			
	Using Condom with other contraceptives	**1**	Doing anything to avoid pregnancy	**3**
	Using two modern contraceptives	**2**	Don't know	**4**
	(If respondent does not know or provides wrong answer, provide correct information before proceeding)			
16	**Have you ever used dual contraception?**			
	Yes	**1**		
	No	**2**		
	Don't Remember	**3**		
17	**Which types did you use? Condom with:**			
	Pills	**1**	Withdrawal	**7**
	Diaphragms	**2**	Spermicides	**8**
	Injectables	**3**	Female Sterilization	**9**
	IUCD	**4**	Male Sterilization	**10**
	Implant	**5**	Abstinence	**11**
	Rhythm	**6**	Other (Specify)	**12**
18	**When was the last time you used dual contraception?**			
	Within one week	**1**	More than 3 month to 6months	**4**
	2 wks to 1month	**2**	More than 6 months	**5**
	More than 1 month to 3months	**3**		
19	**Which contraception(s) do you mostly prefer?**			
	Condoms	**1**	Withdrawal	**8**
	Pills	**2**	Spermicides	**9**
	Diaphragms	**3**	Female Sterilization	**10**
	Injectables	**4**	Male Sterilization	**11**
	IUCD	**5**	Abstinence	**12**
	Implant	**6**	Other (Specify)	**13**
	Rhythm	**7**	None	**14**
20	**Why do you prefer that type(s)?**			
	Easy to obtain	**1**	Does not reduce sexual pleasure	**5**
	Easy to use	**2**	Does not make me feel uncomfortable	**6**
	Has no side effects	**3**	Increases sexual pleasure	**7**
	Partner prefers that	**4**	Other specify	**8**

21	**Do you have challenges accessing contraceptives?**			
	Yes	**1**		
	No	**2**		
22	**What are some of the challenges in accessing contraceptives?**			
	Limited access to family planning services	**1**	Don't know about them	**6**
	Fear or experience of adverse effects	**2**	Feel shy to go for services	**7**
	Cultural or religious opposition	**3**	Partner is not interested	**8**
	Unfriendly service providers	**4**	Partner will feel I don't trust him	**9**
	Gender-based barriers	**5**		
23	**The risk of getting certain types of cancer in women can be reduced by birth control pills**			
	Yes	**1**		
	No	**2**		
	Don't know	**3**		
	Section 4: Perceptions about Contraceptives			
24	**Dual Contraception is a form of abortion and is a sin**			
	Strongly Agree	**1**	Disagree	**4**
	Agree	**2**	Strongly Disagree	**5**
	Not Sure	**3**		
25	**Using Dual Contraception will make sexual intercourse less pleasurable**			
	Strongly Agree	**1**	Disagree	**4**
	Agree	**2**	Strongly Disagree	**5**
	Not Sure	**3**		
26	**One requires a lot of courage to purchase condoms from a shop**			
	Strongly Agree	**1**	Disagree	**4**
	Agree	**2**	Strongly Disagree	**5**
	Not Sure	**3**		
27	**Dual Contraception may reduce fear of unplanned pregnancy and afford the woman to enjoy sexual relationship**			
	Strongly Agree	**1**	Disagree	**4**

	Agree	2	Strongly Disagree	5
	Not Sure	3		
28	**It is/will be too complicated to use Dual Contraception**			
	Strongly Agree	1	Disagree	4
	Agree	2	Strongly Disagree	5
	Not Sure	3		
29	**The side effects are too many and so it's not good**			
	Strongly Agree	1	Disagree	4
	Agree	2	Strongly Disagree	5
	Not Sure	3		
30	**Dual contraception can prevent STI/HIV**			
	Strongly Agree	1	Disagree	4
	Agree	2	Strongly Disagree	5
	Not Sure	3		
31	**Healthcare providers are to blame. They don't tell us about all these**			
	Strongly Agree	1	Disagree	4
	Agree	2	Strongly Disagree	5
	Not Sure	3		
32	**What is your relationship with the partner at the last penile-vaginal episode**			
	Steady partner	1	Someone just met	4
	Casual dating partner	2	Transactional	5
	Friend	3		
	Section 5: Comprehensive Knowledge about HIV Transmission and Prevention			
33	**Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?**			
	Yes	1		
	No	2		
	Don't know	3		
34	**Can a person reduce the risk of getting HIV by using a condom every time they have sex?**			
	Yes	1		
	No	2		
	Don't know	3		

35	**Can a healthy-looking person have HIV?**			
	Yes	**1**		
	No	**2**		
	Don't know	**3**		
36	**Can a person get HIV from mosquito bites?**			
	Yes	**1**		
	No	**2**		
	Don't know	**3**		
37	**Can a person get HIV by sharing food with someone who is infected?**			
	Yes	**1**		
	No	**2**		
	Don't know	**3**		

APPENDIX IV: Ethical Approval

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted.

My Ref. GHS/RDD/ERC/Admin/App
Your Ref. No.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Tel: +233-302-681109
Fax + 233-302-685424
Email: Hannah. Frimpong@ghsmail.org

11th March, 2016

Welbeck Amoani Twum
University of Ghana
School of Public Health
Legon, Accra

ETHICS APPROVAL - ID NO: GHS-ERC: 78/12/15

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol titled:

"Dual Contraception among Sexually Active Female for Protection against Pregnancy and HIV/STI"

This approval requires that you submit yearly review of the protocol to the Committee and a final full review to the Ethics Review Committee (ERC) on completion of the study. The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Please note that any modification without ERC approval is rendered invalid.

You are also required to report all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.

You are requested to submit a final report on the study to assure the ERC that the project was implemented as per approved protocol. You are also to inform the ERC and your sponsor before any publication of the research findings.

Please note that this approval is given for a period of 12 months, beginning 11th March, 2016 to 10th March, 2017. However, you are required to request for renewal of your study if it lasts for more than 12 months.

Please always quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....

PROFESSOR MOSES AIKINS
(GHS-ERC VICE-CHAIRPERSON)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra

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