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KUMASI

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PREDICTORS OF UNMET NEED FOR CONTRACEPTION IN THE KINTAMPO AREA, GHANA

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ABENA KONADU YAWSON

September 2014

DECLARATION

I declare herewith that this thesis write up is entirely my own output. To the best of my knowledge it does not contain any previously published material except those for which acknowledgement has been given in the text.

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DEDICATION

I dedicate this write up to my husband Solomon Yawson for his encouragement and support throughout the time spent on this work and to my son Owuraku Yawson whose comfort was robbed him to enable me devote time to further my education.

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ABSTRACT

Background

Unmet need for contraception remains high in Ghana, but the predictors of this are yet to be adequately documented. Knowing the level of unmet need for contraception and the factors that predict this unmet need is essential in assessing and forecasting the contraceptive needs of the nation.

Methods

A community-based cross-sectional household survey was nested into the routine data collection of the Kintampo Health and Demographic Surveillance System (KHDSS). The data were collected from July to December 2011. A total of 3308 married and cohabiting women residing in the Kintampo area of Ghana were studied to determine the magnitude of contraceptive use, the level of unmet need for contraception and the predictors of this unmet need. Using the KHDSS's sampling frame of women in their reproductive age, simple random sampling was used to select 3308. This sample size was calculated based on the magnitude of unmet need for contraception in Ghana and the estimated level of unmet need in the study area. Women aged 15-49 years who resided permanently in the area and were married or in cohabitation qualified to be studied.

Results

Nine hundred and fifty two (28.8%) of the respondents were contraceptives users. Three hundred and thirty six women were pregnant, 95 of these pregnancies (2.9%) were unintended. Women who wanted to wait for more than 2 year before conception or had unintended pregnancy in the last 2 years or wanted no more child birth or were not sure of wanting more children were categorized as having unmet need. These women were 938 in number, unmet need was estimated at 28.3%. Fifty two (1.6%) of the pregnancies were wanted but at a later time whereas 43 (1.3%) were unwanted. Age, fear of side effects and level of education were the significant predictors of unmet need. Older women had lower odds of her having unmet need; compared with the women aged 15-19 years. Women aged 25-34 years were 70% less likely to have unmet need (AOR= 0.3, 95%CI: 0.12-0.99, p=0.02).

Women with middle/Junior high school education were 20% less likely to have unmet need compared with women with no education/primary education, (AOR=0.8, 95%CI:

0.69-0.95, p=0.01). The risk of unmet need was significantly less when women with secondary education/ higher education were compared with the women with no education or primary education (AOR= 0.5, (95%CI: 0.38-0.77, p<0.01).

A woman with fear of side effects was 3.5 times more likely to have unmet need than a woman who did not express any fear (OR=3.5, 95%CI: 2.5-5.0, p <0.01).

Key recommendations

Programs that will alleviate the fear of the side effects of contraceptives will go a long way to enhance contraceptive uptake and reduce unmet need for contraception.

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ACRONYMS

CBSV	Community Based Surveillance Volunteers
CPR	Contraceptive Prevalence Rate
DHMT	The District Health Management Team
DHS	Demographic and Health Survey
DSS	Demographic Surveillance System
FGD	Focused Group Discussion
FP	Family Planning
GDHS	The Ghana Demographic and Health Survey
GHS	The Ghana Health Service
GSS	The Ghana Statistical Service
KHRC	The Kintampo Health Research Centre
KHDSS	The Kintampo Health Demographic and Surveillance system.
KNUST	The Kwame Nkrumah University of Science and Technology
MICS	Multiple Indicator Cluster Survey
MDG	Millennium Development Goal
MHMT	Municipal Health Management Team
MOH	The Ministry of Health
PRAMS	Pregnancy Risk Assessment Monitoring System
WHO	The World Health Organisation
WORA	Women of Reproductive Age

DEFINITION OF TERMS

Term	Meaning
Autonomy	The capacity of an individual to make informed un-coerced decision.
Fecund	Able to get pregnant
In-fecund	Inability to get pregnant after regular intercourse for at least one year.
Lactation ammenorrhoea	Absence of menstruation after delivery.
Unmet need	The number or percent of women aged 15-49 years currently married or in union who are fecund and who desire to either terminate or postpone childbearing, but who are not currently using a contraceptive method.

1.0 CHAPTER ONE-INTRODUCTION

1.1 Background

Effective family planning programmes are well-known to reduce unplanned pregnancies and maternal mortality as well as improve child survival (Choe et al. 1999). Researchers around the world have used Demographic and Health Survey (DHS) data to investigate unmet need for family planning in the last two decades. Bongaarts et al used DHS data to describe living arrangements of older adults in developing world (2002). Armond et al used DHS data to describe the association of dietary diversity with child nutritional status in 2004.

Family planning allows people in reproductive age to achieve their desired number of children and space pregnancies. Contraceptives and the treatment of infertility both ensure the autonomy of women and support the health and development of communities. There are both health and economic benefits to the use of contraceptives, some of them are immense. The health benefits of contraceptives may be immediate or long term. Immediate benefits of contraceptives include prevention of unintended pregnancies, reduction in the numbers of abortions, as well as the lowering of the incidence of death and disability related to complications of pregnancy and childbirth (Singh et al, 2010). The long-term benefits include improved child survival. The individual as well as the society as a whole benefits from the increase in female education and stronger national economies that result.

Currently, unmet need is defined as the number or percent of women currently married or in union who are fecund and who desire to either terminate or postpone childbearing, but who are not currently using a contraceptive method (Bradley et al, 2012). Women with unmet need for contraception are those who are fecund and sexually active but are not using any method of contraception and report not wanting any more children or wanting to delay the next child. The concept of unmet need points to the gap between a woman's reproductive intentions and her contraceptive behavior (WHO, 2012). Women with unmet need are those who are fecund and sexually active but who are not using any method of contraception, and who report not wanting any more children or wanting to delay the birth of their next child (UNFPA; 2012).

The parameters in defining unmet need include; all pregnant married/cohabiting women whose pregnancies were unwanted or mistimed at the time of conception, all postpartum amenorrhoeic married/cohabiting women who are not using family planning and whose last birth was unwanted or mistimed. It also includes all fecund married/cohabiting women who are pregnant, those who are postpartum amenorrhoeic, who either do not want any more children or wish to postpone the birth of a child for at least two years or do not know when to have another child or if they want another child but are not using any contraceptive method. In this definition infecund women are excluded from the numerator (Bradley, et al; 2012).

Two types of unmet need exist; unmet need for spacing and unmet need for limiting. A woman with unmet need for spacing is one who is pregnant or has postpartum amenorrhoea and her current or last pregnancy was mistimed. If her last or current pregnancy was unwanted, she has unmet need for limiting. For a woman who is currently not pregnant to have unmet need, she must be proven to be fecund, must have had a previous unwanted pregnancy (limiting) or a previous mistimed pregnancy (spacing).

A woman is also considered infecund if she has been married for more than 5 years, has no previous pregnancies, and is not using contraceptives, when she has had a hysterectomy, cannot get pregnant, or has not menstruated in the last five years (Bradley et al; 2012).

Achieving high contraceptive use and reduced unmet need for contraception is central to achieving three of the eight United Nations Millennium Development Goals; Goal 4 (Reducing child mortality), Goal 5 (Improving maternal health), and Goal 6 (Combating HIV/AIDS and malaria and other diseases). This achievement will in turn contribute indirectly to the achievement of all the eight goals (UNFPA; 2012). Unintended pregnancies occur in a large majority of women who want to avoid pregnancy but are not using an effective method of contraception. Abortion is often a major consequence of such unintended pregnancies (Darroch et al; 2011).

In many developing countries where abortions are illegal, terminations are often carried out under unsafe conditions. This could lead to the death of these women or result in serious injuries to their reproductive system. When pregnancies are unintended, antenatal

attendances are poor (Population Reference Bureau; 2012). This can pose health risks to the mother, the unborn baby and the infant when born. Globally an estimated 68,000 girls and women die yearly as a result of induced abortions. This represents about 13% of all pregnancy-related deaths (Cleland, et al, 2011). In many developing countries where abortions are illegal, terminations are often carried out under unsafe conditions. This could lead to the death of these women or result in serious injuries to their reproductive system. When pregnancies are unintended, antenatal attendances are poor (Population Reference Bureau, 2012). This can pose health risks to the mother of the unborn baby and the infant when born. Worldwide, an estimated 68,000 girls and women die yearly as a result of induced abortions. This represents about 13% of all pregnancy-related deaths (Cleland, et al, 2011). In developing countries, 66% of women with unintended pregnancies do not use contraceptives, 14% of women who do not intend to get pregnant use traditional methods, and only 20% use the modern methods (Singh, 2003). Despite the recent increase in contraceptive use in sub-Saharan Africa, the region is still characterised by high levels of fertility and considerable unmet need for contraception (Babalola, et al. 2001).

Ghana is a low-income country that is currently in a significant fertility transition period. There has been a gradual decline in total fertility rate from 4.5 in 2003 to 4.0 in 2008. This fertility decline is occurring in the face of declining modern contraceptive use (GSS/GHS/ICF Macro, 2009). Although modern contraception was introduced in Ghana some forty years ago, contraceptive use remains low. Data from the 2008 GDHS show that 17% of married women use contraceptives, a drop of 2% of the estimated from 19% in 2003 (GSS/GHS/ICF Macro 2009, Westoff, 2012). The Ghana Multiple Indicator Cluster Survey 2011 documented that 35% of currently married women or women in union reported using some method of contraception: 24 %of all women use modern methods and 11 percent use traditional methods (Ghana Statistical Service, 2011). At such low contraceptive use, Ghana's level of contraceptive use is among the highest in the West Africa sub-region (Westoff, 2006).

If the unmet need for family planning is met by 2015 in Ghana, 4,419 maternal deaths would be averted by reduction in unwanted pregnancies, (Ghana Health Service, 2006). Although the total fertility rate in Ghana has dropped over the years (GSS/GHS/ICF

Macro, 2009), the rate of population multiplication in the face of declining mortality rate still remains high. This has given rise to continuous growth in the population size contributing to environmental degradation, poverty and deteriorating quality of life for majority of the Ghanaians. The total fertility rate in 2003 was 4.4 (GSS/NMIMR/ORC Macro, 2003) while that of 2008 was 4.1 (GSS/GHS/ICF Macro, 2009). This is inconsistent with contraceptive prevalence rate that has declined over the years from 19% in 2003 to 17% in 2008 (GSS/GHS/ICF Macro, 2009). Considerable opportunity exists to respond to this need by strengthening family planning programs, provided the factors that prevent the use of services are better understood. The magnitude of unmet need and information on its predictors in a population provide a more detailed measure of the future demand for contraception (Govindasamy & Boadi, 2000).

1.2 Problem statement

In the Kintampo North Municipality and the Kintampo South District of Ghana, family planning services are provided in all health facilities and at outreach posts during child welfare clinics. Although supply of contraceptive commodities is often erratic, quite often the commodities available do not get used up in due time (Kintampo Municipal Health Directorate, 2010). The magnitude of unmet need for contraception in this part of Ghana is unknown but due to the low patronage of family planning services, it is suspected to be as high as that of the Brong Ahafo Region and Ghana (35%) (GSS/GHS/Macro, 2009). The factors likely to predict the presence or absence of unmet need are important information in improving patronage of family planning services. These factors are however unclear making it difficult for health care providers and programmers to provide targeted family planning services to meet the reproductive needs of all women. Unmet need generally affects women between the ages 15-49 years. Married women as well as their colleagues in co-habitation are however the most vulnerable. High unmet need for contraception may result in unintended pregnancies that may increase the probability of induced abortions and cause a rise in maternal deaths.

1.3 Study rationale.

The study sought to gather baseline data on the family planning status and needs of women of reproductive age. The contraceptive prevalence and magnitude of unmet need for contraception in Ghana lag behind the much desired rates. As part of gathering

baseline data, the study sought to identify the prevalence of contraceptive use, the extent to which the reproductive needs of women are unmet and what could possibly be the reasons/factors that may serve as the indicators for the presence or absence of unmet need for contraception. While there are no other means of preventing unwanted pregnancies in these women with regular exposure to sexual intercourse (married women and those in co-habitation), family planning services that meet the reproductive needs of women and their partners remains the only essential tool to overcome unplanned pregnancies and thus reduce maternal mortality and child birth complication. Knowing the factors that serve as pointers of high unmet need will help identify vulnerable women groups and how their individual needs can be met. Contraceptive services/family planning programs can then address each woman's reproductive health needs. On the basis of this knowledge, the appropriate policies to improve contraceptive uptake and reduce unwanted pregnancies can be made.

1.4 Conceptual framework

High unmet need for contraception is a problem with many causes and numerous effects. There are number of factors that are likely to affect contraceptive use and hence unmet need for contraception. Social, religious and cultural beliefs affect societal perceptions and ideas and in turn shape morals and behavior. Women who belong to societies that frown upon contraceptive use are more likely to feel stigmatized when they accept to use contraceptives. Such women, their partners and their societies are likely to disapprove contraception. Although these women may have clear intentions not to have any more children or to wait for more than two years they will find it difficult to accept contraception. These women will then be left with unmet need for contraception.

Access to contraceptives is essential to ensure acceptance and regular use of methods. There various types of access that may enhance or deter contraception. Access may be defined by distance from a service centre to a woman's home, the cost of contraceptives, health worker attitude, language barrier and rural or urban residence. The distance of a woman's house to a service provider could determine the ease with which she can reach the service provider. The further away a woman may live from a service centre the less likely she will be able to attend regular clinics. It has however been documented that

distance from a service centre does not affect contraceptive use and by extension is unlikely to affect unmet need (Krakowiak et al, 2011).

Cost of contraceptives is also thought of as a possible factor that may affect access to contraception and lead to unmet need. However, earlier studies have documented that cost of methods is not a reason for non-contraceptive use and by extension should not lead to unmet need. The place of residence of a woman may affect contraceptive use. Service providers tend to be concentrated in urban areas. Urban dwellers were found to have contraceptive prevalence that was 2.3 times higher than rural dwellers (Mekonnen & Worku, 2011). Some societal belief and practices in Ghana may promote contraceptive use and reduce unmet need for contraception or deter women and their husband from practicing contraception. In societies where discussions on sexual intercourse are forbidden, couple discussion of contraception is likely to be low.

Discussion of contraceptive is very likely to enhance contraceptive use. Women who discuss contraceptives with their husbands may feel more confident to get information on contraception and are likely to use a method. In situations where people have beliefs and practices that frown upon contraception, spouses may have to sneak to practice contraception. For the fear of societal opposition, these women may prefer to stay away from known service points even when they express the need for contraception. Some religious groups strictly prohibit the use of contraceptives; this is likely to decrease women's approval of FP which in-turn will determine the level of unmet need. A Catholic woman may not want to openly accept contraceptives for the fear of been seen by the church as a deviant. In a typical Ghanaian society woman's own disapproval or her husband's disapproval may not be the only disapprovals that can deter a woman from accessing a method. The influences of the extended family, the church and even friends do matter.

Over the years, previous experiences of contraceptives have been passed on through the grape vine to younger generations. Some women may not have used contraceptives but may have developed fear of side effects of contraceptives as a result.

The conceptual framework describes the possible relationships between socio-demographic factors (background characteristics) and proximate factors that most probably predict unmet need for family planning. The socio-demographic factors include

age, occupation, educational status, religion, rural or urban residence, and wealth status. The factors that were considered immediate determinants of unmet need (proximate factors) are knowledge of contraceptives, age at first sexual intercourse and first marriage, couples' discussion of FP and the fertility preferences of a woman.

Women's approval of FP is likely to predict contraceptive use and hence the level of unmet need. Some religious groups strictly prohibit the use of contraceptives; this is likely to decrease women's approval of FP which in-turn will determine the level of use and non-use of contraception among such women. The husbands of these women are also less likely to approve of contraceptive use and such couples are very less likely to discuss contraception. Marriage or cohabitation is a primary indication of the regular exposure of women to the risk of pregnancy, hence is essential in the assessment of unmet need. In populations with low age at first marriage, early childbearing and fertility is high (Bekele & McCabe, 2006). In Ghana, however, it is noteworthy that marital relationship is not the only union that serves as prerequisite to childbearing. Some childbearing occurs outside marriage (GSS/GHS/Macro, 2009). Cheng (2011) indicated that mass media and social networks play important roles in disseminating contraceptive knowledge. A woman with exposure to information from a higher number of media sources is more likely to be knowledgeable and more likely to use contraceptives than her counterpart with little exposure.

Conceptual Framework

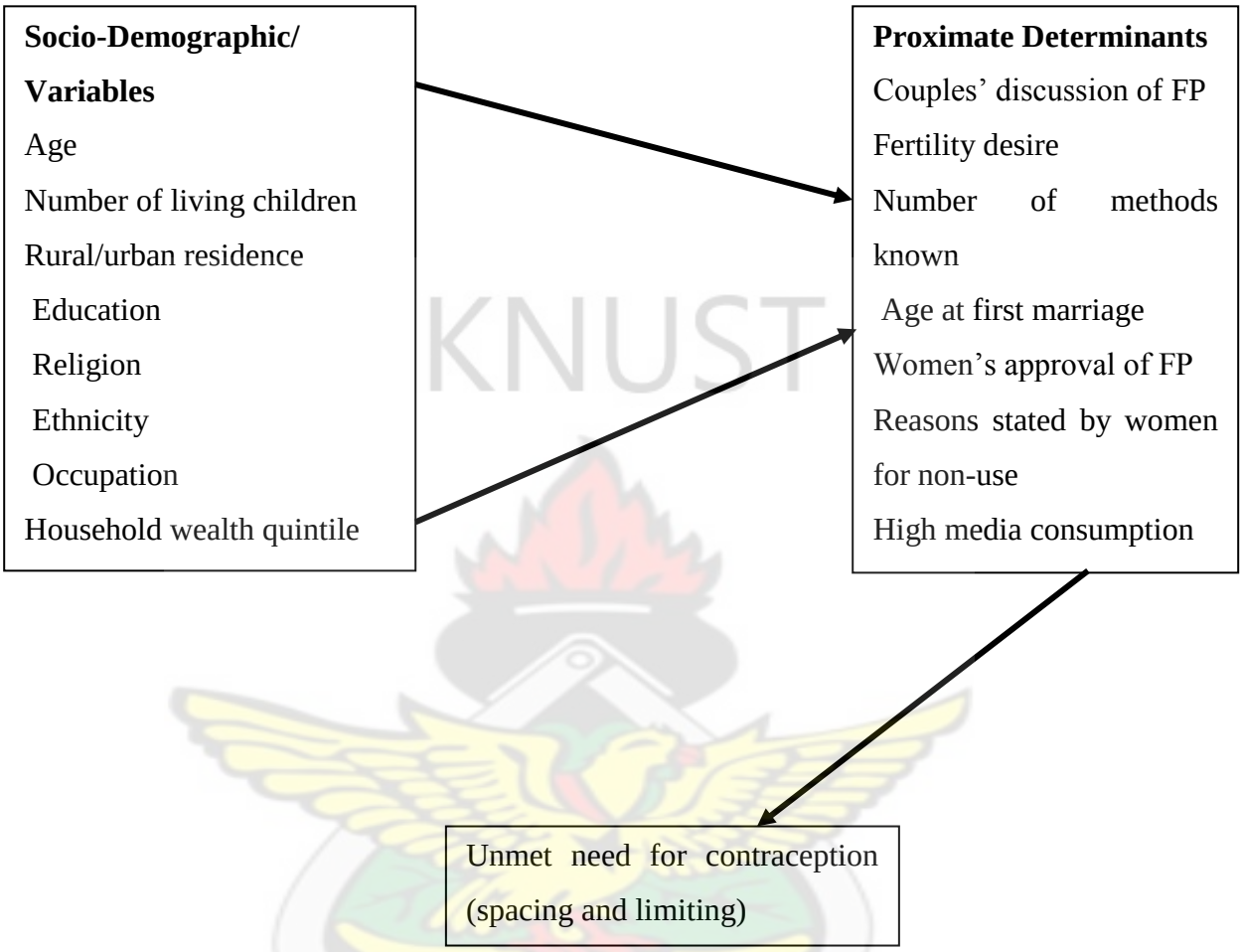


Fig 1.1 Factors that may predict unmet need for contraception.

1.5 Research questions.

In this study, we sought to answer the following research questions.

- What is the magnitude of unmet need for family planning?
- What are the common factors that predict the occurrence of unmet need for contraception?

1.6 Study objectives

1.6.1 Main objective

- To identify the predictors of unmet need for modern contraception in the Kintampo area, Ghana and make recommendations on how to overcome them.

1.6.2 Specific objectives

- To determine the prevalence of contraceptive use.
- To estimate the magnitude of unmet need for contraception.
- To identify predictors of unmet need for contraception.

1.7 Profile of study area.

The Kintampo Health and Demographic Surveillance System (KHDSS) operates in the Kintampo North Municipality and South Districts. The study area occupies a total surface area of 7,162 square kilometers constituting 18.1% of the total land area of the Brong Ahafo region of Ghana. It is located geographically at the centre of Ghana.

The total population of the study area is 139,468. The women of reproductive age in the population number 35, 619 (KHDSS, 2011). The demographic characteristics of the population in the two areas are homogeneous in nature. The area is mainly rural, 73.1% of the total population live in the rural areas (Kintampo Municipal Health Directorate, 2010). Only 25.8% of the total population has access to electricity, which is predominantly available in the urban centres. There are many different ethnic groups in the area but these can be grouped mainly into four; the Akans, the Mos, the tribes originating from the three northern regions (Upper West, Upper East and Northern regions), and the other smaller tribes. . The people belonging to tribes that originate from three northern regions form the majority (49.2%) of the people who live in the area. Twi is the most common language spoken in the area. Most of the people have very little or no education, higher education is seen in less than 5% of the women. The study area has

two district hospitals, four private clinics and about eleven public health centres, a majority of which offer reproductive health services to the general population within the study area. The major occupations in the municipality include the following: Agriculture, commerce, industry, and public service. Family planning services are provided by all the 13 public health institutions by midwives and community health services. Contraceptive acceptance is low. In 2010, only 11% of women of reproductive age used contraceptives.

1.8 Scope of study

The study focused on married and cohabiting women in the reproductive age (15-49 years) in the Kintampo North Municipality and Kintampo South District. The data that were used in the analyses were collected as part of the routine surveys of the Kintampo Health and Demographic Surveillance System (KHDSS) between July 2011 and December 2011. Women who were not married or cohabiting as well as those whose ages fell outside the age category were excluded from the analyses.

1.9 Organisation of report

The outline of this thesis is as follows in order of appearance the title page, the table of content, list of tables and figures, definition of terms, dedication, acknowledgement and abstract. Chapter one begins with an introduction, a brief background to unmet need for contraception, a statement of the problem of unmet need in Ghana, the study rationale, research questions and objectives. It ends by describing the conceptual framework and the scope of the study. Chapter two gives an account of review of works done on predictors of unmet need for contraception. This chapter also describes the global and sub-Saharan situation of unmet need as previously published. The in current situation in Ghana is also described. Chapter three begins with the description of the study type and design; it gives an account of how the study was conducted. It ends with a description of the statistical processes used to arrive at the results presented. In Chapter four, the findings of the study are presented beginning with the finding on the first objective and ending with the findings on the last objective. Chapter five is a discussion of the findings in comparison with the findings of other works presented in the literature review. The last chapter (six) details the conclusions from the study and recommendations necessary for overcoming unmet need for family planning in Ghana. The references used in this study are outlined in detail for easy follow up after this chapter.

2.0 CHAPTER TWO – LITERATURE REVIEW

This chapter presents a review of literature on unmet need for family planning particularly as it applies to sub-Saharan Africa and Ghana. The review of literature is discussed under four sections; socio-demographic characteristics, prevalence of contraceptives use among married women in the study area, magnitude of unmet need for contraception and the predictors of the unmet need for contraception. More than one-third (36%) of married women in Ghana want to wait at least two years before their next pregnancy whereas 35% want no more children. The unmet need for contraception is very useful in measuring and predicting the contraceptive needs of a population (Anthony et al; 2009). Although progress has been made in improving access to family planning, the unmet needs in Ghana continue to grow (Nketiah – Amponsah, et al; 2012).

2.1 Contraceptive prevalence among married/co-habiting women.

Contraceptive prevalence rate is the proportion of women of reproductive age who are using (or whose partner is using) a contraceptive method at a given point in time (Rutstein & Rojas, 2006). Globally contraceptive prevalence rate (CPR) has increased over the years rising from only around 9% of married women in the developing world in 1960 to, 63% in 2008. CPR is higher in the developed world than the undeveloped (Sharan, et al, 2010)). Although the use of modern contraceptives has been increasing across sub-Saharan Africa, contraceptive prevalence rate (CPR) remains low. Many countries in sub-Saharan Africa have low rates of contraceptive use (Westoff, 2001; Ross &Winfrey, 2002). Contraceptive prevalence in North Africa (40%), Asia (excluding China 43%), and Latin America 59% are much higher (Sharan et al, 2010). Modern contraceptives are used by just 43% of women of reproductive age in developing countries. There is a wide gap between the prevalence seen in the highest and lowest wealth quintiles. Poorer women were found to have much less use of contraceptives than wealthier women (52% versus 35%, respectively) (Creanga, et al, 2011). Married women in the highest wealth quintile reported higher levels of modern contraceptive use (14% - 28%), compared with the poorest group, where prevalence was only up to 2% (Dann, 2009). It has also been documented that, urban dwellers have contraceptive prevalence that is 2.3 times higher than rural dwellers (Mekonnen & Worku, 2011).

In Karachi, the prevalence of modern contraceptives among women is 27.9%. In Africa, CPR for modern methods ranges from 1.2% in Somalia to 60.3% in South Africa. Contraceptive prevalence is lower in West Africa than in other parts of sub-Saharan Africa (Westoff, 2006). In Burkina Faso, Mali, and Senegal, living in an urban area is associated with a higher contraceptive prevalence (Dann, 2009). In Burkina Faso, 31% of young married women in urban areas use contraceptives compared with only 4% in rural areas. Higher level of education is also associated with higher use of modern contraceptives among married women (Dann, 2009).

Approximately 17% of women currently married or in union use contraceptives in Ghana. Contraceptive prevalence in the Brong – Ahafo region is 29%.The Northern Region has the lowest use of 8% while Western Region (7%) records the lowest in terms of modern methods. Married women in urban areas (21%) are more likely to use contraceptives than those residing in rural areas (13%) (GSS/GHS/ICF Macro, 2009).

In Ghana, modern contraceptive use is lower in women below 19 years (57.6%), it increases until age 44 years (19.0%) and declines. Ghanaian women in urban areas are more likely to use contraceptive methods than their rural counterparts; women with at least some secondary education are more than twice as likely to use contraceptives as women with no education (GSS/GHS/ICF Macro, 2009). Use of any method and use of any modern method increase with level of education. Contraception use is also positively related to wealth status, increasing from 14% among currently married women in the lowest wealth quintile to 31% in the highest wealth quintile (GSS/GHS/ICF Macro, 2009). According to the most recent survey on unmet need in Ghana; Multiple Indicator Cluster Survey 2011, 35% of married and co-habiting women use contraceptives. Contraceptive use in the urban areas was 37% and 32% in rural areas (Ghana Statistical Service, 2011).

In Nepal, unmet need is 25% with 9.5% for spacing and 15.5% for limiting (Bhandari et al, 2006). It was also found that a strong association exists between gender preferences towards male child and unmet need (Shah, 2004).

2.3 Magnitude of unmet need for family planning and the demographic profile of women

Around the world, the degree of unmet need for contraception varies. About 222 million women have an unmet need for contraception (Gribble, 2012). The highest is in sub-

Saharan Africa where the level of unmet need for contraception is as high as 26% among married women whereas the lowest is in the Middle East and North America, (Khan & Bradley, 2008). In Jordan, the highest unmet need occurs in older women (aged over 35 years) compared with women below the age of 25 years (Mawadjeh, 2007). Many sub-Saharan African (SSA) countries have high rates of unmet need for contraception (Westoff, 2001). Unmet need in the cities of sub-Saharan Africa exceeds the estimates for rural areas; in West Africa, unmet need ranges from 16% to 34% (Westoff, 2006). Unmet need is 17% in Nigeria and Niger, (Westoff, 2006). Contrary to the findings in Jordan, in Uganda and Kenya unmet need for family planning is higher among younger women, women who live in rural areas, who are of higher parity, and who have no knowledge of contraceptive methods or sources of supply (Ojakaa, 2008, Wablembo et al; 2011). Unmet need was also found to be of the highest prevalence among women who have five or more children and those with no education compared with women who had some form of education or women with higher education (Mawadjeh, 2007; Wablembo et al ;2011).

Studies in Ethiopia have also shown that total unmet need is significantly lower among women aged 20 years or over. Women aged 20 – 29 years are significantly less likely to have an unmet need for spacing compared with women aged 15 – 19 years, and that young women (15 – 19 years) are much less likely to have an unmet need for limiting than women older than 25 years (Korra & Macro, 2002). Partner communication about family planning is one important aspect of contraceptive decision-making (Sharan & Valente 2002), and hence may have a direct bearing on unmet need.

In Ghana, total unmet need is 35%. The magnitude of unmet need for birth spacing (23%) is higher than unmet need for limiting it (12%), unmet need generally decreases with age. Younger women have a greater unmet need for spacing, whereas older Ghanaian women of reproductive age have greater unmet need for limiting. There are sharp declines between the two youngest age groups (from 62% to 42 %) and the two oldest age groups (from 31% to 20%) (GSS/GHS/ ICF Macro, 2009). More recently, the 2011 Multiple Indicator Cluster Survey has shown that, 26% of women aged 15-49 years have an unmet need for contraception. Sixteen percent (16%) have an unmet need for spacing and 10% have an unmet need for limiting (Ghana Statistical Service, 2011.) The magnitude of

unmet need for family planning is greater in women who live in rural Ghana than those residing in the urban area (37%, versus 32%) (Ghana Statistical Service, 2011). In the rural areas women have higher unmet need for spacing than for limiting. Unmet need for family planning is highest among women in the second wealth quintile and lowest among women in the highest wealth quintile (43% and 24%, respectively). In all wealth quintiles, unmet need for spacing is higher than unmet need for limiting (GSS/GHS/ICF Macro, 2009). The unmet need for the Brong – Ahafo region is 35.3%, a little above the national value. In this region the unmet need for spacing (24.8%) also outweighs the unmet need for limiting (10.5%) (GSS/GHS/ICF Macro, 2009).

2.4 Predictors of unmet need

Globally, the predictors of unmet need may be socio-demographic factors or some commonly stated reason for non-use of contraceptives. In Europe, the United States of America and South Central Ethiopia the religious women (more devout) have more children (Mekonnen &Worku, 2011). In South Central Ethiopia, reasons for the high unmet need include erratic supply of commodities, religion, and complaints related to providers and methods (Mekonnen & Worku, 2011). A study in India documented a positive relationship between number of children surviving and a woman's probability of having an unmet need; women with four or more living children were more likely to have unmet need compared with women with fewer children (Ansary & Anisujjaman, 2012).

The total number of children born by a woman is among the most significant predictors of unmet need, where unmet need rises with an increase in the number of children (Bhandari et al., 2006). Another study conducted in rural India concluded that the number of children alive had no significant influence on unmet need but rather the younger women had a higher unmet need (Choudhary et al ;2009). In Kuwait and Ethiopia, educated women are more likely to use contraception and women's education is a better predictor of unmet need than autonomy (Shah et al., 2004; Mekonnen & Worku, 2011). An illiterate woman in Mexico is 1.6 times less likely to practice contraception when compared with a woman who attended secondary school (Nazar-Beutelspacher, 1999). Women who have ever discussed contraception are 2.2 times more likely to use a method (Mekonnen & Worku 2011). A woman with employment is more likely (OR 5.4; 95% CI 2.2-13.2) to use modern contraceptives just as a woman with higher parity (3 or more

children) is more likely to use any modern contraceptive method compared with those who have 2 or less children (Ali et al, 2004).

In Uganda, Catholic women have the highest level of unmet need for contraception among all the religious groups and a higher proportion of rural than urban women have unmet need than their urban counterparts (Wablembo et al ;2011). Low perception of pregnancy risk is another critical factor in influencing attitudes about contraception. An analysis of data from the 2000–2002 Pregnancy Risk Assessment Monitoring System (PRAMS) in Texas, USA revealed that 47% of women who had an unintended pregnancy ending in birth believed that they could not become pregnant at the time of intercourse or that they, or their partners, were sterile (Kingsley, 2010). Many women fear the side effects of contraceptives, having heard rumors or experienced some side effects themselves; these constitute 39% of women with unmet need in sub-Saharan Africa. In a facility-based research carried out in Nigeria, it was found that husband's disapproval, fear of side effects and religious beliefs were the main constraints to the use of contraceptives. It was also documented that there is a significant association between parity and unmet need (Anthony, et al; 2009). Opposition to use of contraceptives accounts for a significantly large percentage of the unmet need (Anthony, et al; 2009).

In the 2008 Ghana Demographic and Health Survey report, method-related reasons (41%) was the commonest reason stated for not intending to use contraception in the future. This was followed by fertility-related reasons (30.1 %) (GSS/GHS/ICF Macro, 2009). Among fertility-related reasons, 17% of younger women state that they want as many children as possible, while older women (20%) do not intend to use because they are sub-fecund or in-fecund (GSS/GHS/ICF Macro, 2009). In both Ghana and India, some women who have had unwanted pregnancies before stated that they believed they were not at risk of becoming pregnant at that time either because they perceived themselves to be infertile, had postpartum amenorrhea or because they were breastfeeding (Govindasmy &Boadi , 2000; Najafi et al ;2011).

Fear of side effects was the most cited method-related reason for non-use among all women (26%). This reason is given by younger women (34%) than women 30 years and older (23%) (GSS/ NMIMR/ORC MARCRO, 2004). In a study conducted in a Sub-district near Kumasi, Ghana, fear of side effects of contraceptives was cited as the major

reason for non-use, (Krakowiak – Redd et al; 2011). In 2012, another study in Ghana also found that women who take health decisions jointly with their partners are more likely to use modern contraceptives compared with women who take health decisions alone (Nketiah – Amponsah, et al;2012).

3.0 CHAPTER THREE – METHODOLOGY

3.1 Study type and Design

An analysis of secondary cross-sectional was undertaken using data generated by the Kintampo Health Demographic and Surveillance System from all the 156 communities in the Kintampo North Municipality and the Kintampo South District of the Brong – Ahafo Region. The study period was from July to December 2011.

3.2 The Kintampo Health Research Centre (KHRC)

KHRC is one of three research centres established under the Ministry of Health in Ghana in the country's major ecological zones in the early 1990s and maintains the Kintampo Health and Demographic Surveillance System (KHDSS). The KHDSS is a core resource for research in the KHRC. It provides regular updates on vital events such as pregnancies, births, deaths, and migrations (in and out) and covers the whole of the Kintampo North Municipality and the Kintampo South District located in the Brong-Ahafo Region of Ghana (Owusu Agyei et al, 2012). The KHDSS collected the data that were used in this study.

3.3 Study Population

All married women aged 15 years to 49 years who resided for at least a period of 6 months in any part of the study area constituted the study population.

3.4. Inclusion and exclusion criteria

3.4.1 Inclusion Criteria

A woman qualified to be in the study if she lived in the catchment area of the Kintampo Health and Demographic Surveillance System (Kintampo North Municipality and Kintampo South District) for at least six months. Only married women of reproductive age (15– 49 years) were eligible. The focus of the study was on married women and women in co-habitation.

3.4.2 Exclusion criteria

Women who were not in recognised marriages or co-habitation were not eligible. Women who had been living in the study area less than six months before the data collection did

not qualify to participate. Married/co-habiting women whose ages were outside the reproductive age bracket (15-49 years) were excluded.

3.5 Sample size

The prevalence of unmet need for contraceptive use among married women in Ghana was found to be 35% in the 2008 GDHS survey (GSS/GHS/ICF Macro, 2009). In the estimation of the prevalence of unmet need for contraception in the study area, it was assumed that the prevalence was 30% considering the fact that the contraceptive prevalence of the area is higher than the national estimate (GSS/GHS/ICF Macro, 2009). Using this assumed prevalence of unmet need for contraceptive with a 95% confidence interval and a precision of 0.016, a sample size of 3130 was calculated using a standard sample size calculator. A provision of 5% non – response rate was made during the calculation. The minimum sample size required for the study was 3287. A total of 3308 women were studied.

3.6 Sampling.

Simple random sampling was used to select eligible women using pre – existing KHDSS register (updated in January 2011) of Women of Reproductive Age. The KHDSS was established in 2003 and has since collected data on all compounds and households within the catchment area. A compound in the KHDSS is defined as a house in the study area usually walled/enclosed, has one or more family units which could comprise of several generations. A household is a group of two or more blood-related or unrelated people who live in the same dwelling and have common eating arrangements. The KHDSS data is updated every six months. The register of women of reproductive age that was used to select study participants was last updated in January 2011. A married woman of reproductive age was defined as a woman aged 15 – 49 years who was married legally or customarily or living-in permanently with a man that is known to the society as her partner (co – habitation). A random listing of eligible women was generated based on the KHDSS database. The KHDSS enumerators visit women in their homes for face-to-face interviews using structured questionnaires. When enlisted women are missed, they are visited two more times and declared permanently absent if they are not met on the third visit.

3.3.2 Sample size

The prevalence of unmet need for contraceptive use among married women in Ghana was found to be 35% in the 2008 GDHS survey (GSS/GHS/ICF Macro, 2009). In the estimation of the prevalence of unmet need for contraception in the study area, it was assumed that the prevalence was 30% considering the fact that the contraceptive prevalence of the area is higher than the national estimate (GSS/GHS/ICF Macro, 2009). Using this assumed prevalence of unmet need for contraceptive with a 95% confidence interval and a precision of 0.016, a sample size of 3130 was calculated using a standard sample size calculator. A provision of 5% non – response rate was made during the calculation. The minimum sample size required for the study was 3287. A total of 3308 women were studied.

3.4 Data Collection

Data collection was done by trained field staff over a period of five months. Structured questionnaires with closed-ended questions were administered by interviewers in face-to-face interviews to collect quantitative data. The interviews were done in Bono Twi which is the most popular language in the study area. It is spoken by almost all indigenes and 90% of immigrants.

3.5 Study Variables

One dependant namely unmet need for contraception and two groups of independent variables (proximate determinants and socio-demographic factors) were studied.

3.5.1 Dependent Variable

Unmet need for family planning is the dependent variable. It was defined as the proportion of currently married women who were not currently using a method of family planning but wanted to postpone childbirth for more than two years (space) or wanted to stop (limit) childbirth entirely. Total unmet need for contraception is the sum of unmet need for spacing and that of limiting. Currently married women who were not using a method of contraception, were fecund and wanted to wait for two or more years before having another child were considered to have unmet need for spacing. Unmet need for contraception was derived using the algorithm developed by Westoff et al in 1990 and recently revised by Bradley et al (Bradley et al, 2012).

3.5.2 Independent variables

In this study the independent variables were categorised as proximate determinants and socio-demographic factors. The demographic variables are age of women and the number of living children. Socio-economic variables were household economic status, women's education, place of residence; woman's religion, ethnicity and her occupation. Factors that were perceived to be proximate determinants of contraceptive unmet need included knowledge of FP, couples' discussion of FP, opposition to FP, media exposure to messages on FP and the woman's perception of ideal number of children she should have.

Reasons given by women for non-use were categorised as fertility related and method related reasons. Each of these variables were categorised into different levels.

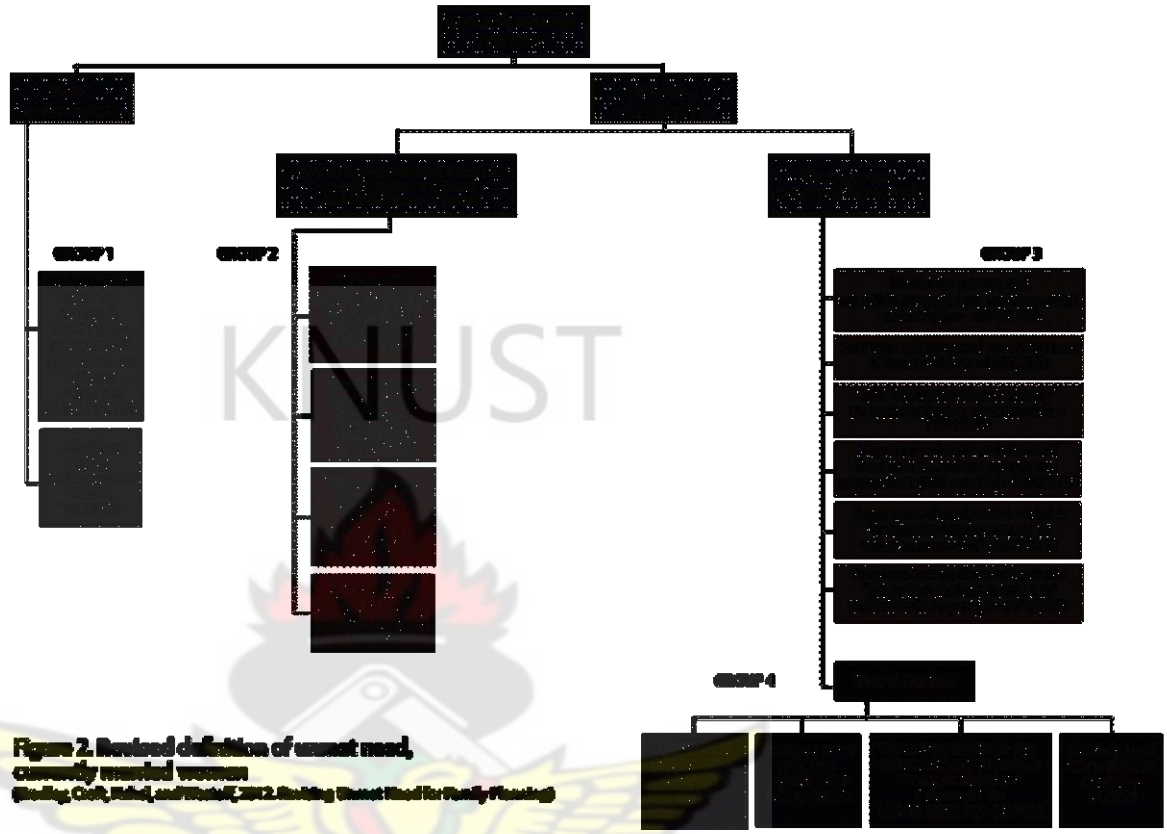


Figure 3.1 Revised definition of unmet need, currently married women.

Table 3.1 Table of study Variables

Socio-demographic variables	Operational Definition	Indicator	Scale
Age	Self-reported age of	15–19, 20–29, 30–39,	Categorical
Education attainment	Highest level attained	Primary, JHS, SHS or higher	Ordinal
Religion	Religious affiliation	Christianity, Islam, Traditional	Categorical
Ethnicity	Tribe of respondent	Akan, Mo, Northern tribes	Categorical
Current residence	Place of residence	Rural, Urban	Categorical
Age at first marriage	Age in completed years at first marriage.	15-19, 20-2425-29,30-34	Categorical
Number of living children	Number of children alive	Children living at home and away	Categorical
Ideal number of children	Perceived number of children one should have.	Stated number of children wished for	Categorical
Exposure to media	Hearing about contraception from radio,	Source of information on contraception.	Categorical
Discussion of FP	Ever talked about contraception with partner	Yes, No	Binary
Wealth quintile	Economic status of household	Income level	Ordinal
Occupation	Type of employment	Unemployed, farmer	Categorical
Contraceptive use	Current use of a method	Last method used	Binary
Awareness of method	Can mention one or mere	Methods mentioned	Categorical
Self-reported fecundity	Previous pregnancies and	Last delivery, number	Categorical
Self-reported fertility desire	Wants to have another child in next 2years, does not want another child		Binary

3.5 Data management and Analyses

3.5.1 Data handling

Administered questionnaires were checked for completeness and consistency after which double entry into a password-protected database in Microsoft FoxPro version 9.0 (Microsoft Corporation, Redmond, WA, USA) was done. All others errors including typographical errors and incorrect entries were also eliminated. Data duplications were also identified and eliminated. The outliers were validated and corrections made. Data enhancement using the source document was also done.

3.5.2 Data analyses

Data analyses were performed with STATA version 12.0. Socio-demographic characteristics of respondents that were categorical in nature were summarised as proportions. Variables that were continuous and normally distributed were summarized as means with standard deviation reported.

The relationship between socio-demographic characteristics, proximate determinants and the outcome variable were explored using the chi-squared test. A p-value less than or equal to 0.05 was considered to be statistically significant.

3.5.3 Statistical Methods

Chi-square was used to test associations between the covariates and the outcome variables. Variables that were significant in the test of association were modelled into bivariate and multivariate logistic regression to identify predictors of unmet need.

3.6 Ethical consideration

Ethical approval for the collection of the data used was given to the KHDSS by the Institutional Ethics Committee of the Kintampo Health Research Centre. There was no direct risk to participants. Participants did not get remuneration or any direct benefits. The outcome of the study is expected to inform policy that will in the long run improve the reproductive health of participants.

3.7 Assumptions

It was assumed that the study population had characteristics that were shared by the target population and so was representative of this larger population. It was also assumed that the answers that were given by the respondents were genuine.

3.8 Limitations of Study

The study had the limitation of recall bias. The women interviewed were asked about their last sexual contact, the age of the first marriage, the last they gave birth and first birth etc. These were sources of possible recall bias.

Another limitation of this study is the fact that only women were interviewed. The focus was on the contraceptive plans and decisions of women without taking the concerns of their partners into consideration. The contraceptive plans of the women studied might be different from that of their partners.

Only married women were studied, whereas single women may be the ones who actually may be in need of contraception. These women who do not have recognized unions indeed must ensure that they meet the society's demand of introducing a partner the proper way before conception. Also, it is evident from previous studies that pre-marital sex and unwanted pregnancies are on the increase, implying that women who may not be married may also express unmet need. This goes to say that an undetermined number of unmarried women who may be at risk of pregnancy were not considered in the estimation of unmet need. These unmarried women may also have different factors that may predict unmet need. There is the possibility of spurious evidence of an association between the main outcome of the study (unmet need for family planning) and other explanatory variables in this study due to the sensitive nature of the subject.

3.9 Dissemination

The study findings will be communicated to the staff members of KHRC, the municipal and district directors of health and all other stake holders within 3 months of finalizing report. The communities will be informed through community durbars and educated on the implications of these findings within six months of publication.

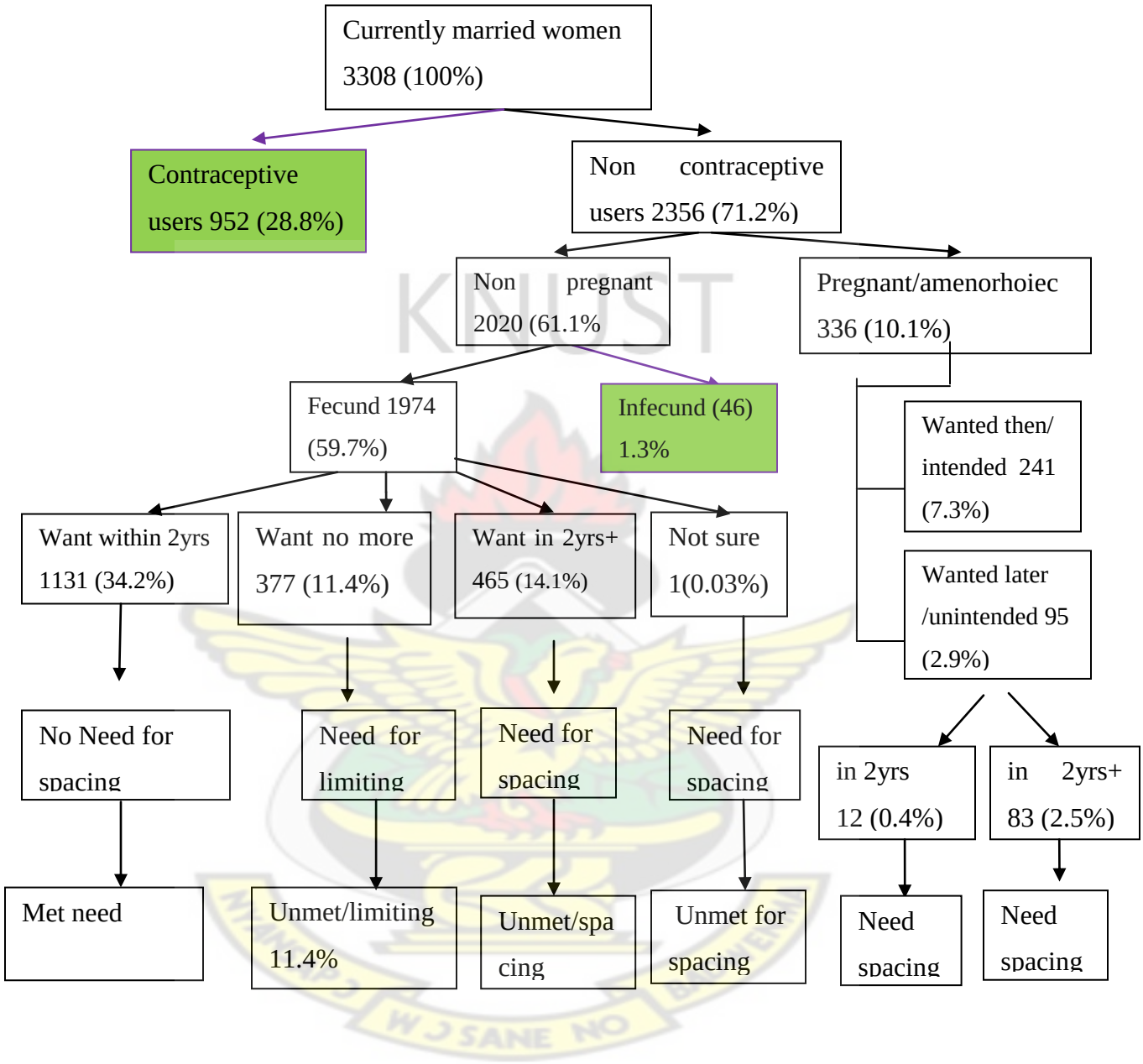
4.0 CHAPTER FOUR- RESULTS

This section presents the results of a descriptive cross-sectional study of 3308 married/women in co-habitation aged 15-49 years resident for at least six months in the Kintampo North Municipality and Kintampo South Districts.

All women were put into two main categories; those who were using contraceptives (952) and those who were not using any contraceptives (2356). Those who were using contraceptives were not studied because they had their needs met by the method in use. Women who were considered infecund were also not studied.

Married women were also considered to have an unmet need for spacing if they were not currently using a method, were pregnant or amenorrhoeic, and the current pregnancy or previous birth was mistimed. These women were 562 in number (figure 2). Women were considered as having unmet need for limiting if they are not using a method of contraception, are pregnant or amenorrhoeic, and have an unwanted pregnancy or unwanted previous birth, these women numbered 377 (figure 2). The unmet need for limiting among currently married women also includes women who are not using a method, who are not pregnant or amenorrhoeic, and who are fecund and want no more children. The above definition of unmet need for family planning is based on the revised definition of unmet need by Westoff (Bradley et al, 2012).

Figure 2 Definition of unmet need



4.1 Description of sample

The study aimed to determine the contraceptive prevalence, magnitude of unmet contraceptive need in the study area and the predictors of this unmet need for contraception. A total of 3308 married women/women in co-habitation were studied with a special focus on non-users of contraceptives to determine the magnitude and the predictors of unmet need for contraception in the Kintampo area so as to establish baseline data.

Nine hundred and fifty two of the respondents (28.8%) were users of contraceptives at the time they were interviewed. Three hundred and thirty six (10.2%) of the women were pregnant during the survey; 95 (28.3 %) of these pregnancies were "unintended" and occurred in the absence of contraceptive use. Unmet need was calculated using the number of women (married or in union) who were not contraceptive users but were fecund, and desired to either stop childbearing or postpone their next birth for at least two years plus the total number of pregnant women whose pregnancies were unwanted or mistimed plus the number of women in the post-partum period with amenorrhea who were not using contraceptives and at the time they became pregnant, had wanted to delay or prevent the pregnancy all expressed in terms of the total number of women aged 15-49 in the study. This calculation was based on the new definition of unmet need by Bradley et al (2012)

Three hundred and nineteen women (9.6%) were in-fecund, 812, (24.6%) women did not want any more children and 941 (28.5%) wanted to wait more than two years before having another child. Nine hundred and eleven women (27.5%) had given birth in the last one year. The mean age of the married women was 29.5 years (SD= 9.8 years). The 15-19 years age group formed the least proportion of respondents (5.7%). About 70% (2 319) of respondents had received little or no formal education. Only 6.5% (216) of the women had secondary education or higher. A larger number of the participants (63.3%) lived in the rural parts of the study area. Women in the least wealth quintile constituted 14.5% of the respondents. Christianity was the commonest religion among the women in the study area; 64% (1899) of respondents were Christians.. Fifty three percent of the respondents (1919) were farmers, domestic workers or labourers. A wide variety of ethnic groups exist in the area. Women from the three northern regions in Ghana

constituted nearly half of the study population (48%). The Akans constituted about one-fourth of the study population (24.7%). Average age at first marriage was 17.6 years (SD=0.7 years). The average number of children desired by a woman was 5, the average number each woman had was 4 children [Table 4.1].

Table 4.1 Background characteristics of study sample (N=3308).

Characteristic	Number (n)	Percentage (%)
Age		
15-19	187	5.7
20-24	519	5.6
25-34	1284	38.8
35-44	979	29.6
45-49	339	10.3
Total	3308	100
Place of Residence		
Rural	2,095	63.3
Urban	1,213	36.7
Total	3308	100
Wealth Quintile		
Lowest	456	14.5
Second	618	19.6
Middle	644	20.4
Fourth	721	22.9
Highest	714	21.6
Missing	155	4.7
Total	3308	100
Education level		
No Education /Primary	2,319	70.1
Middle/JHS	773	23.4
Secondary+	216	6.5
Total	3308	100
Religion		
Traditional	179	6.1
Christianity	1899	64.2
Islam	880	29.8
Total	3308	100
Occupation		
Not employed	550	18.6
Farmer, labourer, domestic	1919	53.0
Other occupation	839	28.4
Total	3308	100
Ethnicity		
Akan	818	24.7
Mo	327	9.9
Tribes from the 3 northern	1589	48.0
Other smaller tribes	574	17.4
Total	3308	100

Source: Field data 2011

4.2 Contraceptive prevalence by background characteristics.

Contraceptive use among the married women at the time of the survey was 28.8% (952). The youngest and oldest age groups had very low contraceptive use; only 7.7% (73) of the contraceptive users were aged 15-19 years. The highest use of contraceptives was among the 25-34 year olds (43.2%). The least use was among the women aged 45-49 years (6.3%). Variation in contraceptive use was very apparent among the different religious groups. Contraceptive use was highest among Christian women. All Christian groups together accounted for 78% (656) of contraceptive users. Contraceptive prevalence varied by differences in socio-economic status of women. It increased consistently from the lowest wealth quintile (12.1%) to the highest (30.2%). In addition, the women in the different occupational groupings showed varying prevalence of contraceptive use. Contraceptive prevalence was highest in the farmer, labourer, and domestic worker group (47.3%), reduced sharply to 31.8% in the women who had other jobs reaching the lowest value (20.9%) among the unemployed women. Women who belonged to the tribes originating from the three northern regions had the highest use of contraceptives (37.3%). This was followed closely by the prevalence among the Akan women (35.9%). Women who had little or no formal education had a contraceptive prevalence of 42.5%, followed by those who received education up to the middle school/JHS (30.8%) and least among those who received education up to or beyond secondary school (11.6%). Contraceptive use (51%) among the women residing in the urban centres of the study area was higher than their rural counterparts (49%) [Table 4.2].

Table 4.2: Characteristics of contraceptive users

Characteristic	Current users (n)	Frequency (%)
Age		
15-19	73	7.7
20-24	161	16.9
25-34	411	43.2
35-44	247	26.0
45-49	60	6.3
Total	952	100
***Religion**		
Traditional	34	4.0
Christianity	656	78.0
Islam	151	18.0
Total	841	100
***Wealth quintile**		
Lowest	109	12.1
Second	141	15.5
Middle	160	17.6
Fourth	223	24.6
Highest	274	30.2
Total	907	100
Occupation		
Not employed	199	20.9
Farmer, labourer, domestic	450	47.3
Other occupation	303	31.8
Total	952	100
Ethnicity		
Akan	342	35.9
Mo	75	7.9
Tribes from the 3Northern	355	37.3
Other	180	18.9
Total	952	100
Educational attainment		
No/ Primary Education	549	57.6
Middle/JHS	293	30.8
Secondary+	110	11.6
Total	952	100
Place of Residence		
Rural	467	49
Urban	485	51.0
Total	952	100

*contains missing values

Source: Field data 2011

4.2.1 Contraceptive prevalence and proximate determinants of unmet need.

Majority of the contraceptive users (46.7%) were women who married for the first time between the ages of 15-19 years. They were closely followed by the level of use among those who married between 20-24 years (38.2%). It then decreased sharply to 12.7% in those who married at age 25 years or older. Contraceptive prevalence was least (2.4%) among women who married before 15 years. Whereas more than four-in-ten women (43.8%) who discussed contraception used a contraceptive, only one-in-five women (24.4%) who had never discussed contraception used a method.

The number of children desired by women was associated with contraceptive use. Among the women who practised contraception, those who desired to have 4-5 children had the highest contraceptive use (49.4%) whereas use among those who desired 6 or more children was the least (23.9%). Only 1.1% of the women who gave birth to their first child before age 15 years were contraceptive users. This increased sharply to 38.3% in those who delivered between 15-19 years reaching peak use rate of 47.7% in the 20-24 year age group. Only 14.7% of contraceptive users were women who feared the side effects of contraceptives. Women who had one or two children had the highest contraceptive use (44.2%) followed those who had 3-5 children (22.4%). Contraceptive use among women who had six or more children was lowest, only one tenth of contraceptive users were women who had six or more children [table 4.3].

Table 4.3: Contraceptive prevalence by proximate factors of contraception.

CHARACTERISTICS	Number of users	Percentage
Age at first marriage		
15-19	457	49.1
20-24	355	38.2
25+	118	12.7
Total	930	100
Desired number of Children		
0-3	226	26.7
4-5	419	49.4
6+	203	23.9
Total	848	100
Age at first birth		
<19	318	39.4
20-24	385	47.7
25+	104	12.9
Total	807	100
Fear of side effect		
Yes	140	14.7
No	812	85.3
Total	952	100
Total number of Children		
0-3	556	58.6
4-5	213	22.4
6+	180	10.0
Total	949	100

Source: Field data 2011

4.3 Magnitude and distribution of unmet need for contraception

The total unmet contraceptive need was 28.4%, 17.0% was for spacing birth and 11.4% for limiting birth (figure 4.1). The magnitude of unmet need varied with socio-demographic characteristics of the women. Unmet need for spacing was calculated using the numbers of women who wanted to have children later but were not using contraceptives, pregnant women whose pregnancies were wanted later than they had occurred and all women who have had previous pregnancies that were wanted later than they had occurred. The numbers women who mentioned that they preferred not to have any more children but were not using any contraception, pregnant women who did not want to be pregnant at all and women whose last pregnancies were never intended or wanted were used calculating the magnitude of unmet need for limiting.

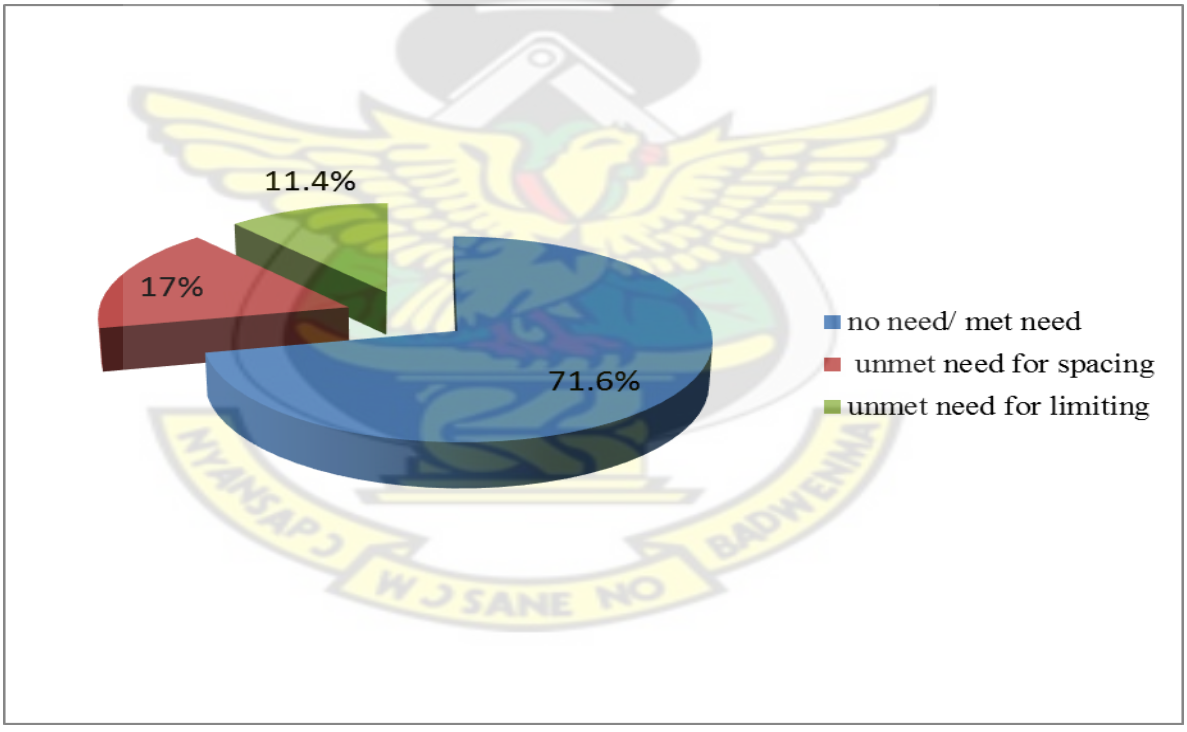


Figure 4.2 Magnitude of unmet need among married women.

Source: Field data 2011

4.4 Socio-demographic factors and unmet need.

When the socio-demographic characteristics of women with unmet need were compared with those of women with met need, they were found to be significantly different. The ages, places of residence, socio-economic statuses, education levels, religions and occupations of these two groups of women were not the same [Table 4.4].

Table 4.4: Socio-demographic factors and unmet need.

Variable	unmet need n (%)	met need n (%)	X2 (p-value)
Age			
<19	45 (5.3)	142 (6.0)	12.98 (0.01)
20-24	171 (20.4)	348 (14.7)	
25-34	358 (42.7)	926 (39.1)	
35-44	287 (34.2)	692 (29.2)	
45-49	77 (8.2)	262 (11.1)	
Total	938 (100)	2370 (100)	
Place of Residence			
Rural	676 (72.1)	1419 (59.9)	43.04 (< 0.01)
Urban	262 (27.9)	951 (40.1)	
Total	938 (100)	2370 (100)	
***Wealth quintile**			
Lowest	157 (17.6)	308 (13.0)	32.69 (<0.01)
Second	206 (23.1)	412 (17.4)	
Middle	191 (21.4)	453 (19.1)	
Fourth	178 (20.0)	543 (22.9)	
Highest	160 (17.9)	554 (23.4)	
Total	892 (100)	2270 (100)	
Educational level			
No Education /Primary	712 (75.9)	1607 (67.8)	22.63 (<0.01)
Middle/JHS	184 (19.6)	589 (24.9)	
Secondary+	42 (4.5)	174 (7.3)	
Total	938 (100)	2370 (100)	
***Religion**			
Traditional	73 (8.7)	106 (5.0)	17.21 (<0.01)
Christianity	505 (60.2)	1394 (65.8)	
Islam	261 (31.1)	619 (29.2)	
Total	839 (100)	2119 (100)	
Occupation			
Not employed	147 (15.7)	403 (17.0)	30.82 (<0.01)
Farmer,labourer,domestic	610 (65.0)	1309 (55.2)	
Other occupation	181 (19.3)	658 (27.8)	
Total	938 (100)	2370 (100)	

Source: Field data 2011

*Contains missing values

4.5. Proximate determinants and the risk of unmet need.

The study compared women with met need with those with unmet need in terms of proximate determinants of contraceptive use. Compared with the women who had their contraceptive needs met, the women with unmet need did not significantly differ by their knowledge on contraception, fertility desires and age at first birth. However, some other proximate determinants varied between the two groups - fear of side effects, age at first marriage, and parity were significantly different when the two groups of women were compared [Table 4.5].

Table 4.5: Proximate factors and unmet need

Characteristic	Unmet need n (%)	Met need n (%)	X2 (p-value)
Opposition / Knowledge:			6.24 (0.28)β
Respondent	208 (72)	118 (78.2)	
Husband/partner	19 (6.6)	6 (4.0)	
Religious/Others	16 (5.5)	9 (6.0)	
Know no method	28 (9.7)	14 (9.3)	
Know no source	18 (6.2)	4 (6.7)	
Total	289 (100)	151 (100)	
Fear of side effect			61.50 (<0.01)
No	854 (91.0)	2036 (97.3)	
Yes	84 (9.0)	64 (2.7)	
Total	938 (100)	2370 (100)	
Age at first marriage			6.37 (0.04)
<19	475 (52.6)	1101 (48.4)	
20-24	325 (36.0)	854 (37.5)	
25+	103 (11.4)	322 (14.1)	
Total	903 (100)	2277 (100)	
Age at first birth			4.70 (0.10)
<19	388 (43.6)	792 (39.4)	
20-24	378 (42.5)	924 (45.9)	
25+	123 (13.8)	296 (14.7)	
Total	889 (100)	2012 (100)	
Number of children alive			48.04 (<0.01)
0	30 (3.2)	327 (13.8)	
1-3	232 (24.7)	1003 (42.4)	
4-5	300 (32.0)	686 (29.0)	
6+	376 (40.1)	351 (14.8)	
Total	938 (100)	2367 (100)	
Fertility desire:			3.5 (0.17)
0-3	126 (16.4)	385 (19.4)	
4-5	371 (48.3)	935 (47.2)	
6+	271 (35.3)	660 (33.3)	
Total	768 (100)	1980 (100)	

β Fisher's exact test

Source: Field data 2011

4.6. Socio-demographic characteristics and unmet need

In the bivariate analyses of socio-demographic characteristics of women and unmet need, age, wealth, education level and religion significantly influenced unmet need. Compared with the women aged 15 – 19 years, women aged 20-24 years were 60% more likely to have unmet need (OR=1.6, 95%CI:1.1-2.3, p=0.02). Rural dwellers were 70% more likely to have unmet need compared with urban dwellers (OR=1.7, 95%CI: 1.47- 2.04, p<0.001).

Unmet need decreased with increasing wealth; women who belonged to the fourth wealth quintile were significantly less likely to have unmet need when compared with those in the lowest socio-economic subgroup (OR= 0.6, 95%CI: 0.5-0.8, p=0.01). Women who had middle school/ junior high school education had lower odds of unmet need when compared with those with no education/primary education (OR= 0.7, 95%CI: 0.61-0.92, p<0.01). When the women who had secondary education or higher were compared with those with no education/primary education, they were significantly less likely to have unmet need (OR= 0.5, 95%CI: 0.37-0.81, p<0.01).

Compared with the women who had no religion, women who belonged to the Christian faith were significantly less likely to have unmet need, (OR= 0.6, 95%CI: 0.38-0.90, p<0.01). The Moslems were also less likely to have unmet need (OR= 0.5, 95%CI: 0.44-0.85, p<0.01) when compared with the women with no religion.

In the multivariate model, place of residence, socio-economic status, religion and occupation were not significantly associated with unmet need. However, age was significantly associated with unmet need. Compared with the women aged 15-19 years, the older women were significantly less likely to have unmet need A woman's level of education remained significant in the model. Women with junior high school/middle school education were significantly less likely to have unmet need, compared with those with no education/primary education (AOR= 0.8, 95%CI: 0.69-0.95, p<0.01). Those who had secondary education or higher were significantly less likely to have unmet need, compared with their counterparts who had no education or primary education (AOR= 0.5, 95%CI: 0.38-0.77, p<0.01). Even though place of residence was not statistically significant in the AOR model, it is important to raise it as an issue because the rural woman was four times more likely to have an unmet need [Table 4.6].

Table 4.6: Socio – demographic factors that may predict unmet need.

Predictive variables	Bivariate		Multivariate	
	OR	**95%CI**	**AOR**	**95%CI**
Age				
15-19	1		1	
20-24	1.6	(1.10-2.32) *	0.4	(0.13-1.63)
25-34	1.2	(0.89-1.72)	0.3	(0.12-0.98) *
35-44	1.3	(0.91-1.90)	0.2	(0.04-0.72) *
45-49	0.9	(0.62-1.40)	0.1	(0.02-0.53)**
Place of Residence				
Urban	1		1	
Rural	1.7	(1.47-2.04)***	1.2	(0.44-1.33)
Wealth quintile				
Lowest	1		1	
Second	1.0	(0.81-1.32)	0.8	(0.60-1.09)
Middle	0.8	(0.60-1.10)	0.7	(0.40-1.32)
Fourth	0.6	(0.49-0.82)*	0.8	(0.38-1.31)
Highest	0.6	(0.38-0.71)	1.1	(0.35-1.40)
Education level				
No Education / Primary	1		1	
Middle/JHS	0.7	(0.61-0.92)**	0.8	(0.69--0.95))*
Secondary+	0.5	(0.37-0.81)**	0.5	(0.38-0.77)**
Religion				
Traditional	1		1	
Christianity	0.6	(0.38-0.90)**	0.5	(0.25-0.89)
Islam	0.5	(0.44-0.85)**	0.6	(0.28-1.07)
Occupation				
Not employed	1		1	
Farmer,labourer,domestic	1.3	(1.02- 1.61)*	0.9	(0.62-1.76)
Other occupation	0.8	(0.58,-0.98)*	0.8	(0.48--1.52)

* $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$

Source: Field data 2011

4.7 Proximate determinants of contraceptive use and unmet need.

In bivariate analyses to determine association between unmet need and proximate factors of contraceptive use, some proximate determinants of the unmet need for contraception were significant. The fear of side effects and the number of children alive were significantly associated with unmet need ($p<0.01$). These were remodeled in multivariate analyses to overcome the effects of confounders. After the adjustment for confounders, fear of side effects remained significant. Women with fear of side effects of contraceptives were 4 times more likely to have unmet need (AOR= 4.1, 95% CI: 2.14-8.41, $p<0.01$) when compared with those without fear of side effects.

Table 4.7 Proximate factors and unmet need

Characteristic	Bivariate		Multivariate	
	OR	95%CI	AOR	95%CI
Fear of side effect				
No	1		1	
Yes	3.5	(2.53-4.95)**	4.1	(2.14-8.41)**
Age at first marriage				
<19	1		1	
20-24	0.8	(0.75-1.04)	1.3	(0.88-1.95)
25+	0.7	(0.56-0.94)*	0.9	(0.52-1.79
Number of Children Alive				
1-3	1		1	
4-5	1.5	(1.3-1.8)**	1.5	(0.1-1.8)
6+	1.8	(1.5-2.2)**	2.8	(1.64-5.08)

* p≤0.05 ** p≤0.01 *** p≤0.001

Source: Field data 2011

5.0 CHAPTER FIVE – DISCUSSION

This discussion is centered on background characteristics of respondents, the research questions and objectives in the light of previous studies done. The key socio-demographic variables that were studied include age, occupation, religion, ethnicity, socio-economic status educational level and place of residence. The study area was dominated by people who belong to ethnic groups originating from the three northern regions (48.0%). This finding is consistent with the MHMT description of the study population.

The mean age of the women studied (32 years) is comparable to that of the women (30 years) who were studied in the Ghana Demographic and Health Survey (GSS/GHS/ICF Macro, 2009). The two studies were both surveys in which representative samples from WORA were drawn. Ghanaians are predominantly Christians (GSS/GHS/ICF Macro, 2009), majority of the women in the study area were also Christians as expected. Nearly two-thirds of the women were of the Christian religion. The rural–urban split is comparable to that of the Brong–Ahafo region as well as Ghana as a whole. The educational statuses of the women were consistent with those of other women in Ghana as depicted by the GDHS, 2009.

5.1 Contraceptive prevalence.

Women who were using contraceptives at the time of the survey constituted 28.8%of the study population. This was much higher than the national average (17.0%) and similar to the regional estimate (29.0%) (GSS/GHS/ICF Macro, 2009). It was also not too different from the MICS findings in 2011 (24%). This contraceptive prevalence was to be expected as it was not different from the regional documented value and the MICS documented prevalence. It however differed from the national estimate; this could be because of the geographical of the location study area. The area is located right in the middle of Ghana. It is a transit zone for travelers moving from Burkina, Mali and the three northern regions of Ghana, down south and vice versa. The high flow of human traffic may have contributed to the easy transfer of information and knowledge about contraceptives that might have translated into the relatively high prevalence.

Younger women had a lower contraceptive use than the older ones, this could have accounted for the high unmet need for spacing compared with unmet need for limiting. Younger women have higher fertility intentions and hence greater need to space births yet they used contraceptive at a lower rate. The low use among the women above 44 years may be because above this age, a good number of women become menopausal and so quite a number of them may not have need for contraceptives. In consistency with findings by Creanga and Dann (Creanga et al, 2011; Dann, 2009), the contraceptive prevalence among women increased with their socio-economic status. Among women of the highest wealth quintile, 28.8% used contraceptives, in the women group belonging to the lowest quintile, only 11% were users. This finding can be likened to the situation in Ghana at the national level where a positive relationship was found between a woman's wealth status and contraceptive use (GSS/GHS/ICF Macro, 2009). Differences exist in women's unmet need for contraception by level of education, a finding that is consistent with that of the 2008 GDHS and the 2011 MICS (GSS/GHS/ICF Macro, 2009; Ghana Statistical Service, 2011). Women with higher level of education had lower unmet need. Education improves socio-economic status and access to information. Higher socio-economic status exposes a woman to information and education. This information may guide her in decision and choices making.

Living in an urban area increased a woman's odds of contraceptive use. An urban woman may have more access to contraceptive information than her rural counterpart. In Ghana, Burkina Faso, Mali, and Senegal the findings were similar (GSS/GHS/ICF Macro, 2009; Dann, 2009). It was also consistent with the findings by Mekonnen & Worku. According to them, urban dwellers had contraceptive prevalence that was 2.3 times higher than rural dwellers in South Central Ethiopia (Mekonnen &Worku 2011). The 2011 Multiple Indicator Cluster Survey also had similar findings. Women who lived in urban areas had a higher chance of being contraceptive users (Ghana Statistical Service, 2011). This may be due to improved access to service provision in the urban centres when compared with the rural settings. The percentage of contraceptive use among women with little or no education formed only a quarter (11.6%) of the percentage of contraceptive users among the women with at least secondary education (42.5%).

5.2 Magnitude of unmet need.

The unmet need in the study area is relatively high although it may be one of the best estimates in Ghana. This was in-spite of the wide network of health facilities that provide professional services on contraception. This magnitude of unmet need was slightly higher than the unmet need for contraception among married/co-habiting Ghanaian women estimated by the Multiple Indicator cluster Survey in 2011. It was much lower than the 2008 Ghana Demographic and Health survey findings for the Brong-Ahafo region. Similar to the GDHS and MICS findings in Ghana, unmet need for spacing was much higher than unmet need for limiting (GSS/GHS/ICF Macro, 2009; Ghana Statistical Service, 2011). This is also in line with other studies across sub-Saharan Africa.

The magnitude of unmet need for spacing and limiting were very similar to the findings of both the GDHS and the MICS in Ghana. This may be explained by the desire for large family sizes in the area. On the average women in the Kintampo area desired 5 children. Women in the study area married at a relatively younger age (17.6 years) than the average age of marriage (18.6 years) for Ghanaian women as documented by the GDHS in 2008. They therefore had a longer fertility span hence a longer period of exposure to the risk of pregnancy. The magnitudes of unmet need for both birth spacing and limiting were much lower than the national estimates (GSS/GHS/ICF Macro, 2009). The magnitude of unmet need was similar to findings in West Africa where total unmet need ranges from 16% to 34% (Westoff, 2006). It was also in agreement with other reports from different low-income countries, where unmet need for spacing contributed for two third of the total unmet need

5.3 Factors that predict the occurrence of unmet need among married women.

Three factors were found to be significantly associated with unmet need within the Kintampo area of Ghana. Age was significantly associated with unmet need and this is similar to the findings of a study conducted in India in 2009 (Choudhary et al; 2009). It is also consistent with the findings of the 2011 Multiple Indicator Cluster Survey in Ghana (Ghana Statistical Service, 2011). Younger women are known to be more fertile and so more likely to have unplanned pregnancies. As expected unmet need is very low among

women aged 45-49 years as they tend to have far less need for contraception due to menopause and low fertility.

Education was found to be significantly associated with unmet need. This finding is similar to the situation in Ethiopia where educated women were more likely to use contraceptives (Mekonnen & Worku, 2011). A similar study in Kuwait also identified education as a predictor of unmet need. There, education was compared with autonomy and was found to be a better predictor of unmet need than autonomy (Shah et al; 2004). In rural India, education was also found to be a major determinant of unmet need, women with higher education (Choudhary et al, 2009). The possible explanation may be that educated women are more likely to have access to better information on contraceptives when compared with women with no education.

Fear of side effects, a proximate determinant, was also found to be a predictor of unmet need for contraception. Women who feared the possible side effects of contraceptives were more likely to have unmet need compared with those who did not express any fear of side effects. This finding was in line with the findings of studies conducted in Ghana (Krakowiak-Redd et al; 2011; Govindasmy & Boadi, 2000). This fear might have developed as a result of women depending on anecdotal evidence. According to Bongaarts and Bruce, misinformation and rumours regarding the possible effects of modern contraceptive methods have been found to be a common risk factor of unmet need (Bongaarts & Bruce, 1995). Poor information flow and lack of information on available choices could also be the reason for this observation. This finding of fear of side effects of contraception as a predictor of unmet need is also consistent with the 2008 GDHS report (GSS/GHS/ICF Macro, 2009) that shows fear of side effect to be the strongest predictor of unmet need in Ghana. The isolation of the fear of side effects as a predictor for unmet need was very much expected. In Nigeria, fear of side effects together with husband's disapproval and religious beliefs were the main constraints to the use of contraceptives (Anthony, et al; 2009).

In the study area, women who had more than five children alive were at a higher risk of unmet need. This is consistent with the work done by in India in 2012 where it was found that having more children increased the risk of unmet need (Ansary & Anisujjaman, 2012; Bhandari et al; 2006). This finding is contrary to the findings of a study also

conducted in rural India in 2009 which documented that the number of children a woman had did not affect unmet need In that study, women with only one child also had high interest in contraception, as many as 40% of such women used contraception (Choudhary et al; 2009). The number of children a woman has alive is not only dependent on a woman's fertility desire but is also affected by her contraceptive decisions. A number of factors could explain this finding. The more a woman had children the higher the risk of unmet need because the non-use of contraceptives may be the reason for the large number of children.

Although living in the rural parts of the Kintampo area conferred a high risk of having unmet need on a woman when compared with those in the urban areas, this was insignificant. The place of residence, religion occupation, the ages at first marriage and first birth did not significantly affect unmet need.

6.0 CHAPTER SIX - CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

This study revealed that contraceptive prevalence in the Kintampo area was low (29 %). Contraceptive prevalence in the study area varied with the socio-demographic factors and other covariates. Rural dwellers had higher unmet need than urban dwellers (OR=1.7, 95%CI: 1.47- 2.04, p<0.001).

The magnitude of unmet need (28%) was comparable to the estimates for the Brong-Ahafo region (27%) and Ghana (26%). Unmet need for spacing (17%) was higher than unmet need for limiting (11%).

The predictors of unmet need for contraception among married women of reproductive age in Kintampo area were age, fear of possible side effects of contraceptives and level of education.

The younger a woman, the higher her unmet need for contraception. As a woman aged, her risk of unmet need lowered. Women with higher level of education had lower the unmet need while those with lower education had higher unmet need. Women with secondary education or higher were 50% less likely to have unmet need compared with their counterparts who had no education or primary education (AOR= 0.5, 95%CI: 0.38-0.77, p<0.01).

Fear of side effects of contraceptives was a strong predictor of unmet need. Women who feared the side effects of contraceptives were 4 times more likely to have unmet need (AOR= 4.1, 95% CI: 2.14-8.41, p<0.01) when compared with those without fear of side effects.

6.2 Recommendations

It is noteworthy that when developing strategies to overcome unmet need in Ghana as a nation, programme planners, programme managers and decision-makers need to consider the various factors examined in this study with special emphasis on fear of side effects and education. Education programmes that will enhance the knowledge of women on available contraceptive methods and their side effects are essential. Health care providers need to lay emphasis on contraceptive side effects during counseling before acceptance. This couselling should explain all the possible untoward effects that may arise and how this may be managed at home and in the health facility. Encouraging women to attend scheduled post acceptance clinic vists will help allay the fears that may be entertained by new users. During visit, women can be encouraged to talk about their experiences and fears, care providers can encourage women to continue the use of their chosen methods. Prompt review of choices in the event of complaints of untoward reactions and adverse events will also encourage women to accept contraception. All the available treatment options to avert these side effects as well as the possible detrimental outcome should also be communicated. They should also encourage long term method users to serve as ambassadors who will disseminate information to all other women and the communities they live in. The right attitude towards client care will encourage more women to report at service centres to seek clarification. The relatively high rate of unmet need identified by this study requires that GHS/MOH staff (Municipal/District Health Management Teams) as well as private hospitals staff increase their efforts and pay special attention to the women between the ages of 24-39 years. This is because although in this group contraceptive use is relatively high, unmet need is equally high. The extremes of the age groupings (15-19 years and 44-49 years) should also be targeted for education and improved access, though they have low unmet need, they also have very low contraceptive use. The teams ought to scale up interventions such as health education on a regular basis in the study area to further increase the level of awareness of modern contraceptive methods.

The DHMTs ought to maximize access to good quality services. Improving the quality of family planning services and making contraceptives easier to obtain and use will help meet the need of many women. Family planning programmes should advocate the

minimal risk associated with contraceptive methods compared to health problems and maternal health incurred by unwanted pregnancies.

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APENDICES

Appendix A - Questionnaire

KINTAMPO HEALTH RESEARCH CENTRE KINTAMPO HEALTH AND DEMOGRAPHIC SURVEILLIANCE SYSTEM (KHDSS) CONFERT FEMALE FORM (29/07/2011)	CONFERT F FORM	FORMNO

1. BASIC INFORMATION

1.1. HRB Code: …… HRB

1.2. Compound number: …… COMPNO

1.3. Current Household ID: …… HH_ID

1.4. Respondent's permid: …… PERMID

1.5. Respondent's name: NAME

1.6. Respondent's date of birth …… DOB

1.7. Date of Visit…… DATVIS

1.8. Fieldworker code…… FW

1.9. RESULT OF INTERVIEW

11. Complete, listed Interviewee	12. Complete, new Interviewee	13. Incomplete, died	14. Incomplete, Migrated	RESULT
15. Incomplete, Refused	16. Incomplete, too Young	17. Incomplete, not met after three revisits	18. Incomplete, too old	
19. Incomplete, wrong sex	20. Incomplete, wrong name	21. Incomplete, not known in Compound		
22. Incomplete, other:				

1.10. IS THE PARTNER INTERVIEWED? ……	1. Yes	2.No	PARTNER
1.11. Name of the partner:			PNAME

2. REPRODUCTION

I will like to ask you about any children you have had during your life. I am interested in all of the children that are biologically yours. [Circle 9. NA for the rest of this section if Q2.1 is 2. NO]

2.1. Have you ever been pregnant? [Include current pregnancy] ……	1. Yes	2.No	EVERPREG

2.2. How many times have you ever been pregnant? [Include current pregnancy]...		NUMPREG

2.3. Have you ever given birth? ……	1. Yes	2.No	9. NA	EVERBTH

2.4. How old were you when you first gave birth? [In years] ……..		AGEBIRTH

[If the response to question 2.3 is 2. No, circle 9. NA for questions 2.5, 2.6 & 2.7]

2.5. Do you have any children to whom you have given birth who are now living with you?	1. Yes	2. No	9. NA	LIVEBTH

2.5.1. How many sons live with you? [sons at home] None=00 ……		LIVSON
2.5.2. How many daughters live with you? [daughters at home] None=00 …		LIVDAUG

2.6. Do you have any children to whom you have given birth who are alive but do not live with you?	1. Yes	2. No	9. NA	LIVELSE

2.6.1. How many sons are alive but do not live with you? [sons elsewhere] None=00		ELSESON

2.7. Have you ever given birth to a son or a daughter who was born alive but later died? [If no, probe: Any baby who cried or showed any sign of life but only survived a few hours or days?]

1. Yes	2. No	9. NA	LIVDTH

2.7.1. In all, how many sons have died? [sons dead] None=00 …….. DTHSON

2.7.2. How many daughters have died? [daughters dead] None=00 …… DTHDAUG

2.10. How old is your youngest living child? [Age in years, Enter 00 if less than 1 yr.] AGEYONG

2.11. Women sometimes have pregnancies that do not result in a live born child. That is, a pregnancy can end early, in a miscarriage, abortion or the child can be born dead (Stillbirth). Have you had any such pregnancy that did not result in a live birth? NOBTH

1. Yes	2.No	9. NA

2.12. In all, how many pregnancies that did not end in a live birth have you had? NOPREG

[NONE=00]

2.12.1. How many were miscarriages? …….. NUMMISS

2.12.2. How many were abortions? …… NUMABORT

2.12.3. How many were born dead (Stillbirth)? NUMSTILLB

2.13. Thinking back to the time of your last pregnancy, was the child born alive, dead, or did you lose this pregnancy? PREGLOST

1. Born Alive	2. Born dead	3. Lost pregnancy	8. NK	9. No previous pregnancy

2.14. SUM THE ANSWERS TO QUESTIONS 2.5.1, 2.5.2, 2.6.1, 2.6.2, 2.7.1, AND 2.7.2, AND

ENTER THE TOTAL NUMBER OF LIVE BIRTHS [IF SHE HAS NEVER /EN BIRTH TO A LIVE BIRTH BEFORE ENTER 00] | | | TALCHN

2.15. Just to make sure that I have this right: you have had in TOTAL _____ LIVE children born to you during your life. Is that correct? [Probe and correct to 2.7.2 if necessary] | Yes | o | RRECT

16.Are you pregnant now? …… | Yes | o | NK, unsure | EGNOW

17. How many months pregnant are you? [Record number of completed months. er to ANC card if available] | | | HPREG

2.18. Thinking back to the time when your current pregnancy started, ıld you say that you wanted the gnancy then, later, or not at all? | Then | Later | Not at all | NK | NA | NTPREG

[If the response to 2.18 is 2. Later, then ask question 2.19.1 and 2.19.2, else code 99. NA]

2.19. How much longer would you have liked to wait in months and years?

9.1. Months …… | | | ITMTH

9.2 Years …… | | | ITYRS

2.20. Sometimes a woman can become pregnant when she is not ready to be. In the past, e you ever been pregnant at a time when you were not ly for the pregnancy? | Yes | No | NK | NA | ADYPREG

[Code 9. NA for questions 2.21 to 2.27 if the response to 2.20 is 2. No or 8. NK]

21. How many pregnancies have you had when you were not ready for it? …… | | MRPREG

2.22. What did you do the last time this happened to you?

Nothing, continued with the pregnancy	Attempted to stop but not succeed	Attempted to stop and succeeded	TEMPT

Other:	NK	NA

2.23. How old were you the last time this happened to you [age in completed years, Enter 00 if less than 1 year] | | | AGEATEMPT

2.24. Would you have accepted any help to prevent you from becoming pregnant? | 1. Yes | 2.No | 9. NA | ACCEPT

[Ask questions 2.25 – 2.27 if the response to 2.22 is 2 or 3]

[If any of the responses to questions 3.1.1. to 3.1.30 is 1. Yes (used a method) then circle 9. NA for Q3.2]

3.2. Have you ever used anything or tried in any way to delay or avoid getting pregnant? | 1. Yes | 2. No | 9. NA | EVERUSE

[Ask question 3.3 if question 3.2 is 1. Yes]

3.3. What have you used or done? CORRECT 3.1.1. TO 3.1.30 IF NECESSARY

3.4. How many living children did you have at that first time that you did something or used a method to avoid getting pregnant if any? [Record 00 if no children] | | | LIVCHN

[If woman is pregnant code questions 3.5 to 3.11 as 9 or 99. NA and continue with question 3.12]

3.5. Are you currently doing something or using any method to delay or avoid getting pregnant? | 1. Yes | 2. No | 9. NA | AVOIDPREG

3.6. Which methods are you currently using? [use the key below to answer questions 3.6.1 to 3.6.3

11. Female sterilization	12. Male sterilization	13. Pill
14. IUD	15. Injectables	16. Implants
17. Male condom	18. Female condom	19. Diaphragm
20. Foam/Jelly	21. Lactational Amenorrhea method	22. Rhythm Method
23. Withdrawal	24. Other:	99. NA

3.6.1. Method using one …… | | | METHA1

3.6.2. Method using two …… | | | METHA2

3.6.3. Method using three …… | | | METHA3

[Ask question 3.7 if any of the response to 3.6.1 to 3.6.3 is 13, PILL. 14, IUD. 15, Injectables.

16, Implants. 17, Male condom. 18, Female condom. 19, Diaphragm. and 20, Foam/Jelly]

[Enter 00.00 for Not Applicable]

3.7. How much did you pay for the method you used stated in 3.6.1 | | | . | | | COSTMETH

3.8. Since what month and year have you been using (CURRENT METHOD) without stopping? [mm:yyyy] [Enter 99.9999 for NA] | | | | | | TIMEMETH

[Ask question 3.12 and 3.13 if the response to 3.1.2. and 3.6.1 to 3.6.3. are "Female sterilization]

3.9. In what month or year was the sterilization performed? [Enter 99.9999 for Not Applicable] | | | | | | YRSTERIL

3.10. Where did you obtain (CURRENT METHOD) the last time?

3.11. Are you able to assess family planning services at the place/s you mentioned in 3.26.1 to 3.26.3 above? | 1. Yes | 2. No | 9. NA | ASSESSFP

3.12. When was the last time you had sexual intercourse?

[NB: none = 00, less than or equal to one (1) = 01]

3.28.1. Days ago…….. | | | DAYSEX

3.28.2. Weeks ago……. | | | WKSEX

3.28.3. Months ago…… | | | MTHSEX

3.28.4. Years ago…… | | | YRSSEX

4. FERTILITY PREFERENCES

I will now like to speak to you about your current pregnancy and your future childbearing intentions

4.1. Are you currently pregnant? …… | 1. Yes | 2. No | 8. NK | CPREG

If the response to 4.1 is 1. Yes, then go to questions 4.2 - 4.4; if your response to 4.1 is 2. No or 8. NK, then go to questions 4.5 to 4.7

4.2. After the child you are expecting now, would you like to have another child, or would you prefer not to have any more children?

1. Have another Child	2. Prefer not to have a child or no more children	8. NK or Undecided	9. NA	ACHLD

4.3. After the birth of the child you are expecting now, how long would you like to wait before the birth of another child?

1. Months	2. Years	3. Want a child soon or now		LWAIT
4. After Marriage	5. Other:	8. NK	9. NA	

[Ask 4.4 if response to 4.3 is 1.Months or 2. Years]

4.4. How many months or years? [code 99:99 if question 4.3 is not 1, months or 2, years] | | | : | | | MWAIT

Now I have some questions about the future

4.5. Would you like to have a child or another child, or would you prefer not to have any child or more Children?

1. Have a child	2. Prefer not to have a	3. Can't get	8. NK or	9. NA	PCHILD

or another child	child or no more children	pregnant	Undecided	

4.6. How long would you like to wait from now before the birth of a child or another child?

1. Months	2. Years	3. Want a child soon or now	4. After Marriage	LWAIT
5. Can't get pregnant	6. Other:		8. NK	9. NA

[Ask 4.7 if response to 4.6 is 1.Months or 2. Years]

4.7. How many months or years? [code 99:99 if question 4.6 is not 1, months or 2, years] | | | : | | | MWAIT 2

[Check if the woman is using any method of contraception. If she does not want a child soon

Ask question 4.8 and if she wants no more children ask question 4.9

4.8. You have said that you do not want a child or another child soon, but you are not using any method

to avoid pregnancy. Can you tell me why you are not using a method?

NOT MARRIED AND FERTILITY-RELATED REASONS			
11. Not married	12. Not having sex	13. Infrequent sex	
14. Menopausal/ Hysterectomy	15. Subfecund/Infecund	16. Lactational amenorrhea	17. Breast feeding
OPPOSITION TO USE AND LACK OF KNOWLEDGE			
19. Respondent opposed	20. Husband/ Partner opposed	21. Others opposed	
22. Religious prohibition	23. Knows no method	24. Knows no source	
METHOD-RELATED REASONS			
25. Health concerns	26. Fear of side effects	27. Lack of access/ Too far	
28. Cost too much	29. Interferes with body		

30. Other:	88. NK	99. NA

4.8.1. Reason not soon one ……			REASNS1
4.8.2. Reason not soon two ……			REASNS2
4.8.3. Reason not soon three ……			REASNS3
4.8.4. Reason not soon four ……			REASNS4
4.8.5. Reason not soon five ……			REASNS5

4.9. You have said that you do not want any (more) children, but you are not using any method to avoid pregnancy. Can you tell me why you are not using a method?

NOT MARRIED AND FERTILITY-RELATED REASONS			
11. Not married	12. Not having sex	13. Infrequent sex	
14. Menopausal/ Hysterectomy	15. Subfecund/Infecund	16. Lactational amenorrhea	
OPPOSITION TO USE AND LACK OF KNOWLEDGE			
19. Respondent opposed	20. Husband/ Partner opposed	21. Others opposed	
22. Religious prohibition	23. Knows no method	24. Knows no source	
METHOD-RELATED REASONS			
25. Health concerns	26. Fear of side effects	27. Lack of access/ Too far	
28. Cost too much	29. Interferes with body		
31. Other:		88. NK	99. NA

4.9.1. Reason not anymore one …….			REASNA1
4.9.2. Reason not anymore two……			REASNA2
4.9.3. Reason not anymore three ……...			REASNA3
4.9.4. Reason not anymore four …….			REASNA4
4.9.5. Reason not anymore five …….			REASNA5

4.10. Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future?	1. Yes	2. No	8. NK	USECON

NOT MARRIED AND FERTILITY-RELATED REASONS			NOUSECON
11. Not married	12. Not having sex	13. Infrequent sex	
14. Menopausal/ Hysterectomy	15. Subfecund/Infecund	16. Lactational amenorrhea	
OPPOSITION TO USE AND LACK OF KNOWLEDGE			
19. Respondent opposed	20. Husband/ Partner opposed	21. Others opposed	
22. Religious prohibition	23. Knows no method	24. Knows no source	
METHOD-RELATED REASONS			
25. Health concerns	26. Fear of side effects	27. Lack of access/ Too far	
28. Cost too much	29. Interferes with body		
30. Other:		88. NK	99. NA

4.11.Why do you say you think you will not use a contraception method at any time in the future?

[Ask question 4.13. if question 4.12 is 11. Not married]

4.13. Would you ever use a contraceptive method if you were married?	1. Yes	2. No	3. NK	9. NA	EVERCON

[If respondent has no living child or children, code responses to questions 4.14.1. to 4.14.4 as 99, NA]

ASK IF RESPONDENT HAS LIVING CHILD OR CHILDREN

4.14. If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life,

4.14.1. How many would that be? [ENTER 00 FOR NONE] ……. | | | HOWM1

[If respondent has a living child or children, code responses to questions 4.15.1. to 4.15.4. as 99, NA]

ASK IF RESPONDENT HAS NO LIVING CHILDREN

4.15. If you could choose exactly the number of children to have in your whole life,

4.15.1. How many would that be? [ENTER 00 FOR NONE] …….. | | | HOWM

4.17. Are you currently married, living together with a man, widowed, divorced, not living together with your partner or never married?

1.Married	2.Living together	3.Widowed	4.Divorced	5.Separated	6.Never married	MARITALST

4.18. How old were you when you first married/lived together with a man? [In years] | | | FIRSTMAR

4.19. How old were you when you had sexual intercourse for the very first time (in your life)? [In years] | | | FIRSTSEX

4.20. How old was the person you first had sexual intercourse with? [In years] | | | FIRSTMAN

4.21. Does your husband/partner know that you are using a method of family planning? ……

1. Yes	2. No	8. NK	9. NA	HUSKNOW

4.22. Would you say that using contraception is mainly your decision, mainly your husband's/partner's decision, or did you both decide together?

1. Mainly respondent	2. Mainly husband/partner	3. Joint decision	4. Other:	8. NK	9. NA	MAINDEC

[If none of the partners is sterilized in Questions 3.1.2 and 3.1.4, then proceed to Question

END OF CONFERT FEMALE FORM. CHECK YOUR FORM AND THANK THE RESPONDENT

Appendix B – Ethical Approval

Kintampo Health Research Centre (KHRC) Institutional Ethics Committee (IEC)

Ref: KHRC/IEC/ICF/2011-1
FWA:00011103
IORG0004854

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Date: 18th August, 2011

APPROVAL CERTIFICATE

Abubakari Sulemana *et al*
Kintampo Health and Demographic Surveillance System (KHDSS)
Kintampo Health Research Centre
Box 200
Kintampo, B/A
Ghana, West Africa

Dear PI(s)

Ethical Approval: **"Kintampo Health and Demographic Surveillance System Sexual and Reproductive Health module"**

Consent/Assent forms and data collection forms details:

- Informed consent form version 1 (15 July 2011)
- Assent form (10-18 years) version 1 (15 July 2011)
- Confert Male form (17/07/2011)
- Confert Female form (17/07/2011)

REVIEW COMMENTS:

1. Informed consent form;
   Revise the informed consent form to include a box for thumb print.
   Under risks and discomforts, correct ''fill'' to feel
2. Female questionnaire; 1.10. correct ''PARNER'' to PARTNER

Following your successful submission of informed consent and assent forms together with data collection tools for KHDSS Sexual and Reproductive Health module, the committee is happy to inform you that having gone through thorough review of documents, the committee find no obvious ethical breaches with the consent/assent forms and data collection tools. Approval is therefore granted for their usage in the study.

The committee however wish to remind PI(s) to furnish the secretariat with;

1. **Any amendments or changes to the current approved documents before the committee.**
2. **A copy of consent/assent form for an Ethics authentication stamp for photocopies to be produced thereof.**

We commend you for complying with our SOPs and that of GCP-ICH.

Please accept our congratulations and best wishes.

Yours Faithfully,

THE CHAIRMAN, KINTAMPO
HEALTH RESEARCH CENTRE
INSTITUTIONAL ETHICS
COMMITTEE

Dr. Sam Newton
(Vice Chair-KHRC-IEC)

KHRCIEC: protecting research subjects through ethics!