UNIVERSITY OF CAPE COAST

UNMET NEED FOR FAMILY PLANNING AMONG YOUNG WOMEN IN GHANA

ALFRED BLAY

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BY

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: ..... Date: .....

Name: Alfred Blay

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature: ..... Date: .....

Name: Dr. Samuel Agblorti

Co-Supervisor's Signature: ..... Date: .....

Name: Dr. Kobina Esia-Donkoh

ABSTRACT

Meeting the unmet need for family planning is on the agenda of the international community as well as national governments because of its importance in reducing the incidences of unwanted pregnancy, unsafe abortion and associated maternal mortality. The study was a descriptive cross-sectional survey aimed at investigating the determinants of unmet need for family planning among young women (15-24 years) in Ghana. Utilising secondary data from the 2014 Ghana Demographic and Health Survey (GDHS), both bivariate and multivariate analyses were done to examine the associations between demographic and socioeconomic characteristics and unmet need for family planning among young women (15-24 years). The results show that parity increased the likelihood of unmet need for family planning among young women. Similarly, young women who desire either more or fewer children than their husbands/partners have higher likelihood of having unmet need. On the other hand, the likelihood of unmet need for family planning decreased with age and living in rural areas. The major reasons for young women's non-use of family planning were the fear of side effects of family planning methods, infrequent engagement in sexual activity, postpartum amenorrhea and breastfeeding. The study recommended that Ghana Health Service should intensify education on the possible side effects of family planning methods to enable young women make informed choices. Also, it is recommended that Ghana Health Service and Civil Society Organisations must embark on advocacy to inform and empower husbands/partners to accept family planning.

KEYWORDS

Unmet need

Family planning

Young women

Family planning non-use

Ghana

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DEDICATION

To my mother, Ablavi Edekor

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LIST OF ABBREVIATIONS

CHPS	Community-based Health Planning and Services
CPR	Contraceptive Prevalence Rate
CPS	Contraceptive Prevalence Surveys
CSM	Contraceptive Social Marketing
DANIDA	Danish International Development Agency
FPHP	Family Planning and Health Programme
GAC	Ghana AIDS Commission
GDHS	Ghana Demographic and Health Survey
GFPCIP	Ghana Family Planning Costed Implementation Plan
GHS	Ghana Health Service
GSGDA	Ghana Shared Growth and Development Agenda
GSS	Ghana Statistical Service
HBM	Health Belief Model
ICPD	International Conference on Population and Development
ILO	International Labour Organization
IUD	Intrauterine Device
MCH	Maternal and Child Health
MDGs	Millennium Development Goals
MSIG	Marie Stopes International Ghana
NPHRL	National Public Health Reference Laboratory
PPAG	Planned Parenthood Association of Ghana
SDGs	Sustainable Development Goals
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund

UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WFS	World Fertility Surveys

CHAPTER ONE

INTRODUCTION

Background to the Study

It took the whole of human history up to the year 1804 for the world's population to reach one billion. The second billion came in 1927 (123 years later), but it took only 33 years to reach three billion in 1960. Thereafter, the global population reached four billion in 1974, five billion in 1987, six billion in 1999 (Population Reference Bureau, 2014). Currently, it is estimated that about 7.5 billion people live on the face of the earth (Population Reference Bureau, 2017); with young people (10-24 years) making about a quarter of the world's over seven billion population (UNFPA, 2015). The 2017 World Population Data Sheet reported that there are 1.2 billion youth (age 15-24) in the world which represents 16 percent of the total population of the world (Population Reference Bureau, 2017).

The fast rate at which the world's population is adding to itself (about 1.3% per annum) has consequences including overpopulation in some countries, increase in the price of food and energy, high youth unemployment rate, leading to sluggish economic growth and pervasive poverty, as well as poor health for women and children (Bongaarts, Cleland, Townsend, Bertrand, & Gupta, 2012).

Family planning has provided an important option in stemming the negative consequences of high population growth. It is key to slowing unsustainable population growth and the resulting negative impacts on the economy, environment, and national and regional development efforts. Family planning has proved not only necessary, but highly beneficial to many societies.

In the words of Bongaarts et al. (2012, p. v) "family planning improves health, reduces poverty, and empowers women."

In fact, the health and economic benefits of family planning are immense and may be immediate or long term. Immediate benefits 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, Sedgh & Hussain, 2010). The long-term benefits include improved child survival and the empowerment of women. Family planning can prevent closely spaced and ill-timed pregnancies and births, which contribute to infant mortality. It also represents an opportunity for women to pursue additional education and participate in public life, including paid employment in non-family organisations. This is helpful to ensuring the autonomy of women and support the health and development of communities.

Unintended pregnancies occur in a large majority of women who want to avoid pregnancy but are not using an effective family planning method. When pregnancies are unintended, antenatal attendances are poor (Dehlendorf, Rodriguez, Levy, Borrero, & Steinauer, 2010). This can pose health risks to the mother of the unborn baby and the infant when born. Also, abortion is often a major consequence of such unintended pregnancies (Amo-Adjei & Darteh, 2017). In many developing countries where abortions are illegal, terminations are often carried out under unsafe conditions which could lead to the death of these women or result in serious injuries to their reproductive system. Worldwide, an estimated 68,000 girls and women die yearly as a result of induced abortions. This represents about 13 percent of all pregnancy-related deaths (Cleland, Ndugwa & Zulu, 2011). In developing countries, 66 percent of

women with unintended pregnancies do not use contraceptives; 14 percent of women who do not intend to get pregnant use traditional methods, and only 20 percent use the modern methods (Sedgh, Hussain, Bankole & Singh, 2007).

The increasing diffusion of family planning particularly in the mid-20th century made it imperious to embrace new thoughts that tried to quantify contraceptive use especially in developing countries for policy and programmatic purposes (Casterline & Sinding, 2010). One of such ideas was that which aimed at assessing the gap between knowledge and practice of family planning. Available evidence indicates that, sometimes, people's reproductive behaviours are not in tandem with their fertility intentions. There exists a gap between a woman's fertility preferences and her sexual behaviours; hence, the concept unmet need (Klijzing, 2000; Bradley, Croft, Fishel & Westoff, 2012).

Unmet need was described by early scholars as the percentage of currently married women who want no more children but are not using contraception out of all currently married women (Westoff, 1978; Westoff & Pebley, 1981). The concept was expanded to include women who wanted no more children, women who wanted to delay a pregnancy, or who were not sure if or when they wanted to become pregnant. These women were considered to have unmet need for spacing while women who wanted to end childbearing had unmet need for limiting (Nortman, 1982). Thus, the original definition focusing on unmet need for limiting was later broadened to include women's unmet need for spacing births. This expansion in the definition was in the right direction because, clearly, unmet need does not only exist for limiting births but also for spacing births.

Dixon-Mueller and Germain (1992) critiqued the concept as being too restrictive – that it should also encompass the need for abortion and for better methods of contraception; it should include men as well as women, and that it should measure the needs of unmarried as well as married women. They further broadened the concept, stressing that needs also exist among the unmarried, who use unsafe, ineffective or unsuitable family planning methods.

Pritchett also questioned the potential demographic importance of the phenomenon, positing that "the concept of unmet need is neither a viable nor a useful concept." He continued that "the concept is flawed in five ways: analytically, empirically, as a guide to public policy, as a predictor of demographic impact, and even as a guide to family planning policy" (Pritchett, 1996, p. 1).

Recently, the Ghana Statistical Service (GSS), Ghana Health Service (GHS) and ICF International (2015), provided a very elaborate definition of unmet need as follows;

> Currently married or sexually active fecund women who want to postpone their next birth for two or more years or who want to stop childbearing altogether but are not using a contraceptive method are considered to have an unmet need for family planning. Pregnant women are considered to have an unmet need for spacing or limiting if their pregnancy was mistimed or unwanted. Similarly, amenorrhoeic women who are not using family planning and whose last birth was mistimed are considered to have an unmet need for spacing, and those whose last child was unwanted have an unmet need for limiting (p. 91).

This definition is serving as the guide for this study because it has clearly provided a timeline by which a woman can be said to have unmet need for spacing. According to Nortman (1982), as indicated earlier, unmet need for family planning exists for both limiting and spacing (when women want to delay pregnancy, or are not sure if or when to become pregnant). Nortman, did not specify when to categorise a woman's unmet need as need for spacing. This specification was clearly stated by the definition by GSS et al (that is, two years or more). In addition, the definition explained when to categorise a pregnant or amenorrhoeic woman as having unmet need, either for spacing or limiting, based on a retrospective "wantedness" of their pregnancy or last child.

Unmet need for family planning represents a topical issue in fertility and population studies because of its persistence despite a global advancement in adoption of family planning (Bhattathiry & Ethirajan, 2014). Governments of countries and the international community as a whole have demonstrated commitment to promoting family planning and reducing the proportions of women who have their needs for family planning not met. Among other things, this commitment was shown at the 1994 International Conference on Population and Development (ICPD) in Cairo (UNFPA, 2004), the 2012 London Summit on Family Planning and the inclusion of family planning in the Millennium Development Goals (MDGs) (United Nations, 2003) as well as the Sustainable Development Goals (SDGs) (United Nations, 2015).

At the 1994 ICPD, reducing unmet need for family planning became the pivotal justification for investment in family planning. The ICPD created a shift in the global approach of sexual and reproductive health from one concerned with population growth to one committed to reproductive rights and justice,

acknowledging voluntary family planning as a fundamental human right. It placed women's empowerment at the center stage of the development goals for the new millennium and constituted a platform to help women and men have greater access to affordable modern contraceptive methods (Cates & Maggwa, 2014).

The 2012 London Summit on Family Planning strengthened the interest and commitment to family planning (with some attention devoted to unmet need) with a goal of providing modern contraceptive methods to 120 million or more women with unmet need for family planning in 69 poorest countries by 2020. The summit, which became known as the "Family Planning 2020" initiative (Alkema, Kantorova, Menozzi, & Biddlecom, 2013), called on all stakeholders to work together on various areas, including increasing the demand and support for family planning; improving supply chains, systems, and service delivery models; procuring the additional commodities countries need to reach their goals; fostering innovative approaches to family planning challenges; and promoting accountability through improved monitoring and evaluation.

Commitment to reducing unmet need was reiterated when family planning was included in the MDGs. MDG 5 is, directly related to unmet need for family planning. Particularly, the MDG 5 focused on two targets to improve maternal health. The first was a three-quarters decrease in the maternal mortality ratio between 1990 and 2015. The second objective of the goal was the realization of worldwide access to reproductive health by 2015. Progress toward this target was evaluated through four determinants being the contraceptive prevalence rate; the proportion of the demand for family planning that is unmet;

the adolescent birth rate; and the proportion of pregnant women receiving antenatal care (Gaffey, Das, & Bhutta, 2015).

International commitment to family planning was further heightened when family planning was included in the SDGs. Specifically, family planning was captured in the SDG 3 target 7 which aims at ensuring universal access to sexual and reproductive health care services, including family planning by 2030 (United Nations, 2015). The indicator for measuring this goal is the proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods.

Ghana has also demonstrated commitment to meeting the unmet need by prioritising family planning. In the words of Amo-Adjei and Darteh (2017, p. 2), "family planning has been one of the important priorities on Ghana's developmental agenda." The country's commitment to promoting family planning is among the reasons that explains the revision of the 1969 Population Policy in 1994. Fertility decline is one of the main aims of Ghana's National Population Policy of 1994. In fact, the policy recognizes the importance of a wide understanding of the deleterious effects of increasing population growth and the means by which couples can safely and effectively control their fertility (National Population Council, 1994).

More recently, family planning was included in the Ghana Shared Growth and Development Agenda (GSGDA) II: 2014-2017. The GSGDA II had an objective to reposition family planning as a priority in national development efforts (National Development Planning Commission, 2015). Several strategies have been outlined in the agenda toward realising this objective including the following: "integrate family planning into policy

formulation, planning programming, monitoring and evaluation; expand coverage, availability and accessibility of reproductive health and family planning services particularly to adolescents and youth; create awareness on the importance of investing in family planning; and strengthen capacities for research, monitoring and evaluation" (NDPC, 2015, p. 41-42).

Despite the international importance attached to reducing unmet need for family planning, there is still substantial proportions of women all over the world having unmet need for family planning (both for spacing and limiting) (MacQuarrie, 2014). Sub-Saharan Africa is particularly characterised by high levels of fertility and considerable unmet need for family planning (Oginni, Ahonsi & Adebajo, 2015). In a comparative study by MacQuarrie (2014), unmet need for family planning among married women aged 15-24 years is high particularly in West and Central Africa where there is an unmet need of nearly 30 percent (29.3%) for both regions. However, unmet need is much lower in Eastern Europe, Central Asia, the Middle East and North Africa, where levels are generally below 20 percent (MacQuarrie, 2014).

Notwithstanding Ghana's efforts at promoting family planning, there still remains an appreciable proportion of women who have unmet need for family planning. Available data suggests that unmet need level in Ghana among women aged 15-49 years is currently at 30 percent. The current rate is a decline from 36 percent in 2008 (after an initial rise from 35% reported in 2003) (GSS et al, 2015).

Various demographic and socioeconomic factors (such as, age, age at marriage, marital status, parity, place of residence, level of education, religion, ethnicity and household wealth status) contribute to unmet need for family

planning (Adjei, Sarfo & Asiedu, 2014; Austin, 2015; Oginni, et al., 2015; Omedi & Nyauchi, 2015). Other signicant determinants of unmet need are knowledge of family planning methods, being visited by a family planning worker and recent exposure to family planning messages (Vohra, Vohra, Sharma, Rathore, Sharma, & Sharma, 2014; Oginni, et al., 2015).

Problem Statement

Unmet need for family planning is higher among young people (Korra, 2002; Vohra, et al., 2014; Darteh, Doku & Esia-Donkoh, 2014). According to Vohra et al. (2014), while only 13.7 percent of women above 40 years of age have unmet need, more than two-thirds (71%) of those between ages 18-30 years have their need for family planning not met. Darteh, et al. (2014), in a study on reproductive health decision making among young women in Ghana found that women between the ages 15-24 years were less likely to make decision concerning condom use.

Evidence from the 2014 Ghana Demographic and Health Survey (GDHS) supports the fact that unmet need is higher among young people. According to the 2014 GDHS report, about 45 percent of young people (aged 15-24 years) and more than half (50.7%) of teenagers in Ghana have an unmet need for family planning (GSS et al, 2015). Among women in the other age groups, the highest (35.3%) unmet need was recorded among those aged 35-39 years. This was followed by women in the 25-29 age category (30.8%). The other cohorts of women have unmet need levels less than 30 percent (the national average). The unmet need is 29.5 percent and 28.5 percent among

women aged 30-34 years and 40-44 years respectively and as low as 14.2 percent among women aged 45-49 years (GSS et al, 2015).

Unmet need for family planning is associated with unintended pregnancies which have been established to increase the risk of morbidity, mortality and unsafe abortions (Haque, 2010; Amo-Adjei & Darteh, 2017). There is therefore the need to prioritise addressing young women's reproductive health needs, including conducting research which is particularly focused on young women, since unmet need for family planning is high among them.

Nevertheless, studies that have been conducted in developing countries (Bhandari, Premarajan, Jha, Yadav, Paudel & Nagesh, 2006; Sedgh et al, 2007; Hameed, Azmat, Bilgrami & Ishaqe, 2011; Ban, Karki, Shrestha & Hodgins, 2012; Vohra, et al 2014), in sub-Saharan Africa (Hailemariam & Haddis, 2011; Ali & Okud, 2013; Kisaakye, 2013; Oginni, Ahonsi & Adebajo, 2015; Austin, 2015; Kandala, Lukumu, Mantempa, Kandala & Chirwa, 2015) and in Ghana (Adjei, Sarfo, Asiedu, & Sarfo, 2014; Laryea, Amoako, Spangenberg, Frimpong & Kyei-Ansong, 2014; Staveteig, 2016; Amo-Adjei & Darteh, 2017) mainly focused on the unmet need for family planning among all women. These studies, among other things, found that, age, age at marriage, marital status, number of living children, place of residence, level of education, religion, ethnicity, household wealth status, women's autonomy, knowledge of family planning, being visited by a family planning worker and recent exposure to family planning messages are significant determinants of unmet need.

There have not been much studies on unmet need for family planning with particular emphasis on young women (among whom unmet need is most prevalent) in Ghana or sub-Saharan Africa. The few studies which targeted

young women (Gebreselassie & Govindasamy, 2013; MacQuarrie, 2014; Omedi, & Nyauchi, 2015) compared the levels and trends of the phenomenon among countries and the major world regions.

Gebreselassie and Govindasamy (2013) for instance examined the levels and trends of unmet need for family planning among adolescents and young women in Ethiopia. In their study, the authors also compared levels and trends of unmet need for adolescent and young women with those for women age 25-49 years. MacQuarrie (2014) similarly compared levels and trends of unmet need in 61 countries among married and unmarried women. These studies were not particularly devoted to investigating the factors that influence unmet need for family planning among young women.

Therefore, this study aims at assessing the determinants of unmet need for family planning among young women (15-24 years) in Ghana. The study therefore investigates how demographic and socio-economic factors influence unmet need for family planning among young women. Additionally, the study explores the reasons for non-use of family planning among young women with unmet need. That is, the study also aims at finding out the reasons young people cite for their non-use of family planning (which may be fertility related reasons, method related reasons, opposition or lack of knowledge).

Objectives of the Study

The main objective of the study is to investigate the determinants of unmet need for family planning among young women (15-24 years) in Ghana.

Specifically, the study seeks to:

1. Examine the association of socio-demographic factors with unmet need for family planning among young women;

2. Examine the association of knowledge of family planning with unmet need among young women; and
3. Explore the reasons for unmet need for family planning among young women.

Hypotheses of the Study

1. H_0: There is no statistically significant association between demographic characteristics (age, parity, desire for children) and unmet need for family planning.
2. H_0: There is no statistically significant association between socio-economic characteristics (residence, education, religion, wealth status, occupation status) and unmet need for family planning.
3. H_0: There is no statistically significant association between knowledge about family planning and unmet need.

Significance of the study

Meeting the family planning needs of women globally is not simply a health goal. It is essential to the development of economies and safeguarding the rights of every human (Phumaphi, 2011). This study therefore contributes to knowledge. The study is of much importance to Ghana because it builds on the existing literature to contribute to a better understanding of the main determinants of unmet need for family planning among young women.

It also provides a base for the development of effective family health programmes by policymakers that will help reduce the risk of having mistimed or unwanted births, induced abortion, or maternal deaths. It will also advise

policymakers on where resources can be focused on in existing programmes to increase their effectiveness. This is because 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.

Organisation of the Study

The study is organised into five chapters. Chapter One captures information on the background to the study and statement of the problem. The objectives and hypotheses of the study are also outlined in this chapter as well as the significance of the study. Chapter Two is a discussion and review of literature on unmet need for family planning and other relevantly related issues. The chapter also includes a discussion of both theoretical and conceptual frameworks that guide the conduct of this study.

The third chapter focuses on the methods of the study. The issues covered are the study area, research philosophy, research design, source of data, acquisition of data, target population, sampling procedure, description and definition of variables, data analysis and the limitations of the study.

Presentation of the results is covered in Chapter Four. In this chapter, the associations between unmet need for family planning and demographic and socio-economic characteristics are assessed. Chapter four also includes a discussion of the findings of the study. The last chapter (Chapter Five) is devoted to the summary of the main findings, conclusions, recommendations and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter focuses on the review of conceptual, theoretical and therefore literature which are related to this study – unmet need for family planning. The review is based on the following themes: conceptual issues, theoretical perspectives and empirical issues, knowledge about family planning among young women, reasons for non-use of family planning, and factors that influence unmet need for family planning. The conceptual framework which underpins this study is also discussed in this chapter.

Conceptual Issues

The concept of unmet need for family planning has been under continuous revision and development since the 1960s when researchers first observed that surveys of contraceptive knowledge, attitudes and practices (KAP) showed a gap between some women's reproductive intentions and their contraceptive behaviour (Bogue, 1974; Bongaarts 1991; Robey, Ross & Bhushan, 1996). The term "unmet need" was coined therefore in the late 1970s to describe the seemingly discrepant behaviour of women who want to avoid pregnancy but are not using contraception.

Early measurement of unmet need employed a basic definition based on data available at the time. At first, unmet need was defined as the percentage of currently married women who want no more children but are not using contraception (the numerator), out of all currently married women (the denominator). For instance, in 1978, using data from the World Fertility

Surveys (WFS), Westoff published the first comparative estimates of unmet need for family planning to limit births (Westoff, 1978). However, in 1981, Westoff and Pebley, using WFS data from 18 countries, showed that different definitions of unmet need produced widely differing estimates. They therefore recommended that the unmet need concept be extended to cover desire to space births, as soon as the data could be collected (Westoff & Pebley, 1981).

Subsequently, Nortman (1982) introduced an expanded calculation of unmet need based on data from the Contraceptive Prevalence Surveys (CPS), which included data on women's preferences for spacing, as well as for limiting births. In addition to women who did not want to have any more children, women who wanted to delay a pregnancy, or who were unsure if or when they wanted to become pregnant were added to the definition of unmet need. These women were considered to have "unmet need for spacing births," while women who did not want more children were considered to have "unmet need for limiting births" (Nortman, 1982).

Attempts to identify women who were not at risk of becoming pregnant and exclude them from the calculation of unmet need brought about a new level of complexity. A primary reason for this exclusion was the goal of estimating the effect on fertility levels if all unmet need were met. To do so, analysts needed to exclude women for whom contraceptive use would have no demographic impact, that is, women who could not give birth, or were infecund. Determining women's infecundity (i.e., biological incapability to produce a child) based on survey data proved to be complicated. In 1988, Westoff published revised estimates of unmet need that considered women to be infecund either if they had no birth in the last five years despite having been

married for longer than five years and never having used contraception, or if they had not menstruated in the last six weeks but were not pregnant or amenorrheic (Westoff, 1988). The cut-off date for last menstruation used in determining infecundity was later expanded to the last 12 weeks (Westoff & Ochoa, 1991), and later 24 weeks (Westoff & Bankole, 1996). The definition of infecundity was later revised to include women who reported that they were menopausal or who, when asked if they wanted a/another child, said they could not get pregnant (Westoff & Bankole, 1995).

Pregnant and postpartum amenorrheic women have been treated differently in different definitions of unmet need. Initial estimates treated these women as having no need for family planning because they are currently not at risk of becoming pregnant (Westoff, 1978). This approach was criticized because these women may soon be in need of family planning, even if they were not at risk of pregnancy at the time of the survey. Nortman (1982) recommended treating women who were pregnant or breastfeeding (used as a proxy for postpartum insusceptibility) as potentially having an unmet need because they would return to being at risk of pregnancy within a year if they did not use contraception.

Westoff and Ochoa (1991) had argued that many pregnant and postpartum amenorrheic women might be in that state at the time of survey because they were not using any family planning method but did not want to become pregnant – that is, they had a prior need for family planning that was not met. They suggested that women who are pregnant or postpartum amenorrheic be assigned an unmet need status based on the retrospective 'wantedness' of their current pregnancy or last birth. That is, if a woman

reported that she had wanted to become pregnant when she did, then she had no need for family planning; if she had wanted to become pregnant later, then she had an unmet need for spacing births; if she had not wanted to become pregnant at all, then she had an unmet need for limiting births.

Despite criticisms about using retrospective fertility intentions as a measure of unmet need status for pregnant and postpartum amenorrheic women (example, Ross & Winfrey, 2001), this approach has been used by the Demographic and Health Survey since approximately 1990 (Bradley, Croft, Fishel, & Westoff, 2012).

Currently, the algorithm, shown in Figure 1 below, is used to compute unmet need for family planning.

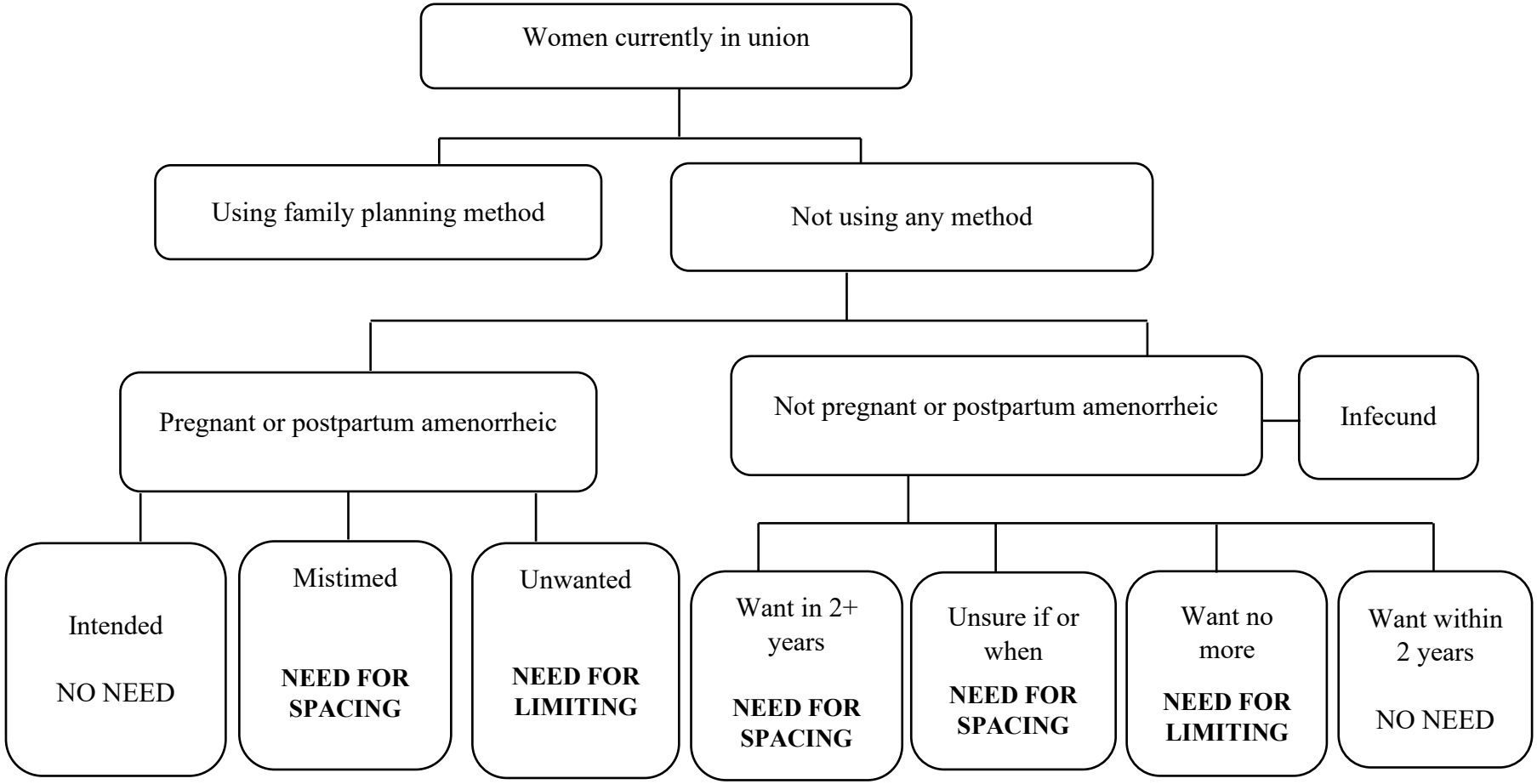

Figure 1: Concept of Unmet Need

Source: Bradley, Croft, Fishel & Westoff (2012)

As shown in Figure 1, all women in union (married or cohabiting) are categorised into two based on their family planning usage or non-usage. The women who are not using family planning are further categorised into pregnant or postpartum amenorrheic and not pregnant or postpartum amenorrheic. Based on a retrospective "wantedness" of their pregnancy or last birth, pregnant or amenorrheic women are considered to have no need for family planning (if their pregnancy or last birth was intended), need for spacing (if mistimed) and need for limiting (if unwanted). With the women who are not pregnant or postpartum amenorrheic, their fertility intentions are used to determine their unmet need status, which does not include those who are infecund. The women who want pregnancy within two years are said to have no need for family planning whereas those who want no more children have need for limiting. The others who want pregnancy after two years and those who are unsure if or when they want pregnancy are considered to have unmet need for spacing.

Theoretical Perspectives and Empirical Issues

Theoretical perspectives are used in health sciences research to predict and explain health behaviour and to provide foundations for interventions toward improved health outcomes (Becker, Haefner, Kasl, Kirscht, Maiman & Rosenstock, 1977). Several theories have been employed to study family planning in general and unmet need for family planning specifically. These include the Health Belief Model (HBM), Social Learning Theory, Social Ecological Model and Healthcare Services Utilisation Model. The HBM and Healthcare Services Utilisation Model are discussed in this section.

Health Belief Model

The Health Belief Model (HBM), a well-tested, comprehensive social cognitive framework (Rosenstock, 1974) is one of the first models used to predict and explain variations in contraceptive behaviour among women in the 1970s and 1980s (Nathanson & Becker, 1983; Hester & Macrina, 1985; Eisen, Zellman & McAlister, 1985). It is a cognitive, interpersonal framework that views humans as rational beings who use a multidimensional approach to decision-making (Rosenstock, 1974). The model is appropriate for complex preventive and sick-role health behaviours such as contraceptive use (Nathanson & Becker, 1983). Its dimensions are derived from an established body of social psychology theory that relies heavily on cognitive factors oriented towards goal attainment (that is, motivation to prevent pregnancy) (Rosenstock, 1974; Katatsky, 1977; Nathanson & Becker, 1983). The constructs of the model are perceived threat, perceived barriers, perceived benefits, cues to action and modifying factors (Figure 2).

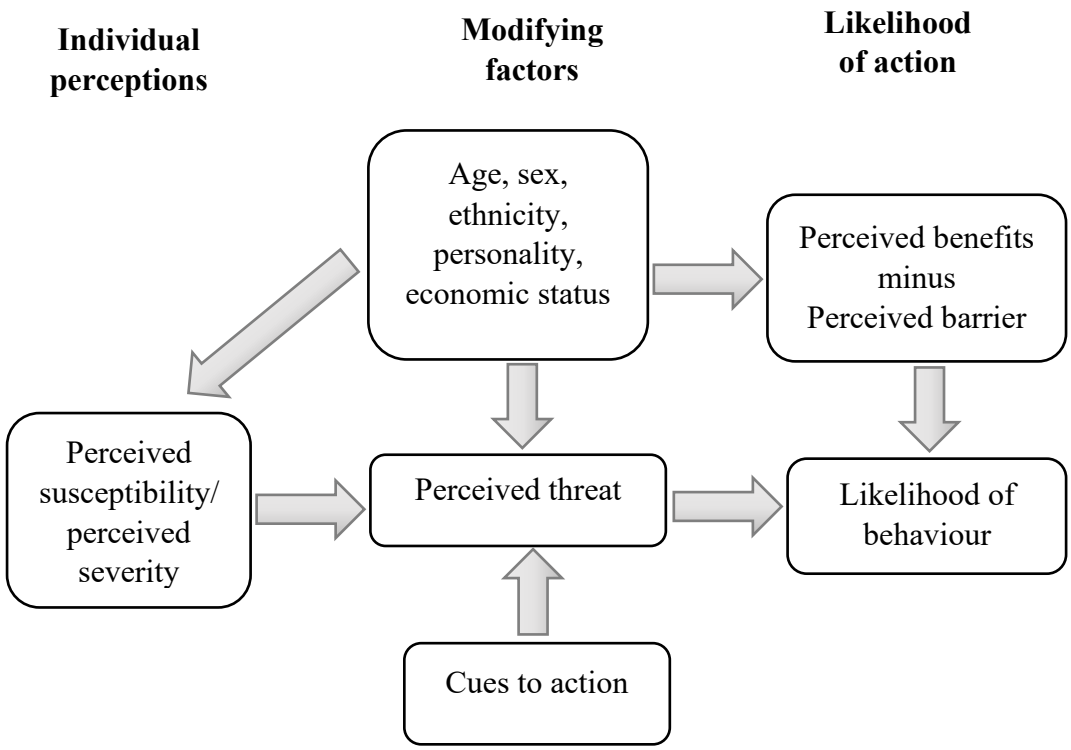

Figure 2: Health Belief Model
Source: Stretcher & Rosenstock (1997)

The perceived threat (susceptibility and seriousness) of an unwanted pregnancy and its sequelae (that is, birth, abortion, parenthood) provides the incentive to use family planning. This construct considers personal feelings of the seriousness of becoming pregnant, based upon subjective assessment of medical and social consequences of pregnancy and childbearing. This construct may include factors such as fear of body changes or pregnancy complications, worry of quitting school, or losing a job due to increased childrearing responsibility, which can impact the likelihood of family planning usage. For example, in a study by Frost and Lindberg (2013), more than half of women who were using family planning said they were doing so to prevent pregnancy because having a baby will interrupt their goals. Others indicated that having a baby will change their lives in ways they were not ready for.

The perceived barriers are negative consequences of using family planning. This dimension includes factors such as perceived side effects of hormonal contraception (that is, weight gain or mood swings), physiological risks (blood clots), inconvenience (having to remember to take a daily pill or apply a condom during intercourse), and limited access to methods. For example, about half of Indian women and 19 percent of their Batswana counterparts who were not using family planning cited fear of side effects and inconvenience respectively (Letamo & Navaneetham, 2015; Begum, et al., 2017). Other studies (Igwegbe, Ugboaja & Monago, 2009; Ajong et al., 2015; Workie, Zike, Fenta & Mekonnen, 2017) confirmed that the fear of side effects of family planning methods is the main reason for family planning non-usage.

The perceived benefits relate to the perceived effectiveness, feasibility and other advantages of using a family planning method to prevent pregnancy in relation to the perceived barriers. Through a cost-benefit analysis, the perceived ratio of the benefits of a family planning method to its barriers helps determine the preferred and specific contraceptive action and choice of method. For instance, in a study of 154 nulliparous women presenting for an IUD, it was found that despite the discomfort, inconvenience, and up-front costs of insertion procedures noted by the women, they chose to use an IUD because of its high contraceptive efficacy, long-term convenience and low hormonal risks (Wiebe, Trouton & Dicus, 2010).

The cues to action in the HBM are internal and external stimuli that trigger a consciousness of the perceived pregnancy threat and facilitate consideration of using family planning to remedy the threat. This may include symptoms like missed menses after intercourse (internal stimuli) or

communication about family planning from the media, and worry from a sexual partner or counselling by a health care provider (external stimuli). For example, a 2010 study by Ndugwa, Cleland, Madise, Fosto and Zulu among post-partum women in Nairobi found that timing of menstrual resumption was significantly associated with the initiation of family planning. Women who resumed menses in the immediate post-partum period adopted a family planning method, on average, within one month (Ndugwa, et al., 2010).

The modifying or enabling factors interact with an individual's perceptions of pregnancy and decision-making to influence family planning usage. This dimension includes a broad range of well researched demographic, social, structural, psychological and reproductive factors predictive of family planning behaviour (Ndugwa, et al., 2010; Wiebe, et al., 2010). For example, younger women who live in rural areas and are uneducated were found to be less likely to use family planning than their older counterparts who reside in urban areas and are educated (Hameed, et al., 2011; Machiyama & Cleland, 2013; Kandala, et al., 2015; Solanke, 2016). Religious affiliation, occupation and wealth status are also significant modifying factors found to have influence on family planning usage (Hameed, et al., 2011; Hailemariam & Haddis, 2011; Kisaakye, 2013; Letamo & Navaneetham, 2015; Omedi & Nyauchi, 2015; Tesfay et al., 2015; Solanke, 2016; Wilopo, et al., 2017).

Even though the HBM was considered as helpful to explain compliance to family planning, others believe that the model is not appropriate to be applied to family planning studies. Fisher (1977), for example, argues that the HBM was designed to predict and explain "sick role" behaviours (to remedy a disease) rather than preventive health behaviours (to prevent a condition). Fisher

believes this orientation limited the model's applicability in family planning since pregnancy is not a disease that one always wishes to avoid. He pointed to several examples of the difficulty in interpreting the HBM constructs to understand family planning behaviour because of this inherent conceptual problem. For instance, interpreting affirmative responses to questions on pregnancy intentions (that is, "I think it is very likely that I will become pregnant in the next year"), if guided by the model, might be misunderstood as an indication of susceptibility to pregnancy. He argued along similar lines for problems associated with interpreting the perceived severity and benefits/barriers constructs.

However, a health condition does not have to be an undesirable condition to always be avoided in order for the HBM to have predictive and explanatory value (Herold, 1983; Nathanson & Becker, 1983; Hester & Macrina, 1985; Eisen, et al., 1985). These researchers argued that the model is appropriate for family planning despite, and even because, family planning is unique as a health behavior. All in all, even though the limitations of past HBM applications to contraceptive behaviour are noteworthy, the model offers a robust theory to direct family planning science and practice (Hall, 2012).

Healthcare Services Utilisation Model

The Healthcare Services Utilisation Model is a behavioural model developed by Anderson to explain the conditions that either promote or hinder the utilisation of health care services (Andersen & Newman, 1973). The model was originally developed in the 1960s to explain health service use among families and has since undergone multiple revisions, changing the unit of

analysis from families to individuals, and expanding the model to include both individual-level and broader contextual factors in the external environment and health care system (Andersen & Newman, 1973; Andersen, 1995).

The model conceptualizes the major components of health service use as those that predispose, enable, or suggest need for individual use of health services. Thus, according to the model, there are three main conditions or factors that influence an individual to or not to use a healthcare service which are predisposing factors, enabling factors and need for care factors.

Predisposing factors refer to the demographic, social structure and health belief characteristics. The demographic characteristics of the individual that affect his or her decision to use or not use a healthcare service include sex, age and marital status. Social structure consists of education, ethnicity and occupation and health belief factors consist of values, attitudes of health care service providers, and knowledge about health. Enabling factors are the resources or means that is available to an individual to seek health care services. Enabling factors are measured at the household level, thus, the availability of income and the community level, thus, the availability and location of health care facilities in the community.

Need for care factors refer to how an individual perceives his own general health and functional condition, as well as their familiarity with the signs and symptoms of ill health, agony and concerns about their health (Andersen, 1995). The need for care factors are influenced by the predisposing factors and the enabling factors of an individual. Need represents both perceived and actual need for healthcare services. Perceived need is simply, how people view their own general health and functional state, as well as how they

experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help. Evaluated/actual need, on the other hand, represents professional judgment about people's health status and their need for medical care (Andersen, 1995). Perceived need, will better help to understand care-seeking and adherence to a medical regimen, while evaluated need will be more closely related to the kind and amount of treatment that will be provided after a patient has presented to a medical care provider (Andersen, 1995).

Reasons for Non-use of Family Planning among Young Women

Women with unmet need have several reasons for not using family planning according to reports in past studies. The reasons for non-use can be organised into four categories: (1) fertility-related reasons, (2) method-related reasons, (3) opposition to use and (4) lack of knowledge (GSS, GHS & ICF International, 2015).

Fertility-related reasons

Fertility-related reasons, which are not easily addressed by family planning programmes, refer to non-use due to not having sex or having infrequent sex, being menopausal or having had a hysterectomy, being subfecund or infecund, being postpartum amenorrhoeic or breastfeeding, and wanting more children. Particularly in high contraceptive use settings, perceived infecundity and sub-fecundity is a major reason for non-use of family planning (Ban, Karki, Shrestha & Hodgins, 2012). Temporary low risk of pregnancy because of lactational amenorrhea and low coital frequency are also

important (Sedgh & Hussain, 2014). Low level of or sporadic engagement in sexual activities may lead to perceived low risk of pregnancy and hence to inconsistent use of family planning (Ban, et al., 2012; Bhattathiry & Ethirajan, 2014; Khan, Kerry, Quamrun & Sultana, 2016).

This is in tandem with what the Health Belief Model (HBM) explains. According to the HBM, when people perceive themselves to be at risk of a condition they do not desire, they are more likely to adopt a positive behaviour to prevent it from happening but when they do not perceive themselves as susceptible, they are not likely do adopt any positive behaviour to prevent it from happening (Stretcher & Rosenstock, 1997). In this case, when young women have the perception that they are not at risk of pregnancy, irrespective of whether they desire pregnancy or not, they are not likely to use any family planning method. For instance, in a study by Bhattathiry and Ethirajan (2014), it was found that 18 percent of women who have an unmet need were not using family planning because they perceived themselves to have a low risk of becoming pregnant.

In Malaysia, 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 (Najafi, Rahman, & Juni, 2011). Ajong et al (2015) found that about a tenth of Cameroonian women who do not use family planning have low coital frequency. That is, they infrequently engage in sexual intercourse. A slightly higher proportion of women (12.3%) in a study by Sudha, Vrushabhendra, Srikanth and Suganya (2017) were also found not to be using family planning because of infrequent sex. The same study found that

lactational amenorrhea was another fertility-related reason for women's non-use of family planning (Sudha, et al, 2017). Infrequent or no sex, as well as lactational amenorrhea, were again found by Letamo and Navaneetham (2015) in a Batswana study as the fertility-related reasons that explain women's non-use of family planning. It is noteworthy however that, these reasons were cited by only a small proportion (less than 5%) of the women (Letamo & Navaneetham, 2015).

In Ghana, Machiyima and Cleland (2013) found that, about a quarter (23.9%) of women who had unmet need were not using family planning because of fertility-related reasons. Specifically, 16.6 percent cited infrequent sex whereas about 7 percent cited breastfeeding as the reasons for their non-use of family planning.

Method-related reasons

Method-related reasons for the non-use of family planning among women include; geographical and financial access to desired method, perceived effectiveness of the method in preventing pregnancy, perceived and actual side effects of use, and ease of use (Dixon-Mueller & Germain, 1992 as cited in Kabiru, Huda, Obare, Odwe, Casterline, Cleland, ... & Yeasmin, 2017). The most common method-related reason for non-use of family planning is fear of side effects. Many past studies have confirmed this. According to, Begum, Nair, Donta and Prakasam (2017) almost half (48.9%) of Indian women with unmet need cited fear of side effects as the reason for their non-use of family planning. Another study in the same country similarly found that, fear of side effects was the most mentioned reason for non-use of family planning. About two-fifths of

women with unmet need (39.5%, precisely), according to Sudha, et al (2017), actually cited this reason.

According to Letamo and Navaneetham (2015), health problems was the major reason that was cited by married women with unmet need for their non-use of family planning. About 19 percent of these women also said they were not using family planning because of inconvenience. Another method-related reason that was found by them was lack of access which was however, mentioned by only a small fraction (about 2%) of the women who were not using family planning (Letamo & Navaneetham, 2015). Igwegbe et al. (2009) also recorded from Nigeria that, about 30 percent (28.9%) of women gave method-related reasons, lack of side effects specifically, for their non-usage of family planning. More than a third (37.3%) of women in Cameroun and about 14 percent of Ethiopian women who do not use family planning cited fear of side effects as the reason (Ajong et al, 2015; Workie, et al., 2017).

In Ghana, method-related reasons explain why most women with unmet need do not use family planning. According to Krakowiak-Redd, Ansong, Otupiri, Tran, Klanderud, Boakye and Crookston (2011) fear of side effects was cited as the major reason for non-use of family planning. As reported by Machiyima and Cleland (2013), more than two fifths (42.7%) of Ghanaian women who have unmet need do not use family planning because of their fear of side effects of family planning methods.

Fear of side effects of family planning being a reason for non-use of family planning, aside the empirical evidences, also has a theoretical backing. According to the HBM, an individual's own evaluation of the obstacles on the way of him or her adopting a new behaviour, referred to by the model as

perceived barriers, determines whether (s)he will adopt that new behaviour. In the context of this study, when individuals perceive that there are some disadvantages or negative consequences of using family planning, they are likely not to adopt any family planning method. That explains why a number of researchers have actually found and documented that the fear of side effects of family planning methods is a major reason for the non-use of family planning among women.

Opposition to use

Opposition to using family planning could take many forms. It could be self-opposition, husband/partner opposition or religious prohibition. Husband/partner and religious leaders form part of the significant others who influence the behaviour of individuals. Drawing on the HBM, these significant others offer cues to individuals based on which decisions are made concerning behaviours that have undesirable health outcomes. The HBM refers to this as cues to action and explained it as events, people or things that move people to change their behaviour (Stretcher & Rosenstock, 1997). They provide both internal and external stimuli that trigger a consciousness to adopt a positive health behaviour. According to the HBM, they can also provide negative cues to action (for example, opposing or disapproving the use of family planning) which prevent individuals from adopting a positive behaviour.

In a facility-based research carried out in Nigeria, it was found that husband's disapproval and religious prohibition were the main constraints to the use of family planning (Igwegbe, Ugboaja, & Manago, 2009). According to Igwegbe, et al, more than a third (36.8%) of the respondents who had unmet

need mentioned opposition from husbands as the reason for their non-use of family planning. In the same study, 18.4 percent of women with unmet need cited religious prohibition as the reason for their non-use of family planning (Igwegbe, et al, 2009).

In Ethiopia, Workie, Zike, Fenta and Mekonnen (2017) found that religious prohibition was the most cited reason for non-use of family planning (14.5%). In their study, self-opposition also featured prominently as one of the reasons for the non-use of family planning. Workie et al reported that about a tenth (10.1%) of the women with unmet need were self-opposed to family planning. According to Ajong et al (2015), partner's disapproval (20%) and religious prohibition (13.3%) were among the key reasons for the non-use of family planning among women whose family planning needs were not met. This is confirmed by a more recent study in India which found that opposition from family members and religious prohibition were among the reasons for women's non-use of family planning (Sudha, et al., 2017).

Self-opposition was found to be one of the major reasons for the non-use of family planning among Ghanaian women, cited by about 14 percent of women who have unmet need (Machiyima & Cleland, 2013). Partner and others' opposition was also identified by them as a reason for family planning non-usage. In their study, Machiyima and Cleland found that religious prohibition was cited by only less than one percent (0.8% precisely) of the women as the reason for their non-use of family planning.

Lack of knowledge

In a cross-sectional study among women in Botswana, Letamo and Navaneetham (2015) found that about five percent of women having unmet need were not using family planning because of their lack of knowledge regarding family planning services. Sudha et al (2017) found that lack of knowledge was one of the major reasons for the non-use of family planning among women with unmet need. They reported that, lack of knowledge was the second most cited reason (mentioned by 14.8% of the respondents) after fear of side effects. Begum et al (2017) found results that corroborates the above findings, reporting that about a tenth (9.7%) of women who do not use any family planning method knows no method or source.

Aslo, Bhattathiry and Ethirajan (2014) documented that among women who have unmet need for family planning, five percent cited lack of knowledge for their non-use. In Rajasthan, similar to the findings of Bhattathiry and Ethirajan (2014) it was found that, lack of information explains the non-use of family planning among about five percent of the respondents (Vohra et al, 2014). There are however variations across place of residence such that while about seven percent of non-users of family planning from rural areas lacked knowledge, only 1.4 percent of their counterparts in urban areas were found to be lacking knowledge (Vohra et al, 2014). This is to be expected anyway, as women in urban areas are more exposed to information than their colleagues in rural settings. In Ghana, just as Bhattathiry and Ethirajan (2014) found, about five percent of women whose family planning needs are not met do not use family planning because of lack of knowledge (Machiyima & Cleland, 2013).

Determinants of Unmet Need for Family Planning among Young Women

Various factors come into play to influence a young woman to use family planning or otherwise. Mc Leroy's (1988) Ecological Theory of Health Behaviours which developed out of Urie Bronfenbrenner's Ecological Systems Theory (1979), recognised that different set of factors, at different levels, influence individual's engagement in or practice of a health behaviour. The Model categorized these factors which influence an individual to practise a health behaviour (including family planning usage) into five; intrapersonal (knowledge, attitude, beliefs), interpersonal (family, friends, peers), institutional (rules, regulations, informal structures), community (formal and informal social networks, norms and standards) and policy (laws that regulate or support healthy actions). These factors are independent (Spence & Lee, 2003). However, they interact across the levels to achieve positive changes in health behaviours (McLeroy, Bibeau, Steckler & Glanz, 1988; Eddy, Donahue, Webster, & Bjornstad, 2002).

The recognition/acknowledgement of the influence of different set of factors on behaviour is also evident in the Healthcare Services Utilisation Theory. The theory was developed to explain the conditions that either promote or hinder the utilisation of health care services (Andersen & Newman, 1973). The factors which influence individuals to adopt or utilise healthcare services (including family planning services) were grouped under three which are predisposing factors, enabling factors and need for care factors. Thus, the Healthcare Services Utilisation model conceptualizes the major components of health service use as those that predispose, enable/disable, or suggest need for individual use of health services (Andersen & Newman, 1973).

The point being highlighted is that no single factor is solely responsible or exhaustive enough to influence individuals to put up a certain behaviour or utilise a certain healthcare service. Rather, multiple set of factors operate together to influence people's engagement in or practice of a behaviour. Under this section, demographic and socio-economic factors that influence unmet need for family planning are discussed.

Demographic factors

Past studies have identified a number of demographic determinants of unmet need for family planning. These include age (Vohra et al., 2014; Solanke, 2016), parity (Ansary & Anisujjaman, 2012; Oginni, et al., 2015) and fertility preferences (Yotebieng, Norris, Chalachala, Matumona, Ramadhani & Behets, 2015).

Age

Findings on age as a determinant of unmet need for family planning among women are equivocal. While some studies (Ojakaa, 2008; Vohra et al, 2014; Solanke, 2016), found unmet need to be more prevalent among adolescents and young women, the converse was reported by other authors (Klijzing, 2000; Hameed, et al., 2011). According to Ojakaa (2008), about 30 percent of young Kenyan women between ages 15-24 years have their needs for family planning not met. In the same study, about 18 percent and 13 percent of women aged 40-44 and 45-49 years respectively have an unmet need for family planning. Similarly, Solanke (2016) found in Nigeria that, the likelihood of unmet need for family planning was greater among younger women which reduces significantly at older ages. For instance, women aged 40-44 years were

51.5 percent less likely (OR=0.485) and those aged 45-49 years were 74 percent less likely (OR=0.260) to have their family planning needs not met compared with younger women aged 15-19 years (Solanke, 2016).

Elsewhere in Rajasthan, Vohra et al. (2014) also found that unmet need for family planning is higher among younger women and reduces with age (71.02% among 18-30 year olds; 40.71% among 30-40 year olds; and 13.71% among women more than 40 years old). In Ethiopia, while about 40 percent of women aged 15-24 years have their needs for family planning unmet, the percentage is much lower among women of older ages (37.1% among 25-34 year olds and 35.8% among women aged 35 years and above) (Hailemariam & Haddis, 2011). However, according to the same study, Hailemariam and Haddis found that, whereas unmet need for spacing reduces as age increases, unmet need for limiting increases with age. They reported that unmet need for spacing was 34.9 percent among women aged 15-24 years, 26.3 percent among 25-34 year olds and 14.6 among women aged 35 years or older. On the other hand, unmet need for limiting was 5.8 percent, 10.9 percent and 21.2 percent respectively among women aged between 15-24 years, 25-34 years and 35 years and older.

Contrary to the findings of Ojakaa (2008) and Solanke (2016) that there is an inverse relationship between unmet need for family planning and age, Hameed et al (2011) found that, unmet need increases as age increases. In a cross-sectional survey determining the factors associated with unmet need for family planning in Pakistan, the researchers reported that the odds of having unmet need is 1.66, 2.29 and 3.83 among women aged 26-30 years, 31-35 years

and 36 years and older respectively compared to women aged 25 years and below.

Findings from Ghana are parallel to those that established that unmet need for family planning is inversely related to age. The 2014 Ghana Demographic and Health Survey (GDHS) for instance reported that more than half (50.7%) of young women aged 15-19 years have their family planning needs not met. However, this reduces as age increases to as low as 14.2 percent among women between the ages of 45-49 years (GSS, et al, 2015). Just as Hailemariam and Haddis (2011) found, reports from the 2014 GDHS also revealed that, while unmet need for spacing reduces with age, the need for limiting births increases as women's age increase. Machiyama and Cleland (2013) however found that, age is not a significant determinant of unmet need for family planning among Ghanaian women even though they reported that women who are 30 years and older have an increased chance (OR=1.01) to have their needs for family planning not met.

Parity

The total number of children born by a woman is among the most significant predictors of unmet need. Past studies have documented a positive association between unmet need and number of living children where unmet need rises with an increase in parity (Blacker, Opiyo, Jasseh, Sloggett, & Ssekamatte-Ssebuliba, 2005; Bhandari et al., 2006; Khan, Bradley, Fishel, & Mishra, 2008; Hameed, et al., 2011; Ansary & Anisujjaman, 2012; Oginni, et al., 2015). 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 (Blacker, et al., 2005; Khan, et al., 2008).

Ansary and Anisujjaman (2012) found that in India, women with four or more living children were more likely to have unmet need compared with women with fewer children (Ansary & Anisujjaman, 2012). In their study in Nigeria, Oginni et al. (2015) also reported that unmet need increases with parity where 15 percent of women with parity zero and one, about 17 percent of women with parity two and 21.5 percent of women with 3 or more children have unmet need.

Unmet need was also found to be of the highest prevalence among women who have five or more children (Hameed, et al., 2011; Wablembo, & Doctor, 2013). Hameed et al. (2011) for instance found that while women with 3-4 children have a 2.71 odds of having unmet need compared to their counterparts who have 0-2 children, women who have five or more children have 4.24 odds of having unmet need. This clearly indicates that unmet need is highest among women who have five or more children.

Hailemariam and Haddis (2011) found that in Ethiopia, total unmet need is greater among women with five children or more (41.8%) than among women with less than five children (35.1%). According to them, while unmet need for limiting is higher among with having at least five children (24.6% against 7.4% for women with less than 5 children), the contrary is the case for unmet need for limiting (which is 27.7% among women with less than 5 children and 17.1 percent among those with 5 or more children).

In Rajasthan, Vohra et al. (2014) found that, there is an inverse relationship between unmet need for family planning and parity. According to

them, 66 percent, 51.45 percent, about 30 percent and 16.12 of women with parity zero, one, two and five and above respectively have an unmet need for family planning. 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. In Ghana, Machiyama and Cleland (2013) found that, women who have 0-2 children and those who have five or more children have a lesser likelihood (OR=0.97 and 0.94 respectively) to have an unmet need for family planning compared with women who have 3-4 children.

Desire for children

The number of children that a woman desires, as well as, the fertility preferences of her husband or partner affects the likelihood of her having an unmet need for family planning (Yotebieng, et al., 2015). A study in Ethiopia showed that unmet need for limiting was significantly lower among those who had experienced child loss, though they may still demand for family planning to space (Hailemariam & Haddis, 2011). As a woman's desired family size is achieved, her demand for family planning change from spacing to limiting, which is why unmet need for limiting is higher among older women who have achieved their desired family size (Wanyenze, Matovu, Kamya, Tumwesigye, Nannyonga & Wagner, 2015).

Perceived or actual partner's fertility preferences, have influences on a woman's decision-making particularly, concerning her reproductive behaviour. A study using the DHS data from 24 sub-Saharan African countries showed that fertility preferences were in agreement among most couples (Bankole & Audam, 2011). However, when there were substantial differences, couples were

less likely to use family planning. A similar result was found in Northern Malawi, where a significant drop in family planning use among polygynous couples when the couple's fertility aspiration differed (Baschieri, Cleland, Floyd, Dube, Msona, Molesworth, French, 2013).

Socio-economic factors

Aside demographic factors, several social and economic factors have been documented to be related to unmet need for family planning. These socio-economic determinants include place of residence, education, religion, occupation and wealth status.

Place of residence

Women in the rural areas are less likely to have their demand for contraceptives met than their counterparts in the urban areas (Bradley et al., 2012). This is due to several socioeconomic disparities such as the lower availability of health providers in the rural areas, the lack of logistical supply of contraceptives as much as in the urban area, lesser education and economic empowerment among other reasons (Sibley & Glazier, 2009; Machiyama & Cleland, 2013). This is confirmed by the results of other studies. For example, in Kenya, it was reported that 17.3 percent and 27.1 percent of women in urban and rural areas respectively have unmet need for family planning (Ojakaa, 2008). Letamo and Navaneetham (2015) also reported that, more women in rural areas have unmet need than their counterparts in urban areas. According to them, while about 12 percent of women from rural areas have unmet need, only 8.1 percent of those in urban areas have unmet need.

These findings are corroborated by findings from Congo. In a study on disparities in modern contraception use among women in Congo, Kandala, Lukumu, Mantempa, Kandala and Chirwa (2015) found that the prevalence of modern contraceptive use is far higher in urban areas than in rural areas. The researchers reported that, among all women in Congo, the prevalence of modern contraceptive use is a little over 10 percent among urban dwellers and 2.8 percent among their rural counterparts. In the same study, it was chronicled that modern contraceptive prevalence rate is 11.6 percent for young women dwelling in urban areas and 3.1 percent for young women in rural areas (Kandala, et al., 2015).

In Ethiopia similar results were found. According to Hailemariam and Haddis (2011), the levels of unmet need for family planning among women in urban and rural areas were 25.6 percent and 38 percent respectively. A more recent study in Ethiopia by Lakew, Reda, Tamene, Benedict and Deribe (2013) also found that women in rural areas were 30 percent less (OR=0.7) likely to use modern contraceptive methods compared to their counterparts in urban areas. Reports from Nigeria are not different from the above. Solanke (2016) for instance indicated that, women in rural areas have a 27.4 percent elevated chance (OR=1.274) of having unmet need compared to women in urban areas.

Findings from other studies were contrary to the above. These studies found unmet need to be higher among women in urban areas. For instance, Omedi and Nyauchi (2015) in their study on unmet need for family planning among teenage women in Kenya found that, unmet need is higher among women in urban areas than those in rural areas. Women in rural areas were found to be about 28 percent less likely (OR=0.725) to have unmet need

compared to women in urban areas. According to Ali and Okud (2013), though residence was not a significant predictor of unmet need, women in rural areas were slightly less likely than their counterparts in urban areas (OR=0.993) to have an unmet need for family planning.

In Ghana, findings on residence as a determinant of unmet need for family planning are not dissimilar from what is observed in the rest of the world. Machiyama and Cleland (2013) found results that are similar to what Omedi and Nyauchi (2015) found. According to Machiyama and Cleland, women in rural areas have 19 percent lesser likelihood (OR=0.81) than their colleagues in urban areas to have their family planning needs unmet. The 2014 GDHS on the contrary reported that, more women in rural areas (31.1%) have unmet need than women in urban areas (28.7%) (GSS, et al, 2015).

Education

Across the developing world, unmet need for family planning has been found to be inversely related to women's education – thus, reduces as women's education increases (Hameed et al., 2011; Solanke, 2016). Hameed et al (2011) reported that compared with women who have higher education, women with no formal education were 116 percent more likely (OR=2.16) to have an unmet need for family planning. Women with primary and secondary education were respectively, 44 percent (OR=1.44) and 21 percent (OR=1.21) more likely to have an unmet need compared with women with higher education.

In his study on the socio-demographic factors associated with unmet need for family planning in Nigeria, Solanke (2016) also found that unmet need for family planning reduces as women's education increases. The study reported that, the odds of having unmet need for family planning is 0.603, 0.256 and

0.194 for women with primary education, secondary education and higher respectively compared with women with no formal education.

Other studies (Ojakaa, 2008; Hailemariam & Haddis, 2011; Oginni, Ahonsi, & Adebajo, 2015) report that unmet need is highest among women with primary education and not women with no formal education. According to Ojakaa (2008), whereas 23.6 percent of women with no formal education have an unmet need, the rate is higher (30.4%) among women with primary education and much lower (13.2%) among women with secondary education or above. Similar to Ojakaa's finding, Hailemariam and Haddis (2011) reported that, close to 40 percent (39.2% precisely) of women with primary education have unmet need which is higher than among women with no formal education (37.3%) and women with secondary education and above (28.4%).

In another study, Oginni, et al. (2015), reported that the level of unmet need is 18.4 percent among women with no formal education and higher (23.1%) among women with primary education. For women with secondary and higher education, 19.3 percent and 12.6 percent respectively of women have their needs for family planning not met. Bradley et al (2012) explains that unmet need is lower among women with no formal education than women with primary education because demand for family planning is lower among women with no formal education.

In Ghana, Adjei, Sarfo and Asiedu (2014) found that women who have some level of education were more likely to have unmet need for family planning. Women who have middle, secondary and higher education have a slightly higher likelihood than women with no formal education to have unmet need for family planning (OR=1.02, 1.09 and 1.14 respectively). However,

women with primary education were more than twice likely (OR=2.14) than women with no formal education to have their family planning needs not met. The 2014 GDHS similarly reported that, unmet need was higher among women with primary and middle education (31.9% and 31.7% respectively) than women with no education (29.3%) and women with secondary education and above (24.1%) (GSS, et al, 2015). Machiyima and Cleland (2013) however found that, the likelihood that a woman will have her family planning needs not met decreases as her educational level increases.

Religion

Religion also plays a role in determining unmet need among women. According to Mekonnen and Worku (2011), devoutly religious people are more likely to have low unmet need because some religious groups prohibit family planning, and this means women's demand becomes lower. A study by Ali and Okud (2013) in Eastern Sudan showed that religious belief by the woman or her husband affected the likelihood of her family planning needs being met. This is supported by Tesfay, Feyisso, Belachew and Addisu (2015) in their study among married women of reproductive age in South Ethiopia, where they found that about one in five women (20.3%) with unmet needs pointed out religion as the reason for not meeting their stated family planning need. Similarly, findings of another study in Ethiopia shows that 22.2 percent of women with unmet need expected rejections by religious leaders (Mekonnen & Worku, 2011).

A longitudinal study in Nigeria among currently married women and sexually active unmarried women aged 15-49 found that while Catholics and non-Catholic Christians had similar unmet need, Muslims and Traditionalists had lower odds of having unmet need than Catholics (Hailemariam & Haddis,

2011). In Uganda also, Catholic women were found to have the highest level of unmet need for family planning among all the religious groups (Wablembo, Ntozi & Kwagala, 2011). Lakew et al. (2013) likewise found in Ethiopia that Muslim women have a 30 percent less likelihood (OR=0.7) to have an unmet need for family planning compared with Christian women.

This is in contrast to a study in Nigeria where Muslim women have higher unmet needs. Muslim women were reported to have 2.2 odds of having unmet need compared to Christian women (Solanke, 2016). Similar results were found in India where Muslim women not only had higher unmet needs and lower likelihood of using family planning than non-Muslim women, but the Muslim women also had lower odds of using family planning in the future (Patra & Singh, 2015). However, studies in Ethiopia found that religion was not a major determinant of family planning usage and for that matter, unmet need for family planning (Hailemariam & Haddis, 2011; Tesfay, et al., 2015). According to Hailemariam and Haddis for instance, the levels of unmet need among women of different religious backgrounds did not vary so much (35% among Orthodox women, 38.3% among Protestants and 36.1% among Muslims, with a P-value of 0.77).

The findings of Patra and Singh (2015) tie with a study in Ghana showing that among women with unmet need for family planning, women who identify as being Muslim were less likely to use a family planning method than those who identify as being Christians (Crissman, Adanu, & Harlow, 2012). Another study in Ghana found that Catholic women were less likely than all other women to have unmet need for family planning (Machiyima & Cleland, 2013). According to Machiyima and Cleland, compared with Protestant women,

Catholic women were 35 percent less likely (OR=0.65) to have unmet need. Traditionalists (OR=1.32), other Christians (OR=1.28) and Muslims (OR=1.22) were all more likely than Protestants to have their family planning needs not met.

Occupation

A woman's occupation affects whether she has unmet need or not. Findings from studies in Ethiopia (Hailemariam & Haddis, 2011), Kenya (Ojakaa, 2008) and Eastern Sudan (Ali & Okud, 2013) show that women's occupation or employment status is a major determinant of unmet need for family planning. For instance, housewives in Eastern Sudan (Ali & Okud, 2013) and women with no work other than household chores in Ethiopia (Hailemariam & Haddis, 2011) were significantly more likely to have unmet needs. In Kenya, women who worked were less likely to have an unmet need for family planning than those who do not, and much of their unmet need relates not to access or unavailability as that among non-working women, but to method-related reasons (Ojakaa, 2008).

This was confirmed by a study by Solanke (2016) in Nigeria which reported that women who are working have a lesser likelihood than those who are not working (OR=0.549; CI: 0.519-0.581) to have an unmet need. Women who worked in the home or had occupations not requiring high levels of education were found to have higher unmet need in a study conducted in Ethiopia (Woldemicael & Beaujot, 2011).

Other studies (Hailemariam & Haddis, 2011) however found that, occupation is not a significant determinant of unmet need for family planning. Though not significant, Hailemariam and Haddis reported that unmet need for

family planning was greater among women who are working than those who are not. Oginni, et al. (2015) similarly found that, unmet need is slightly higher among working women than their counterparts who are not working (19.5% for workers and 18% for non-workers).

Wealth status

Studies (Hameed, et al., 2011; Kisaakye, 2013; Omedi & Nyauchi, 2015; Letamo & Navaneetham, 2015; Solanke, 2016; Wilopo, et al., 2017) have found and documented an inverse relationship between wealth status and unmet need for family planning. In Uganda, Kisaakye (2013) documented that the richest women were about 42 percent less likely to have unmet need compared to the poorest women, just as women with low financial autonomy were more likely to have had higher unmet need for family planning than women with medium or high autonomy (Kisaakye, 2013).

Hameed et al. (2011) also found that unmet need is highest among women in the lowest wealth quintile. They reported that, women in the lowest wealth quintile have a 36 percent higher likelihood (OR=1.36) to have an unmet need compared with women in the highest wealth quintile. These findings are corroborated by Wilopo et al (2017) who reported that women in the poorer category have a lesser likelihood to have an unmet need (OR=0.71) compared with women in the poorest category. The odds of having unmet need for family planning was further lower among women in the middle and richer categories (OR=0.67) and the richest category (OR=0.69).

Solanke (2016) found similar results in Nigeria. According to Solanke, women in the poorest category have the greatest likelihood to have an unmet need. Solanke's study however revealed that, women in the poorer category

have a lesser likelihood than those in the middle, richer and richest categories to have their needs for family planning not met. The study reported that, compared to women in the poorest category, women in poorer category have a 40.1 percent reduced chance (OR=0.599) of having unmet need whereas women in the middle, richer and richest categories respectively have 14.9 percent, 11.7 percent and about 30 percent reduced chances of having unmet need for family planning.

In Kenya, Omedi and Nyauchi (2015) in their study on unmet need for family planning among teenage women found that, women in the high wealth index category were more likely than their counterparts in the medium category to have an unmet need. Omedi and Nyauchi documented that, compared with women in the low category, women in the middle category have a 59 percent lesser likelihood (OR=0.41) while women in the high wealth category have a 29 percent decreased likelihood (OR=0.71) to have an unmet need. The findings above are not different from what Letamo and Navaneetham (2015) found. According to them, while 16.6 percent of poorest women have an unmet need for family planning, only 8.6 percent of women in the middle category and about seven percent in the richest category have an unmet need.

Singh, Singh and Verma (2016) in a study to explore the knowledge, attitude and practice gap in family planning usage found that family planning usage increases as the individual's wealth status also increases. The odds of family planning non-usage are 0.9 and 0.7 for women in the medium and rich categories respectively compared to women in the poor category (Singh, et al., 2016). Another study found that women in the middle wealth category have a 40 percent higher likelihood (OR=1.4) than those in the low wealth category to

use family planning. With women in the wealthy wealth category, the odds to use family planning is 1.9 compared to women in the low wealth category (Lakew et al, 2013). In the Democratic Republic of Congo, it was likewise found that, the rate of family planning usage was highest among women in the high wealth category and lowest among women with low wealth status (Kandala, et al., 2015).

Findings from Ghana on wealth status as a predictor of unmet need also reveal that the likelihood that a woman's family planning need will be unmet reduces as her wealth status increases. Machiyima and Cleland (2013) found that while women in the poorest and poor categories have 1.3 and 1.24 odds respectively to have their needs met compared with women in the middle category, women in the richest category have only 0.81 odds. Reports in the 2014 GDHS also support the finding that unmet need for family planning is inversely related to wealth status. The report however revealed that, unmet need for family planning was higher among women in the second (32.3%) and middle (32%) wealth quintiles than women in the lowest wealth quintile (GSS, et al, 2015).

Knowledge about Family Planning among Young Women

Usage of family planning is largely based on having knowledge of its existence and the methods available. According to Longwe, Huisman and Smits (2013), knowledge of family planning is universal in the developed world and almost universal in the developing world. Research has shown that globally, there is a high saturation of knowledge about family planning methods, with knowledge of at least one family planning method in sub-Saharan Africa nations

at about 85 percent (Sedgh & Hussain, 2014). This is also true in Ghana, where the 2014 Demographic and Health Survey found that 99 percent of women know of at least one method of family planning (GSS, et al., 2015). The survey also showed that modern methods were more known than traditional ones among women, with the male condom (96%), injectables (92%), the pill (91%), being the most known methods.

This knowledge shows some considerable variability across different population demographics, with those in the rural areas knowing less than those in urban settings (Apanga & Adam, 2015). According to the 2014 GDHS report, women with a higher level of education and income have more knowledge about family planning than their colleagues who have lower levels of income and education (GSS, et al., 2015). This confirms studies conducted by Andalón, Williams, and Grossman (2014) and Heinemann, Saad, Wiesemes, White and Heinemann (2015) that education status is a predictor of the knowledge of family planning.

A study by Aryeetey, Kotoh and Hindin (2010) in the Ga East district of Greater Accra among women of ages 15-49 years further corroborates the association of education and knowledge. The authors found that knowledge of any modern method of family planning was near universal at 99.7 percent of all respondents, with the number of modern methods known to women increasing with increasing level of education (Aryeetey et al., 2010).

Evidence from available literature shows a consistent link between knowledge of family planning and unmet need. A cross-sectional study conducted in Iraq identified lack of knowledge as one of the most important reasons for unmet need (Al-Bakry & Al-Jawadi, 2010). Similarly, in Ethiopia,

women with unmet need for both spacing and limiting were more likely to have lower levels of knowledge about family planning methods (Hailemariam & Haddis, 2011).

In Uganda and Kenya also, unmet need for family planning is higher among women who have no knowledge of family planning methods or sources of supply (Andi, Wamala, Ocaya, & Kabagenyi, 2014; Omedi, & Nyauchi, 2015). Hameed et al. (2011) in a cross-sectional study in Pakistan likewise found that women who have never heard about any family planning method have a higher likelihood to have an unmet need. Oginni et al. (2015) confirmed that unmet need is highest among women with no knowledge about family planning. However, their study revealed that there is not much difference in the levels of unmet need among women with no knowledge about family planning and women who have knowledge about modern methods (20.3% versus 19%).

In Ghana, the association between knowledge of family planning and unmet need has not been clearly established. Machiyima and Cleland (2013) however documented that, lack of knowledge explains why about five percent (5.2%) of Ghanaian women with unmet need do not use any family planning method. It was further indicated that, knowledge about access to family planning method was the most predictive variable of unmet need among Ghanaian women followed by knowledge of method (Adjei, Sarfo, Asiedu & Sarfo, 2014).

Conceptual Framework

Figure 3 below illustrates the conceptual framework for this study. The framework, which was adopted from Korra (2002), shows the various

independent variables and the linkages among them to influence unmet need for family planning. The independent variables are subdivided into three sets. The first two are the underlying factors that are indexed by some important demographic and socioeconomic variables (age, parity, desire for children, place of residence, level of education, religion, household wealth status and occupation). The third group of independent variables is the proximate determinant that is indexed by women's knowledge about family planning.

The dependent variable, as shown by the model, is a dichotomous variable – unmet need for family planning. Demographic and socioeconomic factors are assumed to be the underlying determinants of unmet need for family planning. That is, the effect of the underlying factors is expected to reach the ultimate dependent variable, unmet need for family planning, through the assumed proximate variable, namely, knowledge about family planning.

This framework offers a very simplistic explanation or description of the factors that influence family planning usage. It does not acknowledge the complex set of factors that affect women's intention and use of family planning and for that matter, unmet need for family planning. The relationship between the determinants of unmet need and unmet need for family planning is more complex than is explained by the framework. Some psychosocial factors have been identified to influence family planning usage and hence, unmet need for family planning. Other important factors such as the availability, accessibility and affordability of family planning services affect the use/non-use of family planning services. The framework failed to acknowledge these important factors. However, the framework is considered fit for this study because it provides a clear and concise link between the determinants of unmet need

(independent variables) and unmet need for family planning (dependent variable).

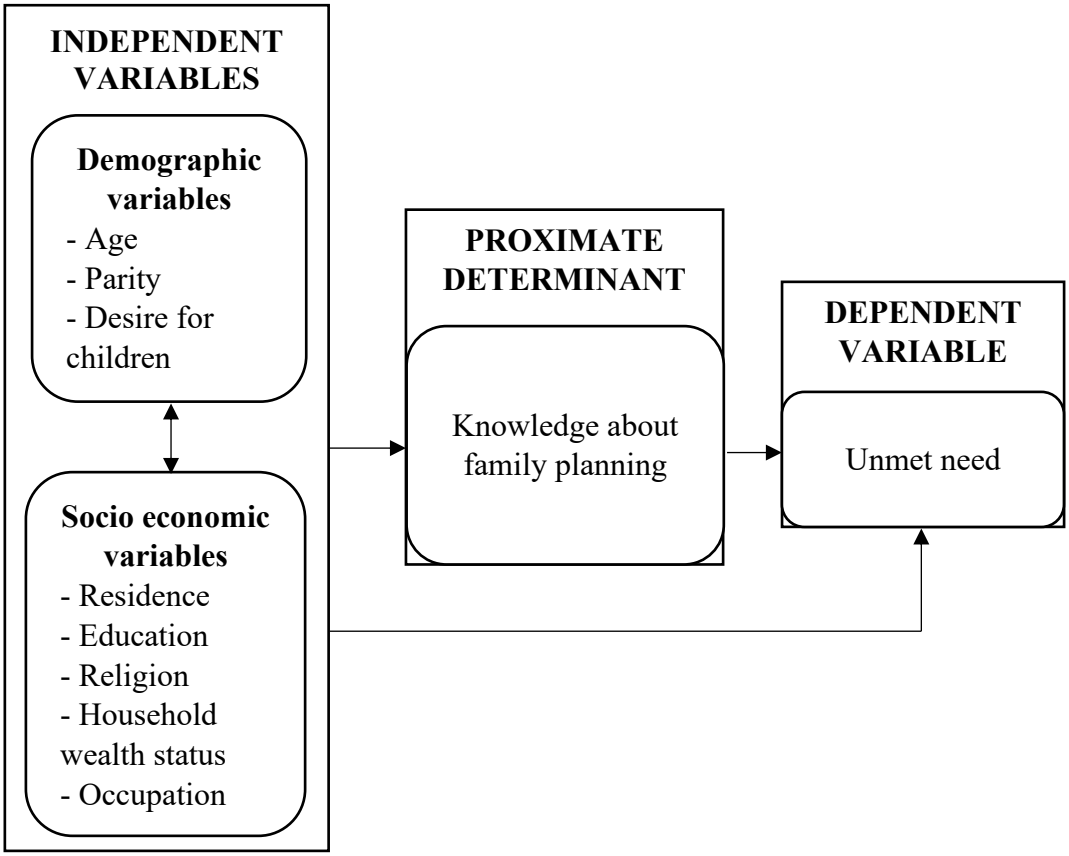

Figure 3: Conceptual Framework for Unmet Need for Family Planning
Source: Korra (2002)

Chapter Summary

This chapter reviewed related literature to the subject of study. The literature reviewed mainly focused on the reasons for non-use of family planning, knowledge about family planning and the factors which influence unmet need for family planning. Reasons for the non-use of family planning were discussed within the context of the Health Belief Model. The HBM explains that cues to action and self-efficacy affect people's perception of susceptibility, severity, benefits and barriers and therefore, behaviour. On the other hand, the factors influencing unmet need for family planning were

discussed drawing from Andersen's Health Services Utilisation Model and Mc Leroy's Ecological Model of Health Behaviours which developed out of Urie Bronfenbrenner's Ecological Systems Theory. Both theories acknowledge the multiplicity of factors affecting any behaviour (in this case, unmet need for family planning). The conceptual framework on which this study is premised, was also discussed in this chapter. The framework, which was adopted from Korra (2002), explains that demographic and socio-economic factors interact with knowledge about family planning to influence family planning usage.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter discusses the methods used for the research. Specifically, the chapter covers the research design, sources of data, target population, sampling procedure, acquisition of data, description and definition of variables. Procedures for data analysis as well as data limitations were also discussed.

Study Area

Ghana, located on the west coast of Africa, has a total land area of 238,533 square kilometres (Ghana Statistical Service, 2013). The 2010 National Population and Housing Census counted 24,658,823 people with a sex ratio of 95 males per 100 females. The country has about 51 percent of its population in urban areas. Data from the 2010 Population and Housing Census show that about 42 percent of Ghana's population aged 12 years and older had never been married, five percent are in consensual union, 43 percent are married, two percent are separated, three percent are divorced while five percent are widowed.

The dominant ethnic groups are Akan (47.5%), followed by Mole Dagbani (16.6%) and Ewe (13.9%). The other ethnic groups are Ga–Dangme, Gurma, Guan, Grusi, and Mande. About seventy-one (71.2%) percent of Ghanaians are Christians (Catholic, Protestant, Pentecostal/Charismatic and other Christian), 17.6 percent Muslims and 5.2 percent, adherents of traditional religion. About one in 20 Ghanaians (5.3%) have no religious affiliation while nearly one percent belongs to other religions.

Regarding education, Ghana has about 26 percent of its population six years or older having no education (never attended school, nursery, and kindergarten), 56.3 percent had primary education (that is, primary, JSS/JHS, middle). Secondary education (SSS/SHS, secondary, vocational/technical/ commercial, post middle/post-secondary certificate and post-secondary diploma) represents 15.6 percent of the population whereas, higher education (bachelor degree and post graduate) constitutes 2.1 percent of the population six years and older.

The country has about 70 percent of its population aged 15 years and above being economically active, out of which 42 percent are skilled agricultural, fishery and forestry workers, 21 percent, service and sales workers, and 15 percent into crafts and related trade. Professionals, managers, and technicians account for 9.5 percent whereas clerical support workers and other occupation represent 12.6 percent. This information is summarised in Table 1 below.

Table 1: Sociodemographic Characteristics of Ghana

Variable	Percentage
Residence	
Urban	50.9
Rural	49.1
Marital status	
Never married	42.0
Consensual union	5.0
Married	43.0
Separated	2.0
Divorced	3.0
Widowed	5.0
Ethnicity	
Akan	47.5
Ga-Dangme	7.4
Ewe	13.9
Guan	3.7
Gurma	5.7
Mole-Dagbani	16.6
Grusi	2.5
Mande	1.1
Other	1.4
Religion	
No religion	5.3
Catholic	13.1
Protestant	18.4
Pentecostal/charismatic	28.3
Other Christian	11.4
Islam	17.6
Traditionalist	5.2
Other	0.8
Education *	
No education	26.0
Primary	56.3
Secondary	15.6
Higher	2.1

Source: Ghana Statistical Service (2013)

* Refers to persons aged 6 years and older

According to the 2015 Health Sector Report of Ghana, there are 2,530 functional health facilities in Ghana out of which 258 are hospitals, 982 clinics

and 326 maternity homes. In addition, there are 3,335 Community-based Health Planning and Services (CHPS) compounds all over the country (Ghana Health Service, 2015). At least one government hospital can be located in each district capital which is staffed with one or more medical doctors, pharmacists, nurses, laboratory technicians, auxiliary nurses and other relevant support personnel. The country has 3,016 doctors and 40,859 nurses spread over the 10 administrative regions. Figure 4 is a map of Ghana showing the 10 administrative regions in the country and the proportion of young women between ages 15 to 24 years having unmet need for family planning.

Unmet need for family planning among young women (15-24 years) in Ghana is highest in the Volta region, where 52.6 percent of young women have unmet need for family planning. Other regions that have unmet need among young women higher than the national average of 35.2 percent are Eastern and Central regions (46.1% and 44.6% respectively). Greater Accra region (33.3%), Upper East region (31.7%), Western (30.8%), Upper West (30.6%), Brong Ahafo (28.7%) and Northern region (27.8%) on the other hand, have unmet need among young women to be lower than the national average (Figure 4).

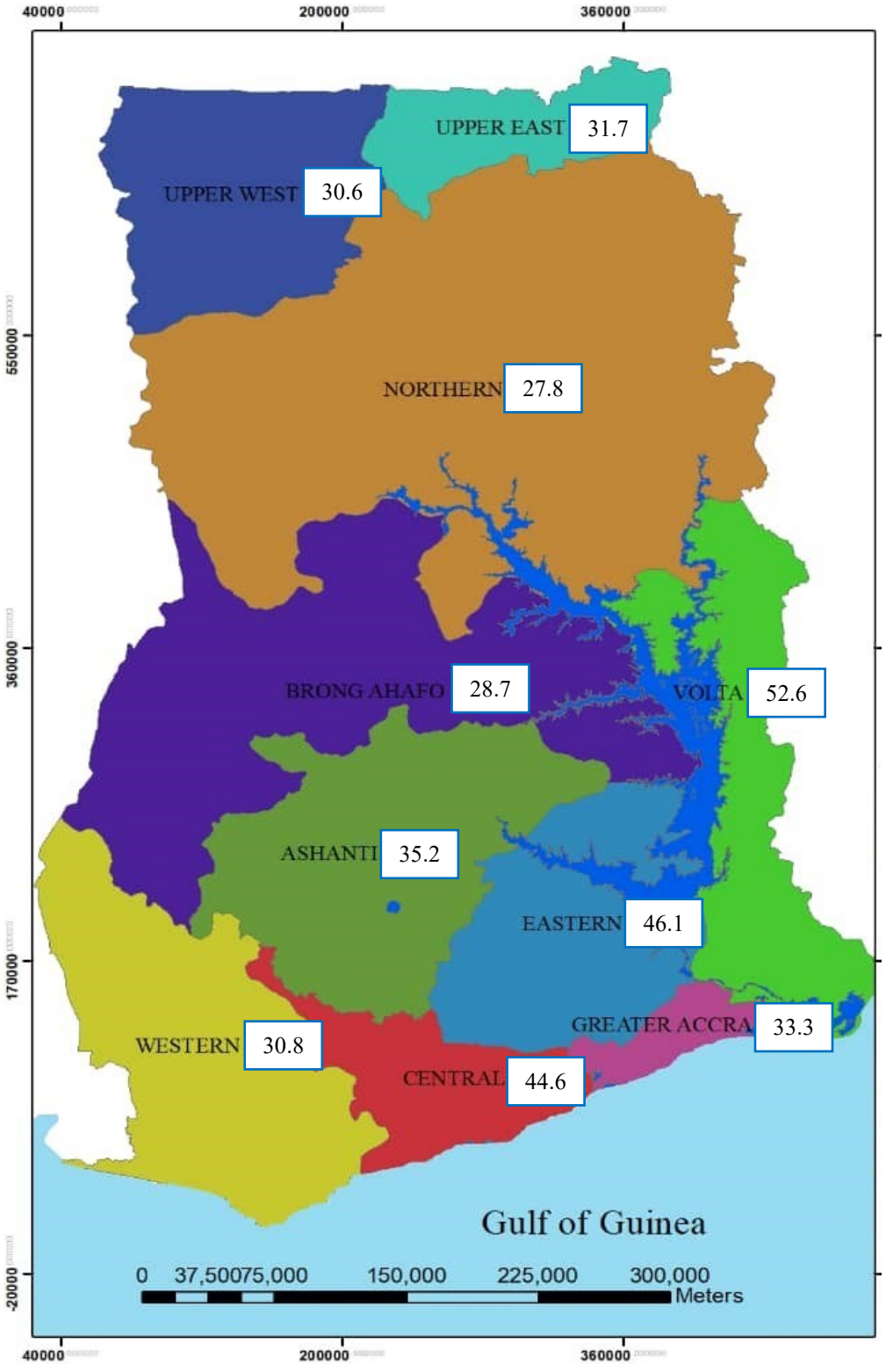

Figure 4: Map of Ghana Showing Regional Proportions of Young Women (15-24years) with Unmet Need for Family Planning

Source: Department of Geography and Regional Planning, University of Cape Coast (2018)

Levels of unmet need computed from the GDHS, 2014

Government's support of family planning programmes began in 1969, with some of the major programme initiatives being the Contraceptive Social Marketing (CSM) project (1987- 1990), the Ghana Family Planning and Health Programme (FPHP) (1990-1996) and the Ghana Population and AIDS Project (GHANAPA) (1996-2000) (Hong, Fronczak, Chinbuah, & Miller, 2005). In 1970, the Ghana National Family Planning Programme was established under the Ministry of Finance and Economic Planning with the goal of aiding couples and individuals of all ages to attain their reproductive desires and advance their general reproductive health through information and counselling on contraception and other reproductive health services (Odoi-Agyarko, 2003). This was based on the belief that it is a fundamental human right that couples should have the opportunity to decide freely the number and spacing of their children (Odoi-Agyarko, 2003). Afterwards, Maternal and Child Health (MCH) and the Ghana National Family Planning Programme were combined under the Ministry of Health.

The country's commitment to family planning has continued to recent times. In 2014, family planning found expression in a key government development blueprint – the Ghana Shared Growth and Development Agenda (GSGDA) II: 2014–2017. One objective of the GSGDA II: 2014-2017 is to reposition family planning as a priority in national development efforts (National Development Planning Commission, 2015). In alignment with this medium-term development framework is the Ghana Family Planning Costed Implementation Plan (GFPCIP): 2016-2020. The GFPCIP "details the country's plans to achieve its vision and goals to improve the health and wellbeing of its population and the nation through providing high-quality, rights-based family

planning information and services" (Ministry of Health, 2015, p. 3). The plan aims at increasing modern contraceptive prevalence rate (CPR) among currently married women and unmarried sexually active women to 29.7 percent and 40 percent respectively by 2020.

The GFPCIP focuses on six strategic priorities: to promote and nurture change in social and individual behaviour to address stigma, myths, misconceptions, and side effects and improve acceptance and continued use of family planning; increase age-appropriate and rights-based information, access, and use of contraception amongst young people, ages 10–24 years; and strengthen the provision of family planning services and information through CHPS to expand access to hard-to-reach-communities.

Family planning service delivery in Ghana has advanced through a number of developments since the introduction of modern family planning activities as a public welfare service by the Christian Council of Ghana in 1961. Following the opening of the first Family Advice Centre in Accra in 1961, the Planned Parenthood Association of Ghana (PPAG) later expanded family planning services through branches at various centres throughout the country in 1967 (Solo, Odonkor, Pile & Wickstrom, 2005). Currently, a wide range of family planning services are offered at government hospitals and clinics, private for-profit facilities, and facilities operated by nongovernmental organisations (NGOs). The National Reproductive Health and Service Policy and Standards stipulates that outreach services, static services, and social marketing service delivery approaches shall be used to make family planning services accessible, available, and affordable to all eligible individuals and couples (Ghana Health Service, 2014).

The main suppliers of contraceptives in Ghana are the Ministry of Health/Ghana Health Service (MoH/GHS) public health facilities, followed by pharmacies (including chemists and drug stores), private clinic facilities, and NGOs such as the PPAG and Marie Stopes International Ghana (MSIG). Although there is a growing reliance on the private sector as source of contraceptives, the public sector currently provides about 47 percent of these commodities, whereas the private sector delivers about 46 percent (Ministry of Health, 2015).

Research Design

Descriptive cross-sectional research design was used for the study. Cross-sectional research design helps to study the current behaviour, belief, practices and attitudes of a specific group of respondents in a given point in time (Creswell, 2014). The approach was used because complete coverage of the population was not possible therefore, it provided a better option in addition to the fact that it addresses the survey population in a short period of time producing equally valid results.

Source of Data

The main source of data for the study was secondary; that is, data from the nationally representative Ghana Demographic and Health Survey (GDHS) conducted in 2014. The GDHS is a nationwide survey designed and conducted every five years to generate recent and reliable information on fertility, family planning, infant and child mortality, maternal and child health, and nutrition for the purposes of "making informed policy decisions and for planning,

monitoring, and evaluating programmes related to health in general, and reproductive health in particular, at both the national and regional levels" (GSS et al, 2015, pg xvii).

The 2014 GDHS, which interviewed 9,396 women age 15 – 49 years from 12,831 households covering 427 clusters throughout Ghana, is the most recent of the six Demographic and Health Surveys (DHS) conducted in the country since 1988. The survey was carried out by the Ghana Statistical Service (GSS), the Ghana Health Service (GHS), and the National Public Health Reference Laboratory (NPHRL) of the GHS. Financial support for the survey was provided by the United States Agency for International Development (USAID), the Global Fund to fight AIDS, Tuberculosis, and Malaria through the Ghana AIDS Commission (GAC) and the National Malaria Control Programme (NMCP), the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the United Nations Population Fund (UNFPA), the International Labour Organization (ILO), the Danish International Development Agency (DANIDA), and the Government of Ghana. ICF International provided technical assistance through The DHS Program (GSS et al, 2015).

Sampling Procedure

The 2014 GDHS followed a two–stage sample design. The first stage involved selecting sample points or clusters consisting of enumeration areas delineated from the 2010 Population and Housing Census. A total of 427 clusters were selected, 216 in urban areas and 211 in rural areas. The second stage involved the systematic sampling of households listed in each cluster.

Weights were calculated to ensure representativeness of the data at the national level.

Data Collection Procedure

Data collection was carried out by the 25 field teams (composed of one supervisor, one field editor, two female interviewers, one male interviewer and two health technicians) from early September to mid-December 2014 which was coordinated and monitored by senior staff members from the Ghana Statistical Service and the Ghana Health Service. Paper questionnaires were used to conduct the interviews.

Acquisition of Data

The data for the study was acquired online from Measure DHS. A registration form was filled and a brief proposal of the study, showing what the dataset was going to be used for, was sent to Measure DHS. An approval was given to download the data files which were available in SAS, SPSS, STATA, CSPRO formats. STATA data files were chosen and downloaded.

Study Variables

The dependent variable for the study was unmet need for family planning. Nine independent variables – age, parity, desire for children, place of residence, level of education, religion, wealth status, occupation status and knowledge about family planning – were used. Table 2 below describes how these variables were investigated in the questionnaire and how the responses were categorised in the data set.

Table 2: Variables Used in the Study

Variables	Question asked	Response categories	Recode
Dependent variable			
Unmet need for family planning	Computed from series of questions in the women's questionnaire	1 = Unmet need for spacing 2 = Unmet need for limiting 3 = Using for spacing 4 = Using for limiting 7 = No unmet need	0 = No unmet need (*using for spacing, using for limiting, no unmet need*) 1 = Unmet need (*unmet need for spacing, unmet need for limiting*)
Independent variables			
Age	How old were you at your last birthday?	Open ended but grouped in 5 years as: 1 = 15-19 years 2 = 20-24 years	Not recoded
Parity	a) How many sons/daughters live with you? b) How many sons/daughters are alive but do not live with you?	Open ended	0, 1, 2, 3+
Desire for children	Does your husband/partner want the same number of children that you want, or does he want more or fewer than you want?	1 = Both want same 2 = Husband wants more 3 = Husband wants fewer 8 = Don't know	Not recoded
Residence	Part of identification information. NO QUESTION ASKED	1 = Urban 2 = Rural	Not recoded
Education	What is the highest level of education you attended?	1 = No education 1 = Primary 2 = Secondary 3 = Higher	Not recoded

Table 2 continued

Religion	What is your religion?	1 = Catholic 2 = Anglican 3 = Methodist 4 = Presbyterian 5 = Pentecostal/charismatic 6 = Other Christian 7 = Islam 8 = Traditional/spiritualist 9 = No religion	1 = Christian (*catholic, anglican, methodist, presbyterian, pentecostal/ charismatic, other christian*) 2 = Islam 3 = Traditional/spiritualist 4 = No religion
Wealth status (wealth index)	Computed from series of questions in the household questionnaire	1 = Poorest 2 = Poorer 3 = Middle 4 = Richer 5 = Richest	Not recoded
Occupation	Aside your own house chores, have you done any work in the last seven days?	0 = No 1 = Yes	Not recoded
Knowledge about family planning	Have you ever heard of (METHOD)? **Methods:** Female sterilization, male sterilization, IUD, injectables, implants, pill, condom, female condom, Lactational Amenorrhea Method (LAM), rhythm/calendar method, withdrawal, emergency contraception	1 = Yes 2 = No *The Yes or No responses to each question were further categorized cumulatively as follows:* 0 = Knows no method 2 = Knows only traditional method 3 = Knows modern method	Not recoded

Table 2 continued

Reasons for non-use of family planning	*a) You said that you do not want (a/another child) soon.* *OR* *b) You said that you do not want any (more) children.* Can you tell me why you are not using a method to prevent pregnancy? **(Multiple response)** **Note:** The preamble (ie, a or b) depends on the woman's response to preceding questions as to whether she wants to postpone or end childbearing	**Fertility-related reasons** a) Not married b) Not having sex c) Infrequent sex d) Menopausal/hysterectomy e) Can't get pregnant f) Not menstruating since last birth g) Breastfeeding h) Up to God/fatalistic **Opposition to use** i) Respondent opposed j) Husband/partner opposed k) Others opposed l) Religious prohibition **Lack of knowledge** m) Knows no method n) Knows no source **Method-related reasons** o) Side effects/ health concerns p) Lack of access/too far q) Costs too much r) Preferred method not available s) No method available t) Inconvenient to use u) Interferes with body's normal processes

Source: GDHS 2014: questionnaire and data set

Missing Responses

Two variables (desire for children and occupation status) had two missing responses each. All the other variables used in the study did not have any missing responses. All the cases with missing responses, representing 0.52 percent, were excluded from the analysis.

Ethical issues

The topic for the study was approved by the Department of Population and Health, University of Cape Coast. Also, due processes were followed to obtain access to the data set. That is, a formal request, detailing how and for what purpose the data will be used, was made for the data set and an approval was granted. The authorisation notice to download and use the data set has been appended.

Data Analysis

The statistical software STATA version 13 was used to process the data which was analysed using both descriptive and inferential statistics. With the descriptive statistics, simple frequencies and cross-tabulations were adopted to ascertain the reasons for non-use of family planning among women with unmet need. For the inferential statistics, binary logistic regression models were employed. Specifically, logistic regression analysis was done to estimate the likelihood of a young woman experiencing unmet need given the prevailing demographic, social and economic conditions or characteristics.

Logistic regression was used because, the dependent variable for this study – unmet need for family planning – is dichotomous (that is, has only 2

values; Yes or No) hence, satisfies the necessary condition that must be met before such a tool could be used. The logistic regression model allows the estimation of the occurrence of an outcome (unmet need for family planning in this case) due to the effect of several explanatory variables. It allows for the adjustment of many explanatory variables and controlling for many confounders at the same time as it enables easy detection of the interaction between explanatory factors.

The regression analyses were done at two levels – bivariate and multivariate levels. Bivariate analysis examined the relationship between each respective variable and unmet need. This was done by the calculation of the odds ratios using bivariate logistic regression model. Multivariate analysis entailed the spontaneous inclusion of all the explanatory variables in a multivariate logistic regression model. This was aimed at testing the net effect of each of the variable on the likelihood of experiencing unmet need for family planning.

Three models were used to help explain the relationship among variables based on the conceptual framework which was grouped in three factors: demographic characteristics, socio-economic characteristics and proximate determinant. Model I was a bivariate model which featured the demographic characteristics – age, parity and desire for children. This model is considered a bivariate model because it does not include all the explanatory variables. In Model II, socio-economic characteristics – residence, education, religion, wealth status and education were added to the variables in Model I. The final Model was a full model which comprises all the variables (that is, the

demographic and socio-economic characteristics) used in Model I and Model II and the proximate determinant – knowledge about family planning.

Data limitations

The Ghana Demographic and Health Survey uses a repeated cross-sectional design which come with its own challenges/weaknesses. The cross-sectional design subjects itself to information and recall biases. Some information that respondents provided (for instance, age) relate to events in the past. There is the tendency that the respondents would not be able to vividly remember and so provide inaccurate responses.

In calculating unmet need for both spacing and limiting, respondents' retrospective "wantedness" of their last pregnancy or last child was considered. This could lead to the problem of misclassification because responses that respondents provide to this question might not be reflective of prevailing conditions before they became pregnant. For example, respondents could indicate that they did not want their last child at the time they had it suggesting they have unmet need for spacing. Meanwhile, it could be that their response is based on current happenings and not necessarily conditions that prevailed at the time they became pregnant.

Chapter Summary

The methods and techniques used by the study were detailed in this chapter. First of all, the social context within which this study is being conducted was described. Also, the research design, source of data and target population were also described. Very importantly, this chapter also espoused

the techniques that were employed to analyse the data and why they were used. The chapter concludes by stating the limitations of the data set used for the study.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter reports the outcome of analysis of data from the 2014 Ghana Demographic and Health Survey. The findings of this research are also discussed in this chapter. The discussion is focused on the background characteristics of respondents, and the demographic, socio-economic and proximate factors that influence unmet need for family planning among young women. Tables were used to present the findings.

Results

Background characteristics of respondents

The background characteristics that this study focused on were age, parity, desire for children, residence, level of education, religion, household wealth status and occupation. Majority (84.2%) of the respondents were aged between 20 and 24 years. About 45 percent of the women were at parity one (had one child) whereas about a tenth had three or more children. Concerning desire for children, nearly half of the respondents (47.8%) indicated that both they and their husbands/partners desire the same number of children. Also, while 23.7 percent said their husbands/partners want more, only a few of the women (6.1%) said that their husbands want fewer children (Table 3).

Over 64 percent of the respondents reside in rural areas, 71 percent are Christians and a third are in the poorest wealth category with only 7.5 percent in the richest wealth category.

Table 3: Background Characteristics

Variables	Frequency (n=762)	Percentage
Age		
15-19	120	15.8
20-24	642	84.2
Parity		
Zero	134	17.6
One	342	44.9
Two	205	26.9
Three or more	81	10.6
Desire for children		
Both wants same	363	47.8
Husband wants more	180	23.7
Husband wants fewer	46	6.1
Don't know	171	22.5
Residence		
Urban	272	35.7
Rural	490	64.3
Education		
No education	198	26.0
Primary	187	24.5
Secondary	365	47.9
Higher	12	1.6
Religion		
Christianity	538	70.6
Islam	179	23.5
Traditional	16	2.1
No religion	29	3.8
Wealth status		
Poorest	254	33.3
Poorer	168	22.1
Middle	161	21.1
Richer	122	16.0
Richest	57	7.5
Occupation status		
Not working	275	36.2
Working	485	63.8
Knowledge about family planning		
Knows no method	11	1.4
Knows only traditional method	4	0.5
Knows modern method	747	98.0

Source: Computed from GDHS, 2014

With regards to respondents' level of education, the study found that about 48 percent of the women had secondary education with only 1.6 percent having higher education. More than a quarter (26%) had no formal education. Majority of the respondents (63.8%) were working. Knowledge about modern methods of family planning was almost universal (98%) with only about a percent of the respondents indicating that they do not know any family planning method (Table 3).

Demographic characteristics that influence unmet need for family planning

As shown in Table 4, unmet need for family planning is higher among women aged 15-19 years (48.3%) than their older counterparts (32.7%) (X^2=10.82; p=0.001). About 30 percent of young women with three or more living children have unmet need for family planning compared to about 20 percent among women at parity zero. Greater proportions of women at parities one (40.6%) and two (38.1%) were found to have their family planning needs not met. Using a chi square test, a significant relationship was observed between parity and unmet need for family planning (X^2 = 19.59; p=0.000). Again, as shown in Table 4, unmet need for family planning was higher among women whose husbands/partners want fewer children than those whose husbands/partners want more children or those who want the same number of children as their husbands/partners (X^2 = 11.35; p=0.010).

Table 4: Unmet Need for Family Planning by Demographic Characteristics

Demographic characteristic	Unmet need for family planning (n=762)	
	Need (%)	No need (%)
Age	**X^2 = 10.82; p=0.001**	
15-19	48.3	51.7
20-24	32.7	67.3
Parity	**X^2 = 19.59; p=0.000**	
Zero	20.2	79.9
One	40.6	59.4
Two	38.1	62.0
Three or more	29.6	70.4
Desire for children	**X^2 = 11.35; p=0.010**	
Both wants same	30.6	69.4
Husband wants more	33.9	66.1
Husband wants fewer	45.7	54.4
Don't know	43.9	56.1

Source: Computed from GDHS, 2014

A bivariate analysis was carried to assess the relationship between demographic characteristics (age, parity and desire for children) and unmet need for family planning. Binary logistic regression was run and the results are presented in Table 5 below. It was observed that women who were aged 20-24 years were less likely than their counterparts aged 15-19 years to have unmet need for family planning. In fact, women aged 20-24 years have a 48 percent

reduced chance of having their family planning needs not met compared with those aged between 15 and 19 years (OR=0.52, p<0.01).

Table 5: Logistic Regression on Unmet Need for Family Planning by Demographic Characteristics

Variable	Odds ratio	95% confidence interval
Age		
15-19	Ref	
20-24	0.52***	0.35 – 0.77
Parity		
Zero	Ref	
One	2.71***	1.69 – 4.36
Two	2.43***	1.47 – 4.04
Three or more	1.67	0.88 – 3.15
Desire for children		
Both wants same	Ref	
Husband wants more	1.16	0.80 – 1.70
Husband wants fewer	1.91*	1.02 – 3.55
Don't know	1.77***	1.21 – 2.58

Source: Computed from GDHS, 2014

Ref = reference * p<0.10 ** p<0.05 *** p<0.01

All the women who had at least a child have a higher likelihood to have unmet need for family planning compared with women with no children. However, the highest likelihood was observed among women at parity one (OR=2.71, p<0.000). Concerning desire for children, young women whose husbands/partners want either more or fewer children were more likely than

women whose husbands want the same number of children to have unmet need for family planning (Table 5).

Socio-economic characteristics that influence unmet need for family planning among young women

The findings of this study show that unmet need for family planning is higher among women who reside in urban areas (40.8%) than their colleagues in rural areas (32%). It was also observed that unmet need is highest among women with primary education (38.5%) and reduces as women's education increases. However, it was found that lesser proportion of women with no formal education (28.8%) had unmet need for family planning. About two-fifths of women with no religious affiliation and 37.9 percent of women in the middle wealth category have their needs for family planning not met. Again, while 40 percent of women who are not working have unmet need, the proportion is lesser (32.6%) among women who are working. These are shown in Table 6.

Table 6: Unmet Need for Family Planning by Socio-Economic Characteristics

Socio-economic characteristic	Unmet need for family planning (n=762)	
	Need (%)	No need (%)
Residence	**X^2 = 5.90; p=0.015**	
Urban	40.8	59.2
Rural	32.0	68.0
Education	**X^2 = 4.99; p=0.172**	
No education	28.8	71.2
Primary	38.5	61.5
Secondary	37.0	63.0
Higher	33.3	66.7
Religion	**X^2 = 2.87; p=0.412**	
Christianity	36.4	63.6
Islam	30.2	69.8
Traditional	37.5	62.5
No religion	41.4	58.6
Wealth status	**X^2 = 0.85; p=0.932**	
Poorest	34.3	65.8
Poorer	34.5	65.5
Middle	37.9	62.1
Richer	33.6	66.4
Richest	36.8	63.2
Occupation status	**X^2 = 4.24; p=0.040**	
Not working	40.0	60.0
Working	32.6	67.4

Source: Computed from GDHS, 2014

In a binary logistic regression (presented in Table 7) to assess the association between the socio-economic characteristics (residence, education, religion, wealth status and occupation) and unmet need for family planning, it was found that place of residence, household wealth status and occupation were significantly associated with unmet need for family planning. With place of residence, it was found that women who reside in rural areas were less likely to have their family planning needs not met than those in urban areas (OR=0.68, $p<0.05$).

Young women who have some level of education were found to be more likely to have unmet need for family planning compared with their counterparts with no formal education. For example, women who have primary and secondary education have 1.55 and 1.45 odds respectively to have their family planning needs not met compared with women who have no education ($p<0.05$, in each case).

Though no statistically significant association was found between religion and unmet need for family planning, it was observed that, young women who had a religious affiliation (Christians, Muslims and Traditionalists) were all less likely to have unmet need for family planning compared with women who have no religious affiliation. Muslims however, had the least likelihood (OR=0.61) followed by Christians and Traditionalists (OR=0.81 and 0.85 respectively).

Compared with women in the poorest wealth category, while young women in the poorer, middle and richest wealth categories have an increased likelihood to have unmet need for family planning, their counterparts in the richer wealth category have a three percent reduced chance (OR=0.97) to have

their family planning needs not met. Young women who were working, according to the findings, have a 28 percent reduced likelihood to have their family panning needs not met compared to women who were not working (OR=0.72, p<0.10) (See Table 7).

Table 7: Logistic Regression on Unmet Need for Family Planning by Socio-Economic Characteristics

Variable	Odds ratio	95% confidence interval
Residence		
Urban	Ref	
Rural	0.68**	0.50 – 0.93
Education		
No education	Ref	
Primary	1.55**	1.01 – 2.37
Secondary	1.45**	1.00 – 2.11
Higher	1.24	0.36 – 4.27
Religion		
Christianity	0.81	0.38 – 1.74
Islam	0.61	0.27 – 1.37
Traditional	0.85	0.24 – 2.98
No religion	Ref	
Wealth status		
Poorest	Ref	
Poorer	1.01	0.67 – 1.53
Middle	1.17	0.78 – 1.77
Richer	0.97	0.62 – 1.53
Richest	1.12	0.62 – 2.03
Occupation		
Not working	Ref	
Working	0.72*	0.53 – 0.99

Source: Computed from GDHS, 2014

Ref = reference * p<0.10 ** p<0.05 *** p<0.01

Knowledge about family planning and unmet need for family planning

According to the findings of this study, shown in Table 8, unmet need for family planning is highest among young women who know a modern method of family planning than those who know no method or those who know only traditional methods. Whereas more than a third (35.6%) of women who know a modern method have unmet need, only about half of that proportion have their needs not met. As for women who know only traditional method, none of them have unmet need for family planning.

Table 8: Unmet Need for Family Planning by Knowledge of Family Planning

Knowledge about family planning	Unmet need for family planning (n=762)	
	Need (%)	No need (%)
	$X^2 = 3.63$; $p < 0.163$	
Knows no method	18.2	81.2
Knows only traditional method	-	100.0
Knows modern method	35.6	64.4

Source: Computed from GDHS, 2014

In a binary logistic regression run to assess the association between knowledge about family planning and unmet need for family planning, it was found that, there is no statistically significant relationship between knowledge about family planning and unmet need for family planning among young women. However, it was found that women who know modern methods have more than 100 percent increased likelihood to have unmet need for family planning (OR=2.49) compared with their colleagues who know no method of family planning (Table 9).

Table 9: Logistic Regression on Unmet Need for Family Planning by Knowledge about Family Planning

Variable	Odds ratio	95% confidence interval
Knows no method	Ref	
Knows only traditional method	1.00	
Knows modern method	2.49	0.53 – 11.60

Source: Computed from GDHS, 2014

Ref = reference

Multivariate logistic regression analyses were done by impulsively fitting all the variables in the multivariate logistic regression model to understand the factors that determine unmet need for family planning. Three sequential models were run and the results are presented in Table 10. The pseudo R^2 values for the three models considered in the analyses were Model 1 – 0.043, Model II – 0.066 and Model III – 0.065. Models I and II were bivariate models whereas Model III was a complete model (including all the independent variables for the study). In model III, age, parity, desire for children and place of residence were seen to have significant association with unmet need for family planning (Table 10).

Regarding age, it was observed that the likelihood of unmet need for family planning was lesser among women aged 20-24 years than those aged 15-19 years (OR=0.49, $p<0.01$). Also, as shown in Table 10, the likelihood of unmet need for family planning varied with parity. Young women who have at least one child have a greater likelihood to have their family planning needs not met compared with their counterparts at parity zero. The highest likelihood was

observed among young women who have two living children (OR=2.82, p<0.01).

Compared with women who want the same number of children as their husbands/partners, the study found that young women whose husbands/partners want fewer children have an 81 percent increased chance (OR=1.81, p<0.10) to have unmet need. Similarly, the odds of having unmet need for family planning was 1.95 (p<0.01) among women who said they don't know compared with women who want the same number of children as their husbands/partners (Table 10).

Concerning place of residence, it was observed that young women who reside in rural areas have decreased likelihood than their colleagues in urban areas to have unmet need for family planning. In fact, as presented in Table 10, these women (who reside in rural areas) have more than 50 percent reduced chance to have their family planning needs not met compared with young women in urban areas (OR=0.47, p<0.01).

Unmet need for family planning among young women varied with women's household wealth status. The likelihood of unmet need for family planning reduces as women's wealth status increases. Compared with young women in the poorest wealth category, the odds of having unmet need for family planning reduced from 0.90 among women in the poorer category to 0.66 among young women in the richest category. However, the least likelihood was observed among women in the richer category (OR=0.60, p<0.10).

Table 10: Multivariate Logistic Regression on Unmet Need for Family Planning Among Young Women (15-24 years) in Ghana

Variable	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
Age			
15-19	Ref	Ref	Ref
20-24	0.48***(0.31–0.73)	0.49*** (0.31–0.76)	0.49*** (0.31–0.76)
Parity			
Zero	Ref	Ref	Ref
One	2.84*** (1.75–4.62)	2.76*** (1.68–4.55)	2.70*** (1.63–4.45)
Two	2.69*** (1.58–4.56)	2.89*** (1.67–5.00)	2.82*** (1.62–4.89)
Three or more	1.97** (1.02 – 3.81)	2.21** (1.10 –4.43)	2.13** (1.06 – 4.28)

Table 10 continued

Desire for children			
Both wants same	Ref	Ref	Ref
Husband wants more	1.12 (0.76 – 1.66)	1.27 (0.85 – 1.90)	1.28 (0.85 – 1.91)
Husband wants fewer	1.76* (0.93 –3.32)	1.82* (0.94 –3.50)	1.81* (0.94 –3.50)
Don't know	1.65** (1.12–2.43)	1.97*** (1.32–2.95)	1.95*** (1.30–2.92)
Residence			
Urban		Ref	Ref
Rural		0.47*** (0.30–0.72)	0.47*** (0.30–0.73)
Education			
No education		Ref	Ref
Primary		1.41 (0.88 – 2.25)	1.37 (0.86 – 2.19)
Secondary		1.42 (0.89 – 2.26)	1.38 (0.86 – 2.20)
Higher		1.81 (0.46 – 7.16)	1.75 (0.44 – 6.93)

Table 10 continued

Religion		
Christian	0.85 (0.37 – 1.91)	0.84 (0.37 – 1.90)
Islam	0.59 (0.25 – 1.39)	0.59 (0.25 – 1.39)
Traditional	1.11 (0.29 – 4.19)	1.24 (0.32 – 4.77)
No religion	Ref	Ref
Wealth status		
Poorest	Ref	Ref
Poorer	0.90 (0.57 – 1.42)	0.90 (0.57 – 1.42)
Middle	0.76 (0.46 – 1.27)	0.76 (0.46 – 1.27)
Richer	0.61* (0.34–1.10)	0.60* (0.33 –1.09)
Richest	0.66 (0.30 – 1.45)	0.66 (0.30 – 1.45)

Table 10 continued

Occupation			
Not working		Ref	Ref
Working		0.77 (0.55 – 1.07)	0.76 (0.55 – 1.07)
Knowledge about family planning			
Knows no method			Ref
Knows only traditional method			1
Knows modern method			1.77 (0.36 – 8.84)
Prob>X^2	0.0000	0.0000	0.0000
Pseudo R^2	0.0425	0.0655	0.0646

Source: Computed from GDHS, 2014

Ref = reference; OR = odds ratio; CI = confidence interval

*p<0.10 **p<0.05 ***p<0.01

Reasons for non-use of family planning

Various reasons have been chronicled to explain the non-use of family planning among women with unmet need. These reasons have been broadly grouped under fertility-related, opposition, lack of knowledge and method-related reasons. The findings of this study, as presented in Table 11, show that generally, health concerns or fear of side effects was the most cited reason for the non-use of family planning.

Specifically, postpartum amenorrheic (18.7%), infrequent sex (15.9%) and breastfeeding (12.4%) were the most cited fertility-related reasons for not using family planning. With opposition, husband/partner opposition was the most cited (indicated by 5.7% of young women with unmet need) followed by self-opposition (4.6%). For lack of knowledge, knows no source was the most cited reason, though mentioned by only about one percent of women who were not using family planning. With the method-related reasons, fear of side effects was cited most – by about a third (33.2%) of all women who were not using family planning (Table 11).

Table 11: Reasons for Non-Use of Family Planning

Reason	Percentage (n=283)
Fertility-related reasons	
Not married	1.4
Not having sex	8.5
Infrequent sex	15.9
Subfecund/Infecund	0.7
Postpartum amenorrheic	18.7
Breastfeeding	12.4
Fatalistic	5.0
Opposition	
Respondent opposed	4.6
Husband/partner opposed	5.7
Others opposed	1.1
Religious prohibition	1.1
Lack of knowledge	
Knows no method	0.7
Knows no source	1.1
Method-related reasons	
Fear of side effects/health concerns	33.2
Lack of access/too far	0.7
Costs too much	5.7
Inconvenient to use	5.7
Interferes with body's processes	2.1

Source: Computed from GDHS, 2014

Discussion

Demographic Factors That Influence Unmet Need for Family Planning

The findings of the study show that age of the respondent, parity and desire for children were all significantly associated to unmet need for family planning among young women (15-24 years) in Ghana. In contrast to the findings of Hameed et al. (2011) but similar to the findings of other past studies (Ojakaa, 2008; Vohra et al, 2014; Solanke, 2016), this study found that unmet need for family planning is higher among younger women. The younger women were found to be more likely than their older counterparts to have their needs for family planning not met. The inverse relationship between age and unmet need found by this study is in line with findings from Ghana reported in the 2014 GDHS.

This finding supports the claim that young people are among the groups most likely to have unmet need for family planning (Ojakaa, 2008; Oginni at al., 2015) because they are more desirous to avoid pregnancy (Oginni at al., 2015). Lower unmet need among younger women can be explained by the fact that the older women are more likely to be economically engaged, hence, they are able to afford family planning services. The younger women, who are more likely to be poorer, are unable to meet their family planning needs.

The findings of this study on age as a determinant of family planning usage also has cultural backing. Because of cultural reasons, young women are not able to access family planning services. In sub-Saharan Africa and therefore, the Ghanaian setting, young women who use family planning services are considered to be promiscuous (Ochako, Mbondo, Aloo, Kaimenyi, Thompson, Temmerman & Kays, 2015). This notion has created some stigma around the

use of family planning services, especially among young women. The stigma surrounding the use of family planning is so pervasive because sometimes, even health personnel, who are supposed to know better, treat young women who want to access family planning services in a disparaging manner (Silumbwe, Nkole, Munakampe, Milford, Cordero, Kriel & Steyn, 2018). It is therefore not surprising that younger women were found to be more likely to have their family planning needs not met.

This study also found unmet need for family planning to be higher among women with higher number of living children than among women with no child. This confirms findings from previous studies (Hameed, et al., 2011; Ansary & Anisujjaman, 2012; Oginni, et al., 2015).

Higher unmet need among women who have higher number of living children is expected because these women are less likely to desire an additional child. They thus, have high unmet need for limiting births. It is noteworthy that the number of children a woman has alive is not only dependent on her fertility desire but is also affected by her contraceptive decisions. In this case, non-use of family planning could possibly explain why women at parity five have high unmet need. That is, their non-use of family planning could be the reason why they have five living children and therefore, high unmet need for family planning.

Women who have three living children were found to have lesser unmet need than their counterparts with one child. This is against popular notion and is possibly because, the women with one child have high unmet need for spacing births and not for limiting births.

According to Yotebieng et al. (2015), the number of children that a woman desires affects the likelihood of her having an unmet need for family planning. The fertility desire of her husband/partner also affects the woman's contraception behaviour and as to whether she will have her family planning needs satisfied or not. This was proven by some past studies which documented that when substantial differences exist between the fertility preferences of a woman and that of her husband/partner, they are less likely to use family planning services (Bankole & Audam, 2011; Baschieri, et al., 2013).

The findings of this study revealed that women whose desire for children differed from that of their husbands/partners were more likely to have unmet need for family planning. That is, young women who either want more or fewer children than their husbands have a greater likelihood to have unmet need. The highest likelihood was observed among women whose husbands wants fewer children.

Culturally, men are considered the head of the household/family. Because of this, anytime a woman and her husband/partner have differing views, the woman is expected to go by the views of her husband/partner. In the context of this research, when men desire more children than their wives do, they are very likely not to endorse the woman's intentions or attempts to use family planning services. Thus, when a woman's fertility preferences differed from those of her husband/partner, she is more likely not to use family planning, just as this study found.

Socio-economic Factors That Influence Unmet Need for Family Planning

Evidenced from the findings of this study, place of residence has statistically significant association with unmet need for family planning among young women in Ghana. The other socio-economic variables (level of education, religion wealth status and occupation) were, on the other hand, found to have no statistically significant association with unmet need for family planning among young women.

According to Bradley et al. (2012), women in the rural areas are less likely to have their demand for family planning met than their counterparts in the urban areas. That is, women residing in rural areas are more likely to have unmet need for family planning. Past studies (Ojakaa, 2008; Hailemariam & Haddis, 2011; Lakew et al., 2013; Letamo & Navaneetham, 2015; Solanke, 2016) have confirmed this. Several socioeconomic disparities such as the lower availability of health providers in the rural areas, easier accessibility to family planning services in urban areas, lesser education and low economic empowerment of women in rural areas (Sibley & Glazier, 2009; Machiyama & Cleland, 2013) have been given to explain why unmet need is higher in rural areas than in urban areas.

This study however, found results that are in contrast to the above. Like Omedi and Nyauchi (2015) reported from Kenya, this study found that unmet need for family planning was higher among young women in urban areas. Ali and Okud (2013) reported similar findings from Sudan only that in their study, place of residence was not a significant determinant of unmet need.

In Ghana, findings on residence as a determinant of unmet need are ambivalent. While Machiyama and Cleland (2013) found that women in rural areas have a lesser likelihood than their colleagues in urban areas to have unmet need for family planning, the 2014 GDHS on the contrary reported higher unmet need among women in rural areas than women in urban areas (GSS, et al, 2015).

Higher unmet need in urban areas than in rural areas, as found by this study, could be as a result of higher demand for family planning in urban areas than in rural areas. At the early stages of declining desired family size, demand for family planning rises. This decline first occurs in urban areas, among more educated women, and among wealthier households (Mills, Bos & Suzuki, 2010). As family planning programs and other providers are unable to meet the increased demand for family planning or address concerns about health and side effects, unmet need increases in urban areas.

The findings of this study on education as a determinant of unmet need for family planning are consistent with the findings of past researches (Ojakaa, 2008; Hailemariam & Haddis, 2011; Oginni, Ahonsi, & Adebajo, 2015) which found unmet need for family planning to reduce as the individual's level of education increases (even though level of education was not a significant determinant of unmet need in this study). Also, just like these studies found, unmet need for family planning was higher among women with primary education than women with no formal education.

The inverse relationship observed between education and unmet need for family planning is not really surprising. This is because education is an empowerment tool such that an educated young woman has some knowledge

on family planning methods and why it is necessary. That is, the level of awareness of fertility control and preference for a smaller number of family is less understood among the less educated, while the better educated women appreciate the value of small planned family as well as the means in achieving it (Mills, et al., 2010). In addition, education can improve women's autonomy and their ability to negotiate for the use of contraceptives. In this sense, the higher a woman's level of education, the higher or stronger her ability to negotiate for family planning usage hence, the lower her unmet need for family planning. Unlike their uneducated counterparts, such women are more likely to be engaged in an income generating activity that enables them afford family planning methods at their disposal. It is more likely that some are still in pursuit of higher education and are more careful not to conceive as such might curtail their academic dreams and life prospects.

Even though unmet need for family planning was found to reduce as level of education increases, the study also found that educated young women are more likely than their non-educated colleagues to have their family planning needs not met. This is similar to the findings of Adjei et al (2014). This scenario could be explained by the fact that demand for family planning is lower among women with no formal education than women with some level of education. In Ghana for instance, the 2014 GDHS reports that total demand for family planning was 47.8 percent among women with no formal education but 60.7 percent, 60.2 percent and 58.4 percent respectively among women with primary, middle and secondary education.

In this study, just like some previous studies (Hailemariam & Haddis, 2011; Tesfay, et al., 2015) reported, religion was not significantly associated with unmet need for family planning. However, the study found that, with the exception of traditionalists, all women who had a religious affiliation had lower unmet need than their colleagues with no religious affiliation. Also, compared with women with no religious affiliation, this study found that Muslim women were least likely to have unmet need for family planning. This is in contrast with the findings of Patra and Singh (2015) and Solanke (2016) who reported that Muslim women were more likely than non-Muslim women to have unmet need for family planning.

With regard to occupation, this study supports the findings from studies in Kenya (Ojakaa, 2008), Eastern Sudan (Ali & Okud, 2013) and Nigeria (Solanke, 2016) which showed that total unmet need for family planning is lower among women who are employed. For instance, women in this study, who are working were found to have a lesser likelihood to have unmet need compared with their non-employed counterparts.

This finding however, contradicts what Hailemariam and Haddis (2011) and Oginni et al. (2015) reported that unmet need for family planning is higher among women who are working than those who are not. Women who are not working are very likely to lack the financial accessibility to family planning services compared with their colleagues who are economically engaged. They are therefore, less likely to meet their family planning needs and this could perhaps explain why they have higher unmet need. Working women can also be considered as independent hence, are more capable to negotiate for the use

of family planning explaining why they have lower unmet need. It is noteworthy however that occupation status was not a statistically significant determinant of unmet need among young women.

Wealth status of women is another important determinant of unmet need for family planning. This is so because, utilization of family planning services is largely affected by one's ability to afford. Along this line, studies in Pakistan (Hameed, et al., 2011), Uganda (Kisaakye, 2013), Kenya (Omedi & Nyauchi, 2015), Botswana (Letamo & Navaneetham, 2015), Nigeria (Solanke, 2016) and Indonesia (Wilopo, et al., 2017) have documented that unmet need for family planning reduces as a woman's wealth status increases. This is because of the simple reason that, as a woman's wealth status increases, she would be able to afford family planning services to meet her family planning needs, hence, declining unmet need. Similar to these findings, this study found that unmet need for family planning among young women generally decreased as wealth status increases. Women in the richer wealth category were found to have the least likelihood to have their family planning needs not met.

Knowledge about Family Planning and Unmet Need for Family Planning

Knowledge about family planning was found not to be a significant determinant of unmet need for family planning among young women in Ghana. This notwithstanding, women with knowledge of modern family planning methods in this study were more likely to have unmet need than those with no knowledge about family planning. This finding contravenes findings from Pakistan (Hameed et al., 2011), Ethiopia (Hailemariam & Haddis, 2011),

Uganda (Andi, et al., 2014) and Kenya (Omedi, & Nyauchi, 2015). These past studies found unmet need for family planning to be higher among women who have no knowledge of family planning methods or sources of supply than their counterparts who are knowledgeable about family planning methods.

Even though knowledge about family planning was not a statistically significant determinant of unmet need among young women, the higher likelihood of unmet need observed among women who know modern family planning methods compared with their colleagues who know no method can be explained by the fact below. Women who have knowledge about modern family planning methods have higher demand for family planning than those who do not have knowledge about modern methods. Their high demand is, perhaps, the reason why they are more likely to have their needs not met.

Reasons for non-use of family planning

Young women in this study who had their family planning needs unmet cited several reasons for their non-use of family planning. The reasons cited include fertility-related reasons, method-related reasons, opposition and lack of knowledge. Concerning fertility-related reasons, the study found that postpartum amenorrhea, infrequent sex and breastfeeding were the most quoted by the young women with unmet need. This finding is similar to that of past studies. In a Cameroonian study, Ajong et al (2015) found that about a tenth of women who do not use family planning engage in sexual intercourse infrequently.

Similar findings were reported from India where Sudha et al. (2017) found that about one in eight women who had unmet need were not using family

planning because of low coital frequency (that is, infrequent sexual intercourse). Sudha et al. (2017) again reported that postpartum amenorrhea was a major fertility-related reason for non-use of family planning.

In Ghana, a 2013 study by Machiyima and Cleland also found that infrequent sexual intercourse was a major reason mentioned by women for their non-use of family planning. Sporadic engagement in sexual activity often leads to perceived low risk of pregnancy which translates into non-use of family planning (Khan, et al., 2016). This finding however contravenes the findings of Letamo and Navaneetham (2015) from Botswana where they reported that only a small proportion of women who had unmet need for family planning cited postpartum amenorrhea, breastfeeding or infrequent sex as their reason for not using family planning.

With regards to opposition, past studies (Igwegbe et al., 2009; Ajong et al., 2015; Workie et al., 2017) have reported religious opposition/prohibition as a major reason cited by women who were not using family planning. According to the findings of this study, however, religious prohibition is not a major reason for the non-use of family planning among women with unmet need. The study found that religious prohibition was named by only about a percent of women with unmet need as their reason for not using family planning.

The study found husband/partner opposition and self-opposition as more prominent reasons than religious prohibition. This is similar to findings from other parts of sub-Saharan Africa. In Nigeria for instance, more than a third of women who had unmet need cited husband/partner opposition as the reason for their non-use of family planning (Igwegbe et al., 2009) and in Cameroun, one

in five women who were not using family planning mentioned husband opposition as the reason (Ajong et al., 2015).

In the presence of husband/partner opposition, family planning use is low among women because husband's/partner's approval/disapproval wields significant influence on family planning usage (Eliason, Baiden, Quansah-Asare, Graham-Hayfron, Bonsu, Phillips & Awusabo-Asare, 2013; Esber, Foraker, Hemed & Norris, 2014). For example, in the study by Eliason et al. (2013), majority of women indicated that they will require the permission of their partners before they actually adopted a family planning method.

According to the findings of this study, lack of knowledge (that is, knows no method or knows no source) was not a key reason for non-use of family planning among young women. Only a small proportion of young women mentioned lack of knowledge as their reason for not using any family planning method. Similar findings were reported by previous studies. In Rajasthan (Vohra et al., 2014), India (Bhattathiry & Ethirajan, 2014) and Botswana (Letamo & Navaneetham, 2015), it was reported that only about five percent of women who had their family planning needs not satisfied lacked knowledge about family planning. Machiyima and Cleland (2013) also reported similar findings in their study among Ghanaian women. This finding is in contradiction with the findings of Sudha et al. (2017) who documented that lack of knowledge was the second most cited reason for not using family planning after fear of side effects.

Fear of side effects is the most common method-related reason explaining the non-use of family planning among women according to the findings of this study. Several past studies also reported similar findings from

different parts of the world. In India (Begum et al., 2017; Sudha et al., 2017), Botswana (Letamo & Navaneetham, 2015), Nigeria (Igwegbe, 2009), Cameroun (Ajong et al., 2015) and Ethiopia (Workie et al., 2017) fear of side effects was found to be the most cited reason for women's non-use of family planning. In Ghana, Krakowiak-Redd et al. (2011) and Machiyima and Cleland (2013) also reported similar findings.

The findings of this study also have theoretical backing. Just as the conceptual framework for this study explains, age, parity and desire for children (as demographic characteristics) and place of residence, level of education and occupation (as socio-economic characteristics) were found to have a significant association with unmet need for family planning among young women. These factors operate at different levels to influence usage of family planning confirming the multiplicity of factors influencing behaviour as espoused by the Ecological Theory of Health Behaviours (Mc Leroy, 1988) and the Healthcare Services Utilisation Model (Andersen & Newman, 1973).

Fear of side effects of family planning methods was found to be the most prominent reason for the non-use of family planning. According to the HBM, when individuals perceive that using family planning will lead to some adverse consequences, they are likely not to use it. Therefore, it was not really surprising that 'fear of side effects' was found as the major reason for young women's non-use of family planning. Other important reasons for not using family planning include infrequent engagement in sexual activity, postpartum amenorrhea and breastfeeding. These women are likely to perceive themselves to be at no risk of pregnancy. Drawing on the HBM, these women's non-use of family planning is expected because the model explains that whenever people

perceive themselves as not at risk of a condition they do not desire, they are not likely to take any action to prevent it.

Validation of Hypotheses

Based on the findings of the study, the following have been concluded on the rejection or otherwise of the research hypotheses. The first null hypothesis states that there is no statistically significant association between demographic characteristics (age, parity, desire for children) and unmet need for family planning. This hypothesis is rejected because evidence gathered from the study shows that statistically, age, parity and desire for children have significant associations with unmet need for family planning among young women (15-24 years).

According to the second hypothesis, there is no statistically significant association between socio-economic characteristics (residence, education, religion, wealth status, occupation status) and unmet need for family planning. Concerning place of residence, this hypothesis must be rejected because the evidence reveals that place of residence (whether rural or urban) has a statistically significant association with unmet need for family planning. However, with the other socio-economic characteristics, the hypothesis must not be rejected because, the findings did not show any statistically significant association between them and unmet need. Similarly, the third hypothesis that there is no statistically significant association between knowledge about family planning and unmet need cannot be rejected because evidence gathered from the study could not prove otherwise.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter provides the summary of the main findings of the study, conclusions and recommendations which are based on the findings of the study. In this chapter also, suggestions are made for future studies.

Summary

The study assessed the determinants of unmet need for family planning among young women in Ghana. Specifically, the study sought to examine the demographic and socio-economic factors that influence unmet need for family planning among young women, examine the effect of knowledge about family planning on unmet need among young women and explore the reasons for non-use of family planning among young women with unmet need. To this end, hypotheses were tested to determine the associations between demographic and socio-economic factors and unmet need for family planning among young women.

The conceptual framework which underpinned this study was adopted from Korra (2002). The framework explains that demographic factors and socio-economic factors interplay to affect the use/non-use of family planning with knowledge about family planning being a proximate determinant of family planning usage. The study, which was premised on the positivist philosophy of social science research, utilised data from the most recent Ghana Demographic and Health Survey conducted in 2014 and targeted married women between the

ages of 15-24 years. A total of 762 young women who were in union (that is, married or cohabiting) were included in the study.

The results of the study showed that majority of the respondents are aged 20-24 years. About 45 percent of the respondents have one child and almost half wants the same number of children as their husbands/partners. Sixty-four percent of the respondents reside in rural areas, 48 percent have secondary education and about 70 percent profess the Christian faith. A third are in the poorest wealth category with about 64 percent not working. Concerning knowledge about family planning, almost all the respondents know at least one modern method of family planning.

Age of respondent was found to be significantly associated with unmet need for family planning with unmet need being higher among women aged 15-19 years. Parity and desire for children were also found to have significant influence on unmet need for family planning among young women. The study found that unmet need was higher among young women who have five living children, whose fertility desires differed from that of their husbands/partners. Particularly, young women whose husbands/partners want fewer children have the highest unmet need. In addition, the study found that unmet need for family planning was higher among women in urban areas. In fact, place of residence was found to be a significant predictor of unmet need for family planning among young women.

Level of education, religion, wealth status and occupation were other socio-economic factors considered in this study. These factors were found to have no statistically significant influence on unmet need for family planning

among young women. Nevertheless, with level of education for instance, unmet need increases with level of education. Young women who have some level of formal education were found to be more likely to have their family planning needs not met compared with their colleagues with no formal education. Also, unmet need was found to be lower among Muslim and Christian women compared with their counterparts who had no religious affiliation and generally increased as wealth status increases. With occupation, working women were found to be less likely to have unmet need for family planning.

Again, although no significant association was found between knowledge about family planning and unmet need for family planning, the study found that unmet need was higher among young women who knew modern methods of family planning than their counterparts who knew only traditional methods and those who knew no method.

In addition to assessing the determinants of unmet need for family planning among young women, the study also investigated the reasons for the non-use of family planning among young women with unmet need. With this, the study found that several reasons explain the non-use of family planning among young women. Fertility-related reasons, method related reasons, opposition and lack of knowledge were all given for not using family planning. However, health concerns/fear of side effects was the major reason explaining the non-use of family planning among young women. Other prominent reasons why young women do not use family planning, according to the findings of this study, are infrequent sex, being postpartum amenorrheic and breastfeeding.

Knowledge of no method and lack of access were among the least cited reasons for not using family planning.

Conclusions

The study found that some demographic and socio-economic characteristics had significant influence on unmet need for family planning among young women. Demographic factors – age, parity and desire for children – were found to be significantly associated with unmet need for family planning among young women. Likewise, place of residence, as a socio-economic factor, had significant influence on unmet need for family planning among young women. However, level of education, religion, wealth status and occupation had no statistically significant association with unmet need for family planning among young women in Ghana. Also, there was no significant association between knowledge about family planning and unmet need among young women.

Varied reasons were found to explain the non-use of family planning among young women in Ghana. The most prominent reason was the fear of side effects of family planning methods. Other key reasons include infrequent engagement in sexual activity, postpartum amenorrhea and breastfeeding. On the other hand, lack of knowledge about methods or sources of family planning and lack of access to family planning were found to be the least cited reasons explaining the non-use of family planning among young women in Ghana.

Recommendations

Based on the findings of this study, the following recommendations are made;

1. Ghana Health Service should intensify education on the possible side effects of family planning methods to enable young women make informed choices.
2. Ghana Health Service and Civil Society Organisations must embark on an advocacy to inform and empower husbands/partners to accept family planning.

Suggestions for future studies

1. An in-depth, qualitative research will be necessary to explore the reasons why uneducated women have lower unmet need than their educated counterparts.
2. It was evident in the study that fear of side effects was a major reason for the non-use of family planning. It will be necessary to conduct a study to know which family planning method(s) young women fear to use because of their side effects.
3. The present study found that young women are more likely to have unmet need for family planning when their fertility desires differed from that of their husbands/partners. Future studies could explore reasons for this observation/phenomenon.

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APPENDIX: DATA SET DOWNLOAD PERMIT

Oct 09, 2017

Alfred Blay
University of Cape Coast
Ghana
Phone: 0247402653
Email: alfred.blay@stu.ucc.edu.gh
Request Date: 10/09/2017

Dear Alfred Blay:

This is to confirm that you are approved to use the following Survey Datasets for your registered research paper titled: "Unmet need for family planning among young women in Ghana":

Ghana

To access the datasets, please login at: https://www.dhsprogram.com/data/dataset_admin/login_main.cfm. The user name is the registered email address, and the password is the one selected during registration.

The IRB-approved procedures for DHS public-use datasets do not in any way allow respondents, households, or sample communities to be identified. There are no names of individuals or household addresses in the data files. The geographic identifiers only go down to the regional level (where regions are typically very large geographical areas encompassing several states/provinces). Each enumeration area (Primary Sampling Unit) has a PSU number in the data file, but the PSU numbers do not have any labels to indicate their names or locations. In surveys that collect GIS coordinates in the field, the coordinates are only for the enumeration area (EA) as a whole, and not for individual households, and the measured coordinates are randomly displaced within a large geographic area so that specific enumeration areas cannot be identified.

The DHS Data may be used only for the purpose of statistical reporting and analysis, and only for your registered research. To use the data for another purpose, a new research project must be registered. All DHS data should be treated as confidential, and no effort should be made to identify any household or individual respondent interviewed in the survey. Please reference the complete terms of use at: https://dhsprogram.com/Data/terms-of-use.cfm.

The data must not be passed on to other researchers without the written consent of DHS. Users are required to submit an electronic copy (pdf) of any reports/publications resulting from using the DHS data files to: archive@dhsprogram.com.

Sincerely,

Bridgette Wellington

Bridgette Wellington
Data Archivist
The Demographic and Health Surveys (DHS) Program

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