

REGIONAL INSTITUTE OF POPULATION STUDIES

UNIVERSITY OF GHANA

CORRELATES OF KNOWLEDGE OF OVULATION CYCLE AMONG WOMEN IN
URBAN POOR COMMUNITIES IN ACCRA



BY
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THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN
PARTIAL FULFILMENT OF THE AWARD OF MASTER OF ARTS (POPULATION
STUDIES)

JUNE 2014

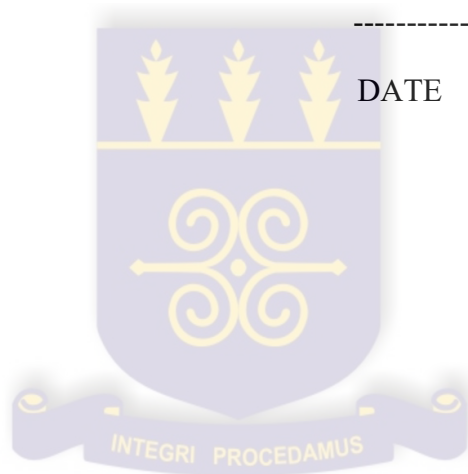
ACCEPTANCE

This dissertation is accepted by the faculty of Social Sciences, University of Ghana, Legon, in partial fulfillment of the requirements for the degree of Master of Arts (Population Studies).

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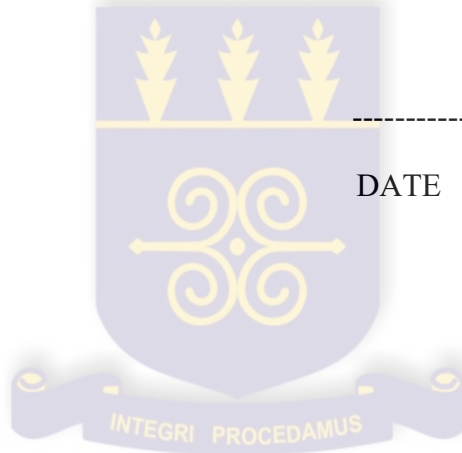


DECLARATION

I, Eugene Kwasi Gyekye, hereby declare that, except for references to other people's work, which have been duly acknowledged, this work is the result of my own research work undertaken with supervision and that it has neither in part nor in whole been presented elsewhere for another degree.

SIGNATURE OF CANDIDATE

DATE



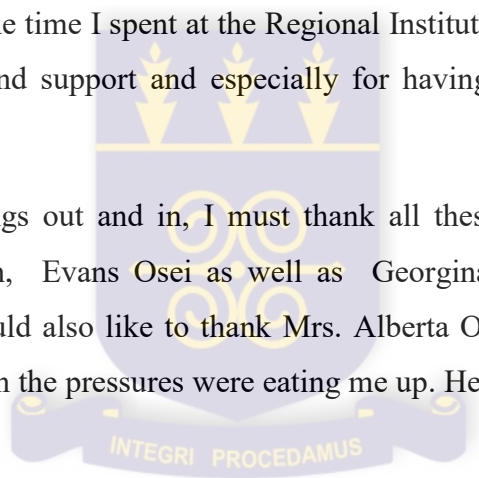
ACKNOWLEDGEMENT

Getting through my dissertation required more than academic support, and I have many, many people to be thankful to for listening to and, at times, having to tolerate me over the past year. Above all things, I say thank you to God. He never gave the promise that the journey will be easy but His grace and mercies have brought me thus far.

The search for a topic began with the academic advice I received from Alhassan Nurudeen and I am very grateful. From the initial comments during the proposal stage through to the supervision of the work, Professor Francis N.A. Dodoo has been an inspiration. His guidance, support and attention saw this work to this stage and deserve mention.

Dr. Naa Dodua Dodoo and Dr. Adriana Ewurabena Biney were unwavering in their personal and professional support during the time I spent at the Regional Institute for Population Studies. I am grateful for their guidance and support and especially for having been co-supervisors of this work.

For many memorable evenings out and in, I must thank all these wonderful people –Regina Borley Bortey, Isaac Yeboah, Evans Osei as well as Georgina Boakye for their guidance, friendship and support. I would also like to thank Mrs. Alberta Ohene Addo who opened both her arms and heart to me when the pressures were eating me up. Her advice kept me on.



DEDICATION

I dedicate this work to my copilot, Mrs. Beatrice Akyeamaa Gyekye, my brother, Michael Adu Gyekye and my sister Gertrude Serwaa Barnie. I love you all and God bless you.



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ABSTRACT

This study uses the Urban Health and Poverty Survey (2011) data to investigate the correlates of knowledge of ovulation cycle among women in urban poor communities in Ghana. Knowledge of the ovulation cycle of a woman is pivotal in the practice of the traditional methods of delaying childbirth and preventing unwanted pregnancies. These methods include periodic abstinence (rhythm), withdrawal, and country-specific folk methods.

Bivariate analysis shows Catholics have the highest proportion of respondents with good knowledge of their ovulation cycle. Again women who were in a union were more likely to have correct knowledge of the ovulation cycle than women who were not in any union.

Multinomial logistic regression was employed to analyze all the socio-demographic characteristics in a pool against the dependent variable (Knowledge of ovulation cycle of women). The results showed that women with primary level education were more likely to have correct knowledge of their ovulation cycle than women secondary and higher education and could be as a result of the fact that these women may be using the natural method unlike educated women who may prefer modern contraception and so, will have ample time to learn about ovulation through cultural socialization.

Religion, education, marital status, occupation, locality and education were the major correlates of a woman's knowledge of her ovulation cycle. However, age, ethnicity and parity were surprisingly not strongly associated with women's knowledge of their ovulation cycle.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In Ghana, rapid growth of the population has created a youthful population whose numbers are still expanding with an inbuilt momentum for further population growth. Changes in the growth, structure and composition of the population have both direct and indirect impacts on national development, poverty reduction and the general well-being of the population (Oyefara, 2012; NDPC, 2013).

Fertility is the actual reproduction performance in a population based on the number of live births that occurs in a population (Oyefara, 2012). It indicates the actual number of children born alive. Fertility rates are higher in sub-Saharan Africa than any other region of the world (Mturi and Hinde, 2001; PRB, 2013). Ashford (2007) intimates that many developing countries have young populations because of recent decades of high fertility (births per woman) along with improvements in child survival. A drop in fertility, therefore, can change a country's age structure and can profoundly affect the economy.

As such, a quest to reduce rapid population growth means that fertility must be lowered. So in developed countries, fertility intentions (thinking about giving births) are central to discussions of family planning and fertility rates. Whether implicit or explicit, behind the emphasis on fertility intentions is the assumption that, at least with readily available contraception, having a child is the result of a reasoned decision.

That this issue is more complicated than may appear at first glance is indicated by the fact that, even in developed countries, a large number of pregnancies is unintended and results in abortions or unwanted deliveries (Gissler, et. al., 2012; Morgan and Bachrach, 2011).

Ikamari et al., (2013) intimate that in sub-Saharan Africa, unintended pregnancies (any pregnancy that is unwanted or mistimed) account for more than a quarter of the 40 million pregnancies that occur annually and increase health and economic risks for children, women, men and families.

Research indicates that unintended pregnancy is a key risk factor for adverse pregnancy and maternal health outcomes, including mortality and morbidity associated with unsafe induced abortions (Bitto, Adenike et al., 1997; Eggleston, 1999; Gage, 1996). These unwanted or mistimed pregnancies have also been linked to low use of appropriate maternal health care (Joyce and Grossman, 1990; Magadi, 2006; Forrest, 1994) and are a major cause of unsafe abortion (Adenike et al., 1997; Eggleston, 1999; Gage, 1996).

Unintended pregnancies mostly arise as a result of nonuse or incorrect use of contraceptives, or a noticeable contraceptive failure (Forrest, 1994: Adetunji, 1998 and Bongaarts, 1997). Use of modern contraception is prevalent across much of the developing world, but countries vary widely in total use and in the number and range of method choices available to potential users (Ross and Stover, 2013). However, fears, misconceptions or misinformation, and side effects (actual or perceived) of methods are common barriers to the adoption and continuation of modern contraception.

In their studies on “Limits to modern contraceptive use among young women”, Williamson et al, (2009) intimate that all their studies showed that concerns over experienced and perceived side effects of hormonal contraceptive methods, particularly menstrual disruption, were central to young women's non-use of these. Fear of infertility was the most often cited: for example, "...women who use contraceptives will find it difficult to conceive when they eventually get married." (20 year old female youth club member, Nigeria).

In Mali and South Africa, menstruation represented the womb being cleared of "dirt" and was equated with good health. Therefore, methods which interrupted the perceived natural pattern of menstruation were unacceptable: "If you're not on the injection the blood stays somewhere next to the womb, and if you don't conceive that month, the blood can get out; but if you use Nurlsterate [injection], this blood doesn't pass easily to the place next to the womb, and it means your body will never be as it was before, and this blood prevents you from ever falling pregnant." (Young woman, South Africa).

While modern contraceptive use in Kenya among currently married women increased from about 27% in 1993 to 39% in 2009, there is an increasing trend in reporting "fear of side effects" and "health concerns" as important reasons for nonuse; a two-fold increase from 15.6% in 1993 to 30.7% in 2009 (Alaii et.al., 2012).

In their study on the fears and misconceptions about the side effects of modern contraception, Alaii et.al. (2012) found women and men across study sites discussing a wide range of fears centered on the themes: infertility, contraceptive failure, method expulsion or shift, cancerous growths, and birth defects. Given these fears, misconceptions and the numerous side effects of the modern methods of family planning, natural family planning offers a unique opportunity to study pregnancy intention and pregnancy outcomes because some women use it to plan a pregnancy while others use it to avoid pregnancy.

Kippley and Kippley (2009), define natural methods of family planning as methods of family planning whereby naturally occurring signs and symptoms of the fertile and infertile days of the menstrual cycle are observed. By being able to estimate whether or not a woman is likely to be fertile at a given time, the chances of conception can be increased or decreased. This normally depends on whether that time period is used for abstinence from, or engagement in,

unprotected sexual intercourse. This is so because the natural methods of family planning are based on a scientific knowledge of the female and male reproductive systems and on an understanding of the signs and symptoms that occur naturally in the woman's menstrual cycle to indicate when she is fertile and when she is infertile (Kabonga, Baboo and Mweemba, 2010; Palmerini, 1998).

The preference for this method is as a result of its harm-free effects on the health of women as compared to modern methods of contraception. It is also effective when used correctly and consistently. There are no side effects and they can be reversed immediately. It is inexpensive or free and does not require the use of devices or drugs or prescriptions or office visits. Natural Methods do not contain estrogen which may increase the risk of heart problems and is mostly acceptable for couples who have religious concerns related to contraception (American Pregnancy Association, 2013).

However, in many developing countries, women's knowledge of their ovulation cycle is poor. Bunting, Tsibulsky and Boivin (2012), indicate that fertility knowledge in general populations is poor. People are not very much aware of the biological aspects of conception; they often overestimate the chances of pregnancy at the time of ovulation (Lampic et al., 2006), have low awareness of when women are most fertile (Byamugisha et al., 2007) and lack an understanding of the steep decline in female fertility after the age of 34 years (Lampic et al., 2006; Bretherick et al., 2010).

This is consistent with the findings of the GDHS (2008) which intimates that among all women, only about four in ten, understand that a woman is most likely to conceive halfway during her menstrual period. Similarly, barely one-quarter of women wrongly believe that the fertile period is right after a woman's period has ended while fifteen percent say they do not

know when the fertile period falls, and twelve percent believe that there is no specific fertile time.

These findings highlight the deficit in women's knowledge of their ovulation cycle, which can increase the risk of unplanned pregnancies (Kabonga, Baboo and Mweemba, 2010; Cole, Beighton and Jones, 1975), unsafe abortions and maternal mortality (VandeVusse et al., 2004) and which also motivates research to explore the factors that affect knowledge of the ovulation cycle of women in Ghana.

1.2 Statement of the Problem

The observed high rates of fertility and the rapidly growing population in Africa are increasingly serious problems as far as socio-economic development is concerned. Most of the questions striking demographers today are questions such as; "Do we have the best handle on the ability of developing nations to improve their well-being in the face of continued population growth? Is it possible to keep feeding billions of people each year, and if so, how can it be done without completely degrading the environment? Are people a delay to development or a blessing in disguise? (Weeks, 2008).

Although there are debates on population growth and economic development, many scholars believe that, a holistic study of fertility as a determinant of population growth is imperative to developing strategies towards economic development of people in a given geographical location.

Higher fertility in developing world contexts presents the unpleasant situations of population pressure, carrying capacity and environmental degradation. Thomas Malthus (1798) and Esther Bosserup (1981) in their theories on population, are known to have argued strongly

on the necessity to control population growth so as to avert the dire consequences it could have on the environment and human lives.

Lowering fertility then becomes imperative for the modern demographer vis a vis ensuring that there will be an equilibrium between the size of human populations and current resources and technology in a way and manner that will culminate in maximum output per head or a maximum per capita income, reduced maintenance cost, increased living standards, etc., without compromising the welfare of generations to come.

Since poor knowledge of ovulation cycle and limited use of modern methods increase the risk of unintended pregnancies among women (Taylor, 2008), much work on our population needs to be done in order not to hamper the socio-economic development of citizens by putting constraints on land for development, increasing rates of unemployment, reducing access to healthcare and education. Investments in education on reproductive health come in handy. In developing countries, women continue to die because they lack access to contraception. Each pregnancy increases a woman's risk of dying from complications of pregnancy or childbirth (Zerfu, Abera, Tilahun and Tadesse, 2011).

Maternal mortality rates are particularly high for young and poor women, who have least access to contraceptive services. One in three deaths related to pregnancy and childbirth could be avoided if all women had access to contraceptive services (World Bank, 1998; Yinger, 2002; WHO 1998-2007, PND, 2000).

Sexual activity and childbearing early in life carry significant risks for young people all around the world. Incorrect or inconsistent use of contraception, contraceptive nonuse, and method failure account for unintended pregnancies ending in abortion. Understanding reasons for nonuse and imperfect use can help policymakers and family planning providers support effective

contraceptive use. The unavailability of such information including knowledge of the ovulation cycle of women, hampers policy making (Jones et al, 2002).

Poor knowledge of the ovulation cycle implies higher fertility which can result in unsafe abortions and maternal mortality. Thus, appropriate planning for a family is important for the health of women and children through: 1) preventing pregnancies that are too early or too late; 2) extending the period between births; and 3) limiting the number of children.

The goal of this study is to understand the correlates of knowledge of the ovulation cycle of women and the planning of childbirth interrelationships. The findings will provide insight into the relationship and linkages between the determinants of knowledge of the ovulation cycle of women and fertility (the wantedness of a child and how it is planned), and thereby serve as a useful tool to policy-makers and planners.

1.3 Rationale of the Study

Conferences on population growth have called on stakeholders to work towards the reduction of fertility among African populations. For instance, the Dakar-Ngor Declaration of 1999 called for a reduction in the population growth of Africa from an annual rate of 3 percent to 2.5 percent by the year 2000.

In this regard, the Government of Ghana made it a policy to work towards reducing the total fertility rate from the then prevailing figure of 5.5 in 1993 to 5.0 in 2000; and further whittle it down to 4.0 and 3.0 in 2010 and 2020 respectively (NPC, 1994).

Since fertility is a stimulant of population increase, it is imperative that time and effort be put in assessing the determinants of such a stimulant to population increase as well as the rates at

which the population of a region, country, continent and the world is growing so as to curtail the limits propounded by theorists such as Malthus and Bosserup.

However, there are potential problems with compliance (missed doses, unreliable supply) with modern family planning methods as a way of reducing fertility. Many women are unsure of the efficacy of the use of modern contraception as a method of planning their families. This has resulted in higher real-world pregnancy rates. Also, potential problems with compliance with modern contraceptive methods among women make natural methods of family planning an ideal for many of them. This is because documented fears and effects of modern contraception use among women make them prefer natural methods of family planning.

The use of such natural methods also require that the knowledge of ovulation cycle of women be examined in order to see how effective they are in avoiding unintended pregnancies as well as how the demand for children among couples are planned.

The findings of this study will provide policy makers with information on the relationship between the ovulation cycle of women and fertility and aid effective policy interventions in reducing fertility.

1.4 Objectives of the Study

The general objective of this study is to examine the factors associated with knowledge of ovulation cycle among women in urban poor communities in Accra.

Specifically, the study seeks to:

- i. Examine the correlates of women's knowledge of their ovulation cycle among Ghanaians.

- ii. Identify groups of women who are at risk of poor knowledge of their ovulation cycle.
- iii. Make recommendations for possible policy interventions.

1.5 Organization of the Study

The study is organized in seven chapters. The first chapter is the introductory chapter which focuses on the Background to the Study, Statement of Problem, Rationale of the Study and the Objectives of the Study.

The second chapter reviews related literature on the subject under consideration, outlines the Conceptual Framework and states the hypotheses of the study. Chapter three outlines the Methodology of the study whereas chapter four examines the demographic and social characteristics of the study population.

Chapter five discusses the socio-demographic characteristics of the study population vis-a-vis the dependent variable in the bivariate analysis. Thus, knowledge of ovulation cycle is analyzed through the socio-demographic characteristics of women.

Chapter six consists of an analysis of multinomial logistic regression model whilst the summary, conclusion and recommendation are captured in chapter seven.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review of the factors that affect knowledge of ovulation cycle among women in urban poor communities. The literature identifies socio-demographic variables as some correlates of ovulation cycle knowledge among women.

2.2 Socio- demographic Characteristics and Knowledge of Ovulation

Bunting et. al. (2012) observed in their work on fertility knowledge and beliefs that, factors that explained variation in fertility knowledge were mainly socio-demographic rather than fertility or parenting variables. Okasha (2001) also noted in his study that, educational level, parents, friends and school are important determinants that affect the sexual knowledge level of adolescents.

A study by Lundsberg et. al. (2013) showed that forty percent of women in their study population across all age groups expressed concerns about their ability to conceive. Yet one-third of women were not aware of the adverse implications of sexually transmitted infections, obesity, or irregular menses for procreative success, whilst one-fifth were not aware of the effects of ageing. Approximately 40% were also not very familiar with the ovulation cycle.

Overall, younger women (18–24 years) demonstrated less knowledge regarding conception, fertility, and ovulation, whereas older women tended to believe in common myths and misconceptions. Respondents in all age groups identified women's health care providers (75%) and web sites (40%) as top sources of reproductive health-related information; however,

engagement with providers on specific factors affecting fertility was sparse hence the conclusion that knowledge regarding ovulation, fertility, and conception is limited among United States women of reproductive-age.

Hawkins (2007) argues that socio-demographic characteristics which include: age, place of residence, level of education, ethnicity, occupation, marital status and religion are likely to correlate with women's knowledge and beliefs.

Izugbara and Ochako (2011) assert that poor urban settlement contexts set limits on the ability of women and men to safeguard their sexual and reproductive health, control their fertility, and implement their fertility aspirations. Essentially, these settlements are characterized by extreme poverty and poor livelihood conditions, limited access to family planning services, illiteracy, sexual violence, and lack of access to quality health care, including ante and post-natal care services. They present particularly interesting and fertile locations for unintended pregnancy and related behaviour (APHRC, 2002).

Religion according to Frazer (1980) aims at propitiation or reconciliation of powers superior to man which are believed to direct and control the course of nature and human life. The African Traditional Religion has been found to encourage higher fertility behaviour because of the perception about the universe (Aryee, 1989). This gives a sense that the proportion of population which believe in African Traditional Religion is less likely to think about the use of contraception. This could be as a result of breaking socio-cultural as well as spiritual norms or that many of these women do not have adequate knowledge of their reproductive cycles so unable to determine when pregnancies can occur or not if they engage in sexual intercourse.

The effect of African Traditional Religion on contraceptive use is not different from that of the Islamic Religion. According to the Sharia Law of the Muslims, birth control is only accepted when a mother has decided to space birth or is suffering from a chronic disease. Thus, with Muslims, natural ways of regulating fertility is likely a preference than modern contraception. However, Muslim women's knowledge of their ovulation cycle is likely to be low since there is no clear acceptance of natural methods as a birth spacing tool.

Most Christians are motivated by the Bible to produce more children. Pronatalist Christians such as the Anglican Church and the Roman Catholics are taught to abstain from the use of contraception as a mechanism to reduce fertility. Therefore, contraception knowledge is likely to be low among such Christians. This gives a sense that among these people the rhythmic method is mostly practiced as compared to other methods.

Cadwell (1982) asserts that, ethnic groups in parts of Africa value children and so contraceptive knowledge is low among such groups. Thus, since the individuals who make the reproductive decisions think less about contraception, knowledge of fertility reduction methods is not very important to them.

According to Sathar and Zeba (1998), women who are employed in the formal sector desire fewer children and so are more likely to possess family planning knowledge. This is advanced by Chaundhury (1984) who observes that women who work outside their homes for wages and salaries use modern contraception more effectively than those who work in their homes.

2.3 Modern Contraception, Side effects and Fertility Intentions

Robey et al., (1992) intimates that modern contraceptive methods are highly efficacious, but many women are concerned about their side effects and are unhappy about the limited range of methods available.

Modern contraceptive methods can be categorized in several ways. Hormonal methods include such products as oral contraceptives, patches, vaginal rings, injectables, implants, and levonorgestrel intrauterine contraception. Non- hormonal methods include male and female condoms and other barrier methods, as well as copper intrauterine devices (IUDs) and surgical sterilization.

Generally, these methods have high efficacy, but potential problems with compliance (missed doses, unreliable supply) result in higher real-world pregnancy rates. Potential problems with compliance with modern contraceptive methods make natural methods of family planning (an ideal) for many women.

Fertility regulation through an understanding of a person's reproductive physiology in order to promote planned pregnancy decision making has been an issue that needs exploration in the light of fears and misconceptions about the use of modern contraception (Joyce et. al., 2000).

Abidun and Balogun (2008) in thier studies on sexual activity and contraceptive use among young female students of tertiary educational institutions in Ilorin, Nigeria argued that the main reason for not using contraception was fear of side effects of modern contraceptives. Fear of side effects of modern contraceptives is often fueled by misconceptions and misinformation about modern contraceptives.

They further intimated that there is evidence from qualitative studies that young women believe that modern contraceptives are harmful and can damage their womb, preventing them from getting pregnant later in life, whereas they did not associate abortion with such a problem. Thus, the few who use contraceptives often depend on less effective traditional methods as was the case in this study where most of the contraceptive users rely on periodic abstinence.

Zabin (1999) posits that ambivalence about conception and contraception may be of central importance in understanding pregnancy intentions and contraceptive use since pregnancy unintendedness is a complex concept, and has been the subject of recent conceptual and methodological critiques (Trussell et. al., 1999).

Bachrach and Newcomer (1999), suggest that wanted or unwanted pregnancies can be considered as two ends of a continuum of concepts instead of as a simple dichotomy. Stanford et. al. (2000) advance this and postulate that this continuum includes at least two dimensions: an affective dimension (i.e., the desire for a baby), which is related to community, partner and personal values about childbearing; and a planning dimension, which concerns preparation for pregnancy, life goals and education.

According to Brown and Eisenberg (1995), pregnancies among couples may be intended, unintended or unwanted. Unintended pregnancies are pregnancies that are reported to have been either unwanted (i.e., they occurred when no children, or no more children, were desired) or mistimed (i.e., they occurred earlier than desired). In contrast, pregnancies are described as intended if they are reported to have happened at the “right time” or later than desired (because of infertility or difficulties in conceiving).

A concept related to unintended pregnancy is unplanned pregnancy—one that occurred when the woman used a contraceptive method or when she did not desire to become pregnant but did not use a method. Thus, intentions are often measured or reported only for pregnancies ending in live births; pregnancies ending in abortion are generally assumed to have been unintended. All of these definitions assume that pregnancy is a conscious decision.

Unintended pregnancies are associated with adverse child health outcomes and risk factors for poor health outcomes including physical abuse, violence during pregnancy and the 12 months before conception (Gazmararian et al., 2000), household dysfunction and exposure to psychological, physical or sexual abuse of the woman (Dietz et al., 1999).

Daulaire et al., (2002) reveal that many unintended pregnancies end in abortions. As such, in countries where abortion is illegal and unsafe, unintended pregnancy is a major contributor to maternal morbidity and mortality. Abortion is estimated to have caused 400,000 of the 700,000 deaths resulting from unintended pregnancy worldwide between January 1995 and December 2000.

Trussel et. al. (1999), highlighting contradictions among assessments of pregnancy intention, contraceptive failure, and a woman's happiness or unhappiness at discovering she is pregnant, argue that, such contradictions could be explained in three folds: first, that planning or intending to become pregnant may be distinct from wanting to be pregnant; second, the concept of planning a pregnancy may not be meaningful to some women and third, ambivalence about avoiding pregnancy may be expressed in imperfect contraceptive use.

2.4 Women and Natural Methods of Family Planning

Natural methods include premarital and postpartum sexual abstinences, withdrawal, and the use of herbs. The natural methods employ periodic abstinence from, and varieties of sexual contact between couples who desire to plan the timing of the arrival of their children (Kabonga et al., 2010).

Natural methods of contraception do not use any appliance of medicine. Some of these methods have been practised throughout the world from prehistoric times and are widely practised even today by couples.

Fehring (2010) advanced that natural family planning use is related to its benefits, among which are: no side effects, few health risks, affordable, and compatible with many women's value systems. The ability of a woman to know when, where and how to give birth especially in the deliberate non-use of modern contraception is contingent to some extent, on how knowledgeable the woman is about her ovulation cycle (Jones K. et al, 2002). However, much is not known about the nature of these traditional contraceptive methods (Zerfu et al., 2011).

2.5 Ovulation Knowledge of Women

Majority of studies conducted world over are based on sexual health behaviour of adolescents and women rather than knowledge (Koyama et.al, 2009). Knowledge on sexual health encompasses information related to sexuality, reproductive and sexual health care problems and services available, autonomy over choice of partner and decision regarding family planning (WHO, 2012).

Correct knowledge regarding sexual health is important for all especially adolescents, as they are vulnerable to adopt negative behaviours if not guided properly and at the right age and

also because of the fact that wrong knowledge on sexual health may lead to various types of health risks and social problems.

Good knowledge of a woman on sexual health issues advances her knowledge of contraception – which is considered as pivotal in fertility intentions and wanted/unwanted fertility. This is more so because, motivations to engage in sexual activity may be distinct from childbearing motivations, and the latter may emerge only after a pregnancy has occurred (Miller et al., 1999).

Again, where contraceptive use is widespread, fertility is low. Rajaretnam (1990) indicates that even today, couples delaying child bearing will bring about a decline in fertility and population growth rate if there is no reduction in the family size of individual.

2.6 Sources of Women's Ovulation Knowledge

With the increasing agents of socialization in the Ghanaian society especially, on matters of reproduction among women in the past and recent developments in technology, increasing women's knowledge of their ovulation cycle is deemed an imperative in order to empower them to make informed choices about when, where and how to give birth (Palmerini, 1998). The provision of balanced information about fertility has been advocated since the early days (Leiblum et al., 1987).

Having experience of help-seeking is a strong argument that is advanced in other studies to impact on fertility knowledge and beliefs. For example, preparatory clinic information provided prior to fertility clinic appointments has been shown to increase knowledge (Takefman et al., 1990) and increase attendance at clinic appointments (Pook and Krause, 2005).

In many societies, most young girls rely on parents, equally uninformed peers, and popular media for information on sexual maturation, pregnancy and sexuality, who often do not provide them correct and timely information, exposing them to sexual and reproductive health risks including unintended pregnancies (Izugbara et. al., 2011; Crichton et. al., 2012; Crichton et.al. 2009 and Place et.al. 2007). For example, research studies conducted in Egypt, Morocco and Turkey have identified friends as the most important source for adolescents in building their knowledge on sexual health (Roudi- Fahimi and Feki, 2011), although in a few cases friends were labeled as unreliable source of information. The school has always been considered as an important source for building knowledge on sexual health and fertility (Kirby, 2002).

The Global school-based health survey (2007), on school children in Lebanon identified the role of schools and community to be even stronger than parent's role. Again, studies from Morocco and Egypt have identified that girl students not attending schools are at a higher risk of early marriage and pregnancy (as early as 15). Other sources of information on ovulation knowledge are through house helps and internet (including magazines and books) though common but are found to be risk factors for poor knowledge on sexual health.

Bleakley et. al. (2009) assert that maids in Arab culture are from diverse backgrounds and a majority of them are uneducated, hence information received through them may not be counted as reliable. Recently, internet and media sources have become a convenient way of accessing information on any topic; however they lack the explanation which is required to understand them and at times prove to be harmful rather than beneficial for young adolescents (Strasburger, 2012).

2.7 Levels of Women's Ovulation Knowledge

Msacky (2012) intimates that the success of natural family planning programmes in Africa is affected by poverty, inadequate knowledge about contraception, limited ability to make independent decisions about using family planning or about when to have children, strong compliance with cultural and religious norms and lack of experience in obtaining family planning services. This is given credence by Nakiboneka (2008), who highlights the fact that knowledge about the cyclical method of family planning is insufficient among many study populations.

In their study on adolescent sexuality and fertility in Kenya, Ajayi et. al. (1991) established that disparity between correct knowledge and actual practice of contraception is so great that it sets the challenge for the future and suggested that programmes be designed to convey information to those who are out of school, assuming that new initiatives to provide family life education are capable of performing the task for those in school.

Many studies indicate that people are unaware of the biological aspects of conception; they often overestimate the chances of pregnancy at the time of ovulation (Lampic et al., 2006), have low awareness of when women are most fertile (Byamugisha et al., 2006) and lack an understanding of the steep decline in female fertility after the age of 34 years (Lampic et al., 2006; Bretherick et al., 2010).

Research in Kenya for example, suggests that generally, and in the specific areas young people have limited access to quality sexual and reproductive health information, including knowledge on contraception (Magadi, 2007; Magadi, 2003; Forrest 1994; Crichton et. al., 2012) whereas stigma, inadequate sexuality information and cultural pressure to appear sexually chaste

and inexperienced also hinder utilization of family planning services among young girls and unmarried girls (Aloo-Abunga, 2003).

Given the fact that a basic knowledge of reproductive physiology is important for the successful practice of coitus-related methods such as withdrawal, condoms, vaginal methods, and fertility-awareness methods that are collectively referred to as periodic abstinence, rhythm, or the calendar method, the Ghana Demographic and Health Survey (2008), conceptualized knowledge of a family planning method as having heard of the method.

A person with knowledge of the fertile period in her menstrual cycle according to this conceptualization was a woman with information on and an understanding of the method and when during the menstrual cycle she is most likely to conceive, as well as her ability to successfully practise the methods.

Fertility knowledge categorization is varied. It was assessed by Blenner (1990) using a 13-item questionnaire that investigated knowledge in three areas. The items were selected from other studies to examine knowledge categories known to be associated with fertility decision-making: (i) indicators for reduced fertility (e.g. smoking, weight, history of STIs and mumps after puberty); (ii) misconceptions about fertility) and (iii) basic facts about infertility (e.g. recommended time limit for referral to a specialist, base rate of infertility). The response scale was true, false or don't know.

The categorization of knowledge of fertile period of a woman in many of the literature is deduced from two decision points: the decision to have a child and the decision of what to do if natural attempts were unsuccessful. Psychological (e.g. Theory of Planned Behaviour, Ajzen, 1993; Health Belief Model, Rosenstock, 1990) and fertility (e.g. Preference theory, Hakim,

2000) theories as well as systematic review of published literature regarding reproductive decision-making informed.

The literature review reveals that there is not much work done to examine knowledge of the ovulation cycle of women. Rather, most studies concentrate on modern contraception and sometimes treat the cyclical method as an individual family planning method without examining the knowledge of women it. Again, although some studies talk about contraceptive methods in relation to a given socio-economic variable, there is little study on the correlates of knowledge of the ovulation cycle. Also categorization of knowledge has been a gray area for many studies.

This study attempts to bridge the gaps in the literature with respect to the categorization of knowledge a woman will have about her ovulation cycle and the effect of correlates of that knowledge on wanted or unwanted fertility among women.

2.8 Conceptual Framework

Figure 1.1 is a model that shows the relationship among the independent variables namely socio-demographic characteristics of women, and the dependent variable.

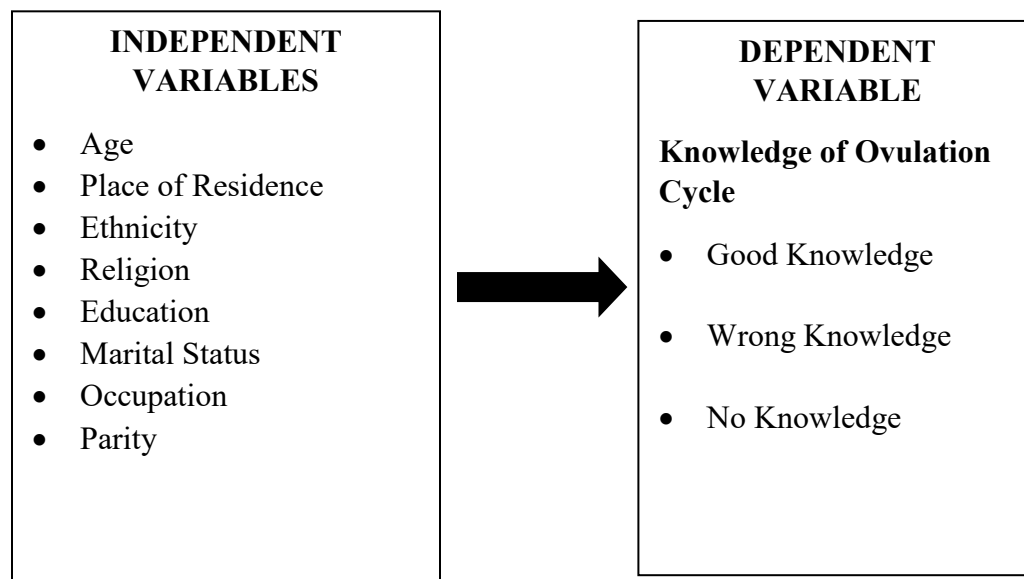
In this study, socio demographic variables will be used to assess knowledge of the ovulation cycle of women. The Figure, 1.1 shows that socio-demographic variables solely affect knowledge of the ovulation cycle and so they are used as the main independent variables to see the interconnections they have with knowledge of the ovulation cycle of women. This is against the backdrop that the background characteristics of a woman can greatly influence knowledge of her ovulation cycle which has linkages with fertility change.

That is, the selected independent socio-demographic factors such as age of woman, marital status, occupation, place of residence/location and religion are assumed to determine the

knowledge of the ovulation cycle of women either as “Good Knowledge”, “Wrong Knowledge” or “No Knowledge”.

Socio-demographic characteristics of respondents are expected to influence knowledge of their ovulation cycle and therefore the planning of childbirth and family size. For instance, a woman with good knowledge of her ovulation cycle is more informed about the reproduction physiology and so will be more likely to space births or employ the use of contraceptives during fertile periods of the cycle to avoid unintended pregnancies thereby reducing the total number of children she may have.

Figure 1.1 - Conceptual Framework for analyzing Socio-demographic Characteristics and Knowledge of Ovulation Cycle of Women



Source: Author's Construct.

2.9 Hypotheses

i. Catholics are more likely to have good knowledge of their ovulation cycle than women in other religions.

ii. Formerly women are more likely than women never married to have good knowledge of their ovulation cycle.

CHAPTER THREE

METHODOLOGY

3.1 Source of Data

The primary source of data for this study is the second round of data collected by the Urban Health and Poverty Survey (2011) in collaboration with faculty from the Universities of Southampton, Cape Coast, Ibadan and Fourah Bay.

The major aims of the project were to integrate real-life fieldwork into the teaching and learning of population sciences among students and staff in participating African and UK Higher Education Institutions (HEIs), produce field sites to carry out a study on urban health and poverty and contribute to knowledge on inequalities in health and human welfare between the urban poor and other sub-groups in Africa as well as sensitize local and regional stakeholders on urban poverty and health issues (Urban Health and Poverty Survey Draft Report, 2011).

Under this project, field sites in three urban poor communities in Accra (James Town and Ussher Town in Ga Mashie and Agbogbloshie) were established and data were gathered from residents in the area for research purposes. The first round of data was collected between June and July 2010. The second round of data, which is being used in this study, were gathered between November and December 2011. The project employed about fifty eight trained field workers to gather data. The questionnaires were practised and pre-tested in the old Ashongman Community by field workers before moving to the study area.

3.2 Sampling Technique

The sampling procedure was similar to that used in the first round of data collection in that the sample was drawn from the same 29 enumeration areas (EAs). The number of EAs and therefore, households in each locality was proportionate to the population size of that locality. Five EAs from Agboghloshie, eight from James Town and sixteen from Ussher Town were selected for the study.

The second round of the project aimed to collect longitudinal data; thus the idea was to interview respondents from households interviewed in the first round. The second round study sought to obtain a total of 1,500 individual interviews with male and female respondents aged 15-59 and 15-49 years respectively. Therefore, instead of only going back to the structures and the households that were sampled in the first round, an additional 20 households were also systematically selected from each of the EAs to obtain a total of 1160 households from all 29 EAs across the three localities (Urban Health and Poverty Survey Draft Report, 2011).

A breakdown by place of residence shows that 320 households in James Town, 640 households in Ussher Town and 200 households in Agboghloshie were selected. An updated version of the listing frame used in the first round was used to sample the 20 additional households. The extra 20 households were selected based on estimations from the first round. With round one, among the 497 households that were interviewed, a total of 736 respondents were obtained. Thus, it was estimated that for each household there would be about 1.5 respondents ($736/497$), hence doubling it to 40 households per EA to give 1,740 respondents.

The head of each household gave an account of all their household members using the household questionnaire. In each chosen household, all females from age 15 to 49 years and all

males aged 15 to 59 years were eligible to be interviewed. The sample size of eligible respondents was 548 women in their reproductive age.

3.3. Dependent Variable

The dependent variable was derived from the following question: During which times of the monthly cycle does a woman have the greatest chance of becoming pregnant? Women's responses were coded into three categories namely; correct knowledge, wrong knowledge and no knowledge of the ovulation cycle. These categories were obtained as women gave the following responses - "In the middle of the cycle" interpreted to be good knowledge, "don't know" interpreted to be no knowledge and, "during her period, right after her period has ended and just before her period begins" interpreted to be wrong knowledge.

The categorization of good knowledge, wrong knowledge and no knowledge is as a result of the fact that, a person giving the answer that she expects ovulation during the middle of her cycle, clearly has correct knowledge of her cycle whilst the one who responds by saying "do not know" clearly shows she has no knowledge of her ovulation cycle. The person gives any answer that is incorrect nor indicative of the fact that she does not know clearly exhibits wrong knowledge. All the three categories are mutually exclusive.

3.4 Independent Variables

The independent variables used in the present study were the socio-demographic characteristics of women namely, age, locality, ethnicity, occupation, marital status, religion, education and parity (children ever born).

3.5 Analysis Plan

The unit of analysis for this study was the individual woman aged 15-49. The study used the statistical software package, SPSS version 16 for the data analysis. Various methods were employed in the analysis of the data including generating frequency distributions, percentages, and means.

Frequencies were run to analyze socio-demographic characteristics of household members and eligible respondents. Knowledge of ovulation cycle was also analyzed using SPSS. In the analysis, re-categorization was done for some of the variables so as to aid simplification of the analysis. For instance, the “age” variable, originally in single years, was recoded into five – year age groupings.

Each independent variable was cross-tabulated against the dependent variable and the significance of the association was tested using the Pearson Chi-square test. Cross- tabulations were performed to find out any relationship existing between the independent and dependent variables. This is to allow for the quantification of the contribution made by each variable to a given knowledge of ovulation cycle.

Multivariate analysis using multinomial logistic regression was also undertaken to determine the factors associated with a woman’s knowledge of her ovulation cycle.

3.6 Limitations of the Study

Key variables that may have been significant correlates of knowledge of ovulation cycle were not available in the dataset; namely, discussions with health workers on family planning methods and their access to reproductive health messages from the media.

Just as in many surveys, there are bound to be both sampling and non-sampling errors in the data. The age of a woman may not be known by her. Some women may have shifted their ages upwards or downwards which is likely to affect the computed indices. For example, the Whipples index assume that respondents prefer to give their ages in digits ending with zero and five.

CHAPTER FOUR

BACKGROUND CHARACTERISTICS OF RESPONDENTS

4.1 Introduction

The socio-demographic characteristics of women in this study are the independent variables presented in the conceptual framework. These characteristics of the respondents generally affect their personal lives as well as knowledge of their ovulation cycle.

It is therefore relevant to examine the socio-demographic characteristics of the respondents in detail in order to understand how they affect their knowledge of the ovulation cycle. Thus, this section describes their various selected background characteristics.

4.2 Age of Respondents

Age is defined as the number of years a person has lived (www.yourdictionary.com). Censuses and surveys usually collect data on age in terms of the age of the person as at the time of his or her last birthday. That is, in surveys, a person's completed years at his or her last birthday is used to know his or her age and it provides information on the structure of a population.

The 2011 Urban Health and Poverty Survey captured the respondent's age by simply asking the age on the last birthday of the respondent. The conventional five –year grouping was used to classify age in completed years to facilitate analysis.

Table 4.2 shows that 13.1 percent of women interviewed were aged 15-19 years whilst 19.5 percent of the respondents interviewed were aged between 20 – 24 years. It can be seen that the proportion of women in each age group after the first two age groupings shows a consistent

decline in age as age increases. The age structure in Ghana therefore depicts a youthful population which is typical of developing countries.

This has demographic implications. The youthful nature of the population suggests that more women are in their childbearing age and as such the possibility of higher fertility among women in their reproductive ages. The youthful nature of the population also means that it is likely that there will be pressure on existing health facilities and other social infrastructure which has the resultant effect of women having unequal access to social amenities such as health care facilities and schools.

Table 4.2 Percentage Distribution of Respondents by Age

Age Group	Frequency	Percent
15-19	72	13.1
20-24	107	19.5
25-29	93	17.0
30-34	85	15.5
35-39	70	12.8
40-44	60	10.9
45-49	61	11.1
Total	548	100.0

Source: Urban Health and Poverty Survey (2011) dataset.

4.3 Ovulation Knowledge

Ovulation is one part of the female menstrual cycle whereby a mature ovarian follicle (part of the ovary) discharges an egg (also known as an ovum, oocyte, or female gamete). It is during

ovulation process that the egg travels down the fallopian tube where it may be met by a sperm and become fertilized. A woman's menstrual cycle lasts between 28 and 32 days on average.

The beginning of each cycle is considered to be the first day of her menstrual period (menses). Ovulation itself generally occurs between day 10 and day 19 of the menstrual cycle, or 12 to 16 days before the next period is due (Medical News Today, 2009).

Table 4.3 shows that more than half of the population (56.4 percent) of women interviewed had wrong knowledge of their ovulation whilst 19.2 percent of the respondents interviewed possessed correct knowledge of their ovulation. The proportion of respondents with no knowledge of their ovulation was 24.5 percent.

This depicts that ovulation knowledge among the sampled population is poor and typical of developing countries. This has demographic implications and suggests that it is likely that more women in their childbearing age would experience unplanned births which have ramifications for individuals and the government.

Table 4.3. Percentage Distribution of Women's Knowledge of Ovulation Cycle

Ovulation Knowledge	Frequency	Percent
No knowledge	134	24.5
Correct Knowledge	105	19.2
Wrong Knowledge	309	56.4
Total	548	100.0

Source: Urban Health and Poverty Survey (2011) dataset.

4. 4 Place of Residence

Place of residence of an individual, whether urban or rural is a crucial factor that explains variations in an individual's fertility. Weeks (2008) and Boupfa et al.(2005) intimate that urban dwellers have higher educational attainment than their rural counterparts, therefore urban dwellers tend to report low fertility compared to the rural counterparts. Also, the desire for a large family is stronger in rural areas than in urban areas, where the impact of socio-economic crisis is more harshly felt (Gasie and David, 1974).

Urban women are more likely to be informed about the contraceptive methods and so are more likely to be empowered to negotiate for protected sex with their spouses. This enables them to regulate their fertility. The nonexistence of such opportunities for rural women pushes them to have more children.

The women interviewed in the Urban Health and Poverty Survey (2011) lived in one of three urban poor communities as shown in Table 4.4. From the table, it is evident that 18.0 percent of women lived in Agbogbloshie, whereas 30.5 percent and 51.5 percent of women lived in James Town and Ussher Town respectively.

These areas, although situated in the heart of Accra are poor. The major consequence of this distribution is that there is a potential for high fertility since the reproductive aspirations of residents of poor communities tend to be stimulated by large family sizes. This also implies that by virtue of the fact that these poor folks will frequent delivery centers, they may have some good knowledge of their ovulation cycle.

Table 4.4 Percentage Distribution of Respondents by Place of Residence

Place of Residence	Frequency	Percentage
Agbogbloshie	99	18.0
James Town	167	30.5
Ussher Town	282	51.5
Total	548	100.0

Source: Urban Health and Poverty Survey (2011) dataset.

4.5 Ethnicity

Ethnicity is one important variable in demographic analysis. Ghana is made up of diverse ethnic groups with different cultural norms, individual beliefs, attitudes and behavioral patterns acquired through socialization. These cultural norms and beliefs may differ with respect to ideas about using contraception, limiting of births etc. The various preferred methods may also differ by ethnic groups.

Given the cultural dynamism among different ethnic groups, it is likely that those who favour the rhythmic methods will have their populations acquiring correct knowledge of their ovulation cycle most especially when some use beads to do the calculation of fertile periods. On the contrary, those who favour modern contraception are less likely to care about natural methods and so the possibility of wrong or no knowledge of their ovulation cycles.

Table 4.5 below shows that 53.5 percent of the sample population is made up of the Ga-Adangbe ethnic group. The second largest ethnic group is the Akan which records 28.6 percent of the sample population. The Ewe ethnic group makes up the smallest proportion with 6.0 percent of the sample population. Ethnic groups with lower proportions of percentages were categorized as ‘others’. This category included others, Guans, Gurusi, Guama and Mande. The study made use of four categories of ethnic groups.

Table 4.5 Percentage Distribution of Respondents by Ethnic Groups

Ethnicity	Frequency	Percent
Akan	157	28.6
Ga Dangbe	293	53.5
Ewe	33	6.0
Others	65	11.9
Total	548	100.0

Source: Urban Health and Poverty Survey (2011) dataset.

4.6 Religion

An individual’s knowledge and behaviour can be directly influenced by religious beliefs and practices. In this sense, religion can be an important background variable affecting one’s knowledge of her ovulation cycle. For the purposes of this study, the various religious groups were classified into: “No Religion”, “Catholic Religion”, “Protestants” (comprising Anglican, Methodist and Presbyterian Churches), “Charismatic/Pentecostal Religion”, “Other Christians” and “Other Religion” (comprising Islam, Eastern Religions and Traditional/Spiritual). The percentage of respondents by religious affiliation is shown in Figure 4.6.

Table 4.6 Percentage Distribution of Respondents by Religious Affiliation

Religion	Frequency	Percentage
No religion	31	5.7
Catholic	29	5.3
Protestants	114	20.8
Charismatic/ Pentecostal	255	46.5
Other Christians	53	9.7
Other religion	66	12.0
Total	548	100.0

Source: Urban Health and Poverty Survey (2011) dataset.

Ahonsi (1991) opines that the prospects for fertility decline in Ghana is almost unattainable, owing to the persistence of practices such as religion and marriage that encourages high fertility. It has been established that a person's behaviour, beliefs and norms are generally influenced by his/her religion. Table 4.6 shows that "Charismatic/Pentecostal Religion" has the highest proportion of respondents (46.5 percent) of the entire study population. They are followed by "Protestants" with 20.8 percent respondents. The smallest religious group is the "Catholics" with 5.3 percent of respondents.

4.7 Education

Education occupies a focal place in the causal explanation to changes in wantedness or unwantedness of children. Education, particularly female education has been singled out as a prime determinant of fertility decline (Bledsoe et al., 1999).

Caroline et al, (1999) suggest that the duration of schooling is seen as a factor that can influence critical demographic events in girls' transition to adulthood. However, Singh, Owusu and Shah (1985) argue that fertility declines as education rises. Evidence has shown that women with less than secondary schooling tend to have earlier age at first marriage or at first birth and subsequently higher fertility than those who complete secondary school.

Table 4.7 shows that 4.6 percent of women in the sample had attained middle school education with 26.3 percent of women having primary education. The proportion of women with secondary plus level of education was 21 percent. The smallest percentage of 7.7 percent had no education.

Table 4.7 Percentage Distribution of Respondents by Educational Level

Education	Frequency	Percentage
No education	42	7.7
Primary Education	147	26.8
Middle Education	244	44.5
Secondary+	115	21.0
Total	548	100.0

Source: Urban Health and Poverty Survey (2011) dataset

4.8 Marital Status

Marital status is a demographic characteristic which involves biological, social, economic, legal and religious considerations. It is an important factor in population dynamics as it affects ovulation knowledge of women and by extension the components of fertility.

Mosher et al., (2010) in their studies in the United States revealed that marital status is closely related to the choice of method of contraception. These methods are also related to the risk of unwanted fertility. The Urban Health and Poverty Survey (2011) collected data on respondents' current marital status. The respondents were categorized in this study as “Currently married”, “Formerly Married” and “Never married”.

Based on the above categories, the percentage of currently married women in the sample population was 23.9 percent. The proportion of women formerly married was 22.8 percent whilst the highest proportion (53.3 percent) of respondents were those who were never married.

Table 4.8 Percentage Distribution of Respondents by Marital Status

Marital Status	Frequency	Percent
Never married	292	53.3
Formerly Married	125	22.8
Currently married	131	23.9
Total	548	100.0

Source: Urban Health and Poverty Survey (2011) dataset

4.9 Occupation

The type of occupation an individual holds might be an important factor in influencing his or her knowledge of ovulation cycle. Women with demanding occupations may prefer fewer children than women with less demanding occupations. On the average, a woman's degree of involvement in employment tends to influence her knowledge of ovulation.

Miles-Doan (1998) intimates that, wage workers in white-collar jobs are significantly more likely than those not employed for pay to have obtained prenatal care and are substantially more likely to have adopted a contraceptive method in the year following childbirth. Women who are self-employed also are significantly more likely than those not employed for pay to be using contraceptives. Thus, women not employed for pay would be more inclined towards natural methods including the use of ovulation cycles to space, limit and control births so as to take better care of their children and give them quality life.

From Table 4.9, about 74 percent of the study population is engaged in some professional work which implies that a greater proportion of the respondents are working. The proportion of respondents in the professional occupation category, with the highest percentage in terms of their occupation, embraces women in the category labeled professional and women in services, agriculture and clerical categories.

Respondents in other occupations (embracing unskilled manual work, other, sales and household categories) make up to 6.2 percent whilst women without any occupation represented 20.1 percent of the sample population.

Table 4.9 Percentage Distribution of Respondents by Occupation

Occupation	Frequency	Percent
No occupation	110	20.1
Other Occupation	34	6.2
Professional occupation	404	73.7
Total	548	100.0

Source: Urban Health and Poverty Survey (2011) dataset

It can be seen that the population in the study area is dominantly Ga-Dangbes interspersed with some Akans and it is a youthful population. Many of the women in the study possess middle and secondary plus level of education.

It can also be deduced that a large proportion of women in this area have never married with a little over 23 percent currently married. However, Mean Children Ever Born stands at 3.97 children which is slightly above the national Total Fertility Rate.

Interestingly, more than half of the population (56.4 percent) of women in the study area have wrong knowledge of their ovulation whilst 19.2 percent of women possess correct knowledge of their ovulation. The proportion of respondents with no knowledge of their ovulation among these women is 24.5 percent.

4.10 Parity

According to Rotenburg et. al. (1987), contraception, which includes knowledge of cyclical methods, is most likely to be used by women with three or four children. Among women with fewer than three children, rates of contraceptive use are likely to increase as the number of children increases. The inclusion of parity and age in the study was theoretically grounded. That is, the study sought to understand relationship between parity as an independent variable, on the

dependent variable and likewise age as an independent variable on the dependent variable. Because of the theoretical reasons, one could not just be dropped since any drop of either variables will deny the study the opportunity to examine such interrelationships. Field (2009) also postulates that if $r > 0.8$, then the variable in contention must be dropped. A Chi square correlation analysis of parity and age revealed that r was 0.6 which means that $r < 0.8$. For this reason both age and parity were maintained in the model although they are correlated.

Table 4.10 shows the distribution of the number of children among women. About 48 percent of the population has 1-3 children. In the study population, respondents with 4-6 children were 16.2 percent giving indication relatively high in the parity. Thus, the mean Mean Number of Children Ever Born (MCEB) in the study area was 3.97. This is higher than the national Total Fertility Rate although the dataset was taken from an urban area. It could be deduced that the women in the study area exhibits characteristics of those in rural areas.

Table 4.10 Percentage Distribution of Respondents by Parity

Parity	Frequency	Percentage
0	176	32.1
1-3	264	48.2
4-6	89	16.2
7+	19	3.5
Total	548	100.0

Source: Urban Health and Poverty Survey (2011) dataset

The uni-variate analysis reveals that the population of the study area is a youthful one with most of them possessing either primary or middle education. Most of the women in the area have never married and the dominant religion is Charismatic or Pentecostal religion. More than half of the women work in services, agriculture and clerical job categories. The knowledge of ovulation cycle among most of the women wrong. The dominant ethnic groups in the area are Ga-Dangbe and Akan.

CHAPTER FIVE

SOCIO-DEMOGRAPHIC CHARACTERISTICS AND KNOWLEDGE OF OVULATION CYCLE OF WOMEN IN GHANA

5.1 Introduction

The bivariate analysis conducted in this study examined the relationship between the independent variables (socio-demographic characteristics of women) and the dependent variable (knowledge of the ovulation cycle of women). The social and demographic background characteristics explored include; age, locality, occupation, marital status, religion, education and parity.

Cross tabulations based on the Pearson's Chi-Square test were used to examine the strength of association between the selected individual variables and knowledge of ovulation cycle among women. The chapter investigates how each of the socio-demographic variables predicts a woman's knowledge of her ovulation cycle.

The bivariate analysis was intended to gain insight into individual socio-demographic factors that significantly affect a woman's knowledge of her ovulation cycle.

5.2 Socio-demographic Characteristic and Women's Ovulation Knowledge

A test of the association between socio-demographic variables such as age, locality, occupation, marital status, religion, education and parity was conducted using Pearson Chi-square test at 0.05 confidence level.

Table 5.1 Percentage Distribution of Respondents by Locality, Age, Education and the Ovulation Knowledge of Women

	Ovulation Knowledge				
Place of Residence	No Knowledge	Correct Knowledge	Wrong Knowledge	Percentage (%)	No. Of People
Agbogloshie	27.3	25.3	47.5	100	99
James Town	17.4	25.7	56.9	100	167
Ussher Town	17.4	23.4	59.2	100	282
	$\chi^2=6.220$	P value=0.183			
Age					
15-19	17.8	41.1	41.1	100	73
20-24	15.9	23.4	60.7	100	107
25-29	23.7	19.4	57.0	100	93
30-34	15.3	28.2	56.5	100	85
35-39	17.1	22.9	60.0	100	70
40-44	26.7	16.7	56.7	100	60
44-49	20.0	18.3	61.7	100	60
	$\chi^2=20.387$	P value=0.060			
Education					
No Education	21.4	23.8	54.8	100	42
Primary Education	14.3	29.3	56.5	100	147
Middle Education	18.9	23.4	57.8	100	244
Secondary Education+	25.2	20.9	53.9	100	115
	$\chi^2=6.494$	P value=0.370			

Source: Computed from the Urban and Poverty Health Survey (2011) dataset

5.2.1 Place of Residence and Women's Ovulation Knowledge

One's locality is considered an influential factor in determining a woman's ovulation knowledge. The study examined the association between urban poor residents, residing in three localities in Accra and their ovulation knowledge and the results are given in Table 5.1.

Place of residence was not found to be significant in determining a woman's ovulation knowledge. The significance was tested at a 0.05 confidence level. However, distributions suggested that Agbogbloshie residents had a 25.3% of the proportion of women possessing correct knowledge of their ovulation cycle with James Town having the largest proportion of women (25.7%) having correct knowledge of their ovulation and Ussher Town recording 23.4% for correct knowledge of ovulation cycle.

Again, 27.3% of respondents from Agbogbloshie indicated that they had no knowledge of their ovulation as compared to 17.4% each from James Town and Ussher Town having no knowledge of the ovulation cycle. The study revealed that, 47.5% of residents of Agbogbloshie had wrong knowledge of their ovulation as against 56.9% and 59.2% of respondents from James Town and Ussher Town respectively possessing wrong ovulation knowledge respectively.

The high proportions of respondents with wrong knowledge implies that it is possible that women in the study population were likely not to use this method in controlling fertility or may have erroneously used the method. This situation might expose them to the risk of unwanted pregnancy.

5.2.2 Age and Women's Ovulation Knowledge

The onset of sexual activity typically takes place during adolescents, a period of growth, experimentation and identity search during which individuals are particularly vulnerable and in many cases ill-informed with respect to making responsible choices that will compromise their sexual and reproductive health (Zabin and Kiragin, 1998).

Conversely, the older an individual, the more likely the person is to have experience and expertise in making contraceptive choices to regulate their fertility. Results from Table 5.1 indicate that age does not have a significant association with a woman's knowledge of her ovulation cycle. The Chi-square value of 20.387 at a 0.05 confidence level was not significant (marginally) with a p-value of 0.060.

In the age category 15-19 years, 41.1% of respondents indicated that they had correct knowledge of their ovulation cycle as compared with 23.4% of respondents within the age category 20-24, 19.4% of respondents within the age category 25-29, 28.2% of respondents within the age category 30-34, 22.9 % of respondents within the age category 35-39, 16.7% of respondents within the age category 40-44 and 18.3% of respondents within the age category 44-49.

Technological advancement as well as recent improvements in social communication among the youth could be the reason for their possession of correct knowledge their ovulation cycle (Valente, 1996). Also the correct knowledge among the youth as compared to the proportion of older people could be as a result of educational differences between them. Thus, young people are more likely to possess formal education whilst old women may not have such education.

The percentage distribution of women without any knowledge of their ovulation cycle from the study reveals that across the age groups, women in their later years have relatively lower knowledge of their ovulation than adolescents. In the age category, 15-19 years, 17.8% of respondents indicated that they had no knowledge of their ovulation cycle as compared with 15.9% of respondents within the age category 20-24, 23.7% of respondents within the age category 25-29, 15.3% of respondents within the age category 30-34, 17.1 % of respondents within the age category 35-39, 26.7% of respondents within the age category 40-44 and 20.0% of respondents within the age category 44-49 all revealing no knowledge of their ovulation. Hence, a lot of older women reported no knowledge compared to the younger women.

Evidence from the data suggests that most women across the age groups reported wrong knowledge of their ovulation cycle. In the age category 15-19 years, 41.1% of respondents indicated that their knowledge of their ovulation cycle was wrong as compared with 60.7 % of respondents within the age category 20-24, 57.0% of respondents within the age category 25-29, 56.5 % of respondents within the age category (30-34), 60.0 % of respondents within the age category 35-39, 56.7% of respondents within the age category 40-44 and 61.7% of respondents within the age category 44-49 all revealing that their knowledge of ovulation cycle was incorrect.

5.2.3 Education and Women's Ovulation Knowledge

Although several studies on women's education have found that, women with higher levels of education tend to have a certain level of knowledge on contraception and as such may use these methods to lower their fertility (Singh, Owusu and Shah, 1985: Bledsoe et al., 1999: Caroline et al, 1999), contradictory studies suggest that their education may not play a role as much as other factors such as partners' opinion about contraception (El-Adas, 2007).

The results from Table 5.1 suggest that education has no significant association with a woman's knowledge of her ovulation. The insignificance of education's influence on knowledge of ovulation cycle was tested at a p-value of 0.370 and with 95% confidence.

The results from Table 5.1 indicate that education is not significantly associated with a woman's knowledge of her ovulation. From Table 5.1, 23.8% of women without any education had correct knowledge of their ovulation cycle, 21.4% had no knowledge and 54.8% had wrong knowledge of their ovulation. Among women within the category of Primary School Education, 29.3% had good knowledge, 14.3% had no knowledge with 56.5% having wrong knowledge. As compared with women within the education categories of Middle School, 23.4 % had good knowledge, 18.9% had no knowledge with 57.8% having wrong knowledge.

The women with secondary plus educational status figures reveal that there is no consistency between educational status of women and their knowledge of ovulation cycle. The percentage of women with good knowledge of their ovulation cycle is the lowest, recording 20.9% of the respondents. For those with no knowledge, the percentages are 25.2% whilst 53.9% of women with secondary plus education indicated wrong knowledge of their ovulation cycle.

The trend suggests that people without higher education dominates the group of women within their reproductive ages and as such might be using social media and technological communication tools to acquire knowledge of their ovulation cycle as compared to older women who may not be technologically inclined and so might stick to old ways of socializing (Valente,1996).

5.2.4 Ethnicity and Women's Ovulation Knowledge

Different racial and ethnic groups are often spread in different parts of the country and some are also spread within regions. Characteristically, be they national or regional, urban or rural, ethnic groups are spread. Therefore, differences in ethnic groups may be a reflection of differences in socio-economic settings.

Ethnicity, like religion, involves cultural practices, societal norms, values and beliefs. These values, attitudes, beliefs and practices are likely to influence the ovulation knowledge of women. The percentage distribution of women and their ovulation knowledge by ethnic groups is depicted by Table 5.2.

The results indicate that there is no significant association between ethnicity and ovulation knowledge at a Pearson Chi-square value of 2.310 and a P-value of 0.889.

From the table it is observed that 26.8% of Akans (comprising Ashantis, Fantes, Akwapims and other Akan speaking people) possessed correct knowledge of their ovulation, whilst 19.7% and 53.5% of the women possessed no knowledge and wrong knowledge respectively.

In the Ga-Dangbe ethnic group, 22.9 % of women indicated they had good knowledge of their ovulation whilst about 19% had no knowledge of their ovulation with the remaining 58.0% having incorrect knowledge of their ovulation.

Ewe women's correct knowledge of their ovulation cycle constituted 30.3%. 21.2% of Ewes had no knowledge whilst close to half 48.5 percent of Ewe women had wrong knowledge.

Among the other ethnic groups (comprising Guans and those from the North), 24.5% of respondent's possessed good knowledge of their ovulation cycle whilst 19.2% and 56.4% of the women had no knowledge and wrong knowledge respectively. Among the Ewes about 30 percent of women had correct knowledge of their ovulation cycle. Thus Ewes recorded the highest proportion of respondents with correct knowledge.

Table 5.2 Percentage Distribution of Respondents by Ethnicity, Religion, Parity and the Ovulation Knowledge of Women

	Ovulation Knowledge				
Ethnicity	No Knowledge	Correct Knowledge	Wrong Knowledge	Percentage	No. Of People
Akan	19.7	26.8	53.5	100	157
Ga-Dangme	19.1	22.9	58.0	100	293
Ewe	21.2	30.3	48.5	100	33
Others	19.2	24.5	56.4	100	65
	$\chi^2=2.310$	P value=0.889			
Religion					
No Religion	9.7	22.6	67.7	100	31
Catholic	27.6	34.5	37.9	100	29
Protestant	17.5	24.6	57.9	100	114
Charismatic	18.4	27.5	54.1	100	255
Other Christians	34.0	7.5	58.5	100	53
Other Religion	13.6%	22.7%	63.6%	100%	
	$\chi^2=21.714$	P value=0.017***			

Source: Computed from the Urban and Poverty Health Survey (2011) dataset

5.2.5 Religion and Women's Ovulation Knowledge

Religion influences the beliefs and cultural practices that shape behavior and attitudes about contraceptive choices and reproduction. Religious and cultural factors influence the acceptance and use of contraception by couples from different religious backgrounds in very distinct ways (Srikanthan et. al., 2007).

Among Catholics, the primary purpose of marriage is sexual intercourse and procreation (Aryee, 1989). Some religious denominations view contraception as “against the will of God”. This is based on the Christian doctrine that admonishes man to be “fruitful and multiply ...” (Genesis 1: 22 NIV). Generally, Catholics believe that any method of contraception destroys the potential of new life and destroys the principal aim of marriage.

From Table 5.2, religion's association with women's ovulation knowledge was significant at a P-value of 0.017, 95% confidence level and a Pearson's Chi-square value of 21.714. Women without religion who reported “no knowledge” was 9.7% whilst those without any religion but with “correct knowledge” was 22.6% with 67.7% of women without religion having “wrong knowledge” of their ovulation cycle.

Among Catholics, 27.6% of women reported no knowledge of their ovulation cycle whilst 34.5% had correct knowledge of their ovulation cycle with 37.9% of women having wrong knowledge of their ovulation cycle.

Respondents who were affiliated to the Protestant religion were 17.5% in the category of no knowledge, 24.6% in the category of correct knowledge and 57.9% in the category of wrong knowledge.

Among women in Charismatic/ Pentecostal religion, 18.4% recorded no knowledge of their ovulation cycle. 27.5% of women who were Charismatic/Pentecostal had correct knowledge of their ovulation cycle whilst 54.1% of these women had wrong knowledge of their ovulation cycle.

Among other Christians, 7.5% of women recorded correct knowledge of their ovulation cycle, 34.0% of respondents indicated that they had no knowledge on ovulation whilst it was observed that 58.5% of respondents had wrong knowledge of their ovulation cycle.

Women in the other religions indicated that 22.7% had correct knowledge of their ovulation cycle, 13.6% of these women had no knowledge of their ovulation cycle and 63.6% of them possessed wrong knowledge of their ovulation cycle.

Comparing respondents who were affiliated with Catholics, Protestants and those in Charismatic/Pentecostal religions, which are the most practiced religions in Ghana, it is evident that Catholics have the highest proportion of respondents with good knowledge of their ovulation cycle. This could be attributed to the fact that they are indoctrinated against modern contraception and so natural family planning which requires adequate knowledge of the ovulation cycle is the norm.

5.2.6 Marital status and Women's Ovulation Knowledge

In many societies, making a family is a function of marriage. A woman's knowledge of her ovulation cycle is likely to play a role in this. Table 5.3 shows that there is a statistically significant relationship between marital status and the ovulation cycle of women at a p-value of 0.004.

In this study, marital status was categorized into never married, formerly married and currently married. Currently married women had the highest percentage in terms of no knowledge (26.0%) with 16% of these women having correct knowledge of their ovulation cycle whilst 58% of this category of women possessed wrong knowledge of their ovulation cycle.

Among women who were not married, 19.2% of respondents had no knowledge of their ovulation cycle, 28.8% of respondents had correct knowledge of their ovulation cycle and 52.1% had wrong knowledge of their ovulation cycle.

Formerly Married women also exhibited different pattern in terms of the quality of their ovulation knowledge with 12.0% having no knowledge of their ovulation cycle, 23.2% having no knowledge and 64.8% having incorrect knowledge of their ovulation cycle respectively.

Table 5.3 Percentage Distribution of Respondents by Marriage, Occupation and the Ovulation Knowledge of Women

Marriage	Ovulation Knowledge			Percentage (%)	No. Of People
	No Knowledge	Correct Knowledge	Wrong Knowledge		
Never Married	19.2	28.8	52.1	100	292
Formerly Married	12.0	23.2	64.8	100	125
Currently married	26.0	16.0	58.0	100	131
	$\chi^2=15.206$	P value=0.004***			
Occupation					
No Occupation	12.7	30.9	56.4	100	110

Other Occupation	17.6	11.8	70.6	100	34
Professional Occupation	21.0	23.8	55.2	100	404
	$\chi^2=8.671$	P value=0.070			
Parity					
0	19.9	31.8	48.3	100	176
1-3	18.9	19.3	61.7	100	264
4-6	20.2	24.7	55.1	100	89
7+	10.5	26.3	63.2	100	19
	$\chi^2=11.196$	P value=0.082			

Source: Computed from the Urban and Poverty Health Survey (2011) dataset

5.2.7 Occupation and Women's Ovulation Knowledge

The type of job of an individual woman could predispose her to good or bad knowledge of her ovulation. Women with demanding occupations may prefer fewer children than women with less demanding occupations. On the average, a woman's use of a method of contraception is likely to go up based on the degree of involvement in employment.

Miles-Doan et al (1998) assert that, white collar workers are most likely to use one contraceptive method or the other in making decisions on when and how to give birth. This could be as a result of the inflexible and demanding nature of these jobs which will not wholly permit mothers to take good care of their children should they give birth.

Table 5.3 shows that there is no significant relationship between occupational status and the knowledge of ovulation cycle of women. This was tested at a P-value of 0.070. Women with no occupation (comprising of people who are not working and students) had the highest

percentage in terms of no knowledge (12.7%) with 30.9% of the respondents having correct knowledge of their ovulation cycle whilst 56.4% of this category of women possessed wrong knowledge of their ovulation cycle.

Among women who are in other occupations (comprising unskilled manual work, sales and other job), 17.6% of respondents had no knowledge of their ovulation cycle, 11.8% of respondents had correct knowledge of their ovulation cycle and 70.6% had wrong knowledge of their ovulation cycle.

Professional workers (comprising professional workers, those in service work, agriculture, skilled manual work and clerical work) also exhibited different trends in terms of the quality of their ovulation knowledge with 21.0% having no knowledge of their ovulation cycle, 23.8% having no knowledge and 55.2% having incorrect knowledge of their ovulation cycle respectively.

5.2.8 Parity and Women's ovulation Knowledge

According to Joesoef et al. (1988), the number of living children of a woman is the second important determinant of contraceptive use which includes the practice of the cyclical method. DeGraff (1997) argued that the number of living children is likely to influence a woman's use of contraception only through desire for additional children. Rutenburg et al, (1993) intimated that women with three or four children were most likely to use contraception.

The parity of a woman in the study was not statistically significant in determining her ovulation knowledge in spite of the various positions by scholars. From Table 5.2, the

association between parity of a woman and knowledge of her ovulation cycle had a p-value of 0.082.

CHAPTER SIX

Multinomial Logistic Regression of Socio - demographic determinants of Knowledge of Ovulation Cycle among Women

6.1 Introduction

In this study, certain socio-demographic variables have been identified as indicators of women's ovulation knowledge. These variables were expected to influence a woman's knowledge of her ovulation cycle in one way or the other. To obtain meaningful results, it was imperative to employ a technique, which considered the relationship between ovulation knowledge (a three category dependent variable) and all the selected socio-demographic variables. In this respect, multinomial logistic regression was conducted.

6.2 Multinomial Logistic Regression Model

Multivariate analysis using the multinomial logistic regression model was used in this study. Socio-demographic variables (the independent variable) were regressed against knowledge of ovulation cycle (the dependent variable) to analyze the relative contribution of each of the variables to the dependent variable.

Table 6.1 contains the estimated coefficients and related statistics from the multinomial logistic regression model that predicts the contribution to the socio-demographic variables to a woman's knowledge of her menstrual cycle. The Nagelkerke R-square was 0.174. This implies that about 17 percent of the variation in ovulation knowledge among women is explained by the independent variables.

Table 6.1 Multinomial logistic regression model of socio - demographic determinants of knowledge of ovulation cycle among women in urban poor communities in Accra

Variables	(S.E)	(Sig.)	Exp (β)	Variables	(S.E)	(Sig.)	Exp (β)
Good Knowledge				Wrong Knowledge			
Age				Age			
15-19	0.684	0.363	1.863	15-19	0.595	0.514	.678
20-24	0.623	0.275	1.974	20-24	0.507	0.373	1.571
25-29	0.594	0.852	1.117	25-29	0.470	0.727	.849
30-34	0.602	0.070	2.974	30-34	0.498	0.405	1.513
35-39	0.618	0.188	2.258	35-39	0.504	0.404	1.523
40-44	0.618	0.358	0.566	40-44	0.482	0.384	0.658
45-49(RC)			1.000	45-49(RC)			1.000
Education				Education			
No Education	0.647	0.190	2.335	No Education	0.545	0.418	1.555
Primary Education	0.449	0.002	4.139	Primary Education	0.386	0.036	2.250
Middle Education	0.379	0.054	2.073	Middle Education	0.314	0.081	1.728
Secondary Education+ RC			1.000	Secondary Education +(RC)			1.000
Ethnicity				Ethnicity			
Akan	0.576	0.961	1.028	Akan	0.501	0.721	0.836
Ga-Dangbe	0.579	0.365	.592	Ga-Dangbe	0.500	0.304	0.598
Ewe	0.742	0.693	1.340	Ewe	0.648	0.713	0.788
Others(RC)			1.000	Others(RC)			1.000

Religion				Religion			
No religion	0.866	0.967	1.036	No religion	0.766	0.668	1.388
Catholic	0.695	0.854	1.137	Catholic	0.633	0.135	0.388
Protestants	0.593	0.999	1.001	Protestants	0.512	0.759	0.854
Charismatic/ Pentecostal	0.547	0.951	0.967	Charismatic / Pentecostal	0.470	0.498	0.727
Other Christians	0.763	0.004	.111	Other Christians	0.536	0.045	0.341
Other religion(RC)			1.000	Other religion(RC)			1.000
Marital Status				Marital Status			
Currently Married	0.402	0.041	2.277	Currently Married	0.316	0.566	1.199
Formerly Married	0.461	0.015	3.076	Formerly Married	0.377	0.027	2.307
Never Married(RC)			1.000	Never Married (RC)			1.000
Occupation				Occupation			
No Occupation	0.431	0.114	1.979	No Occupation	0.394	0.038	2.268
Professional Occupation	0.706	0.357	0.522	Professional Occupation	0.511	0.730	1.193
Other Occupation(RC)			1.000	Other Occupation			1.000
Place of Residence				Place of Residence			
Agbogblos.	0.445	0.091	0.471	Agbogblos.	0.384	0.025	0.424
James Town	0.336	0.653	1.163	James Town	0.288	0.899	1.037
Ussher Town(RC)			1.000	Ussher Town (RC)			1.000

Parity				Parity			
0	1.035	0.287	0.332	0	0.914	0.262	0.358
1-3	0.970	0.242	0.321	1-3	0.856	0.458	0.530
4-6	0.978	0.415	0.451	4-6	0.865	0.335	0.434
7+(RC)	1.000	1.000		7+(RC)	1.000		1.000

Nagelkerke R - Square = .174

P - Value = 0.001

Df = 52

RC=Reference Category

Model Chi-Square =88.742

The reference category is: No knowledge.

Source: Computed from Urban Health and Poverty Survey (2011) dataset

In this model, the categorization of ovulation knowledge remained “correct knowledge”, “wrong knowledge” and “no knowledge”. With this categories, the effects and strengths of the independent variable on ovulation knowledge were examined. Some variables that were insignificant in the Chi square analysis tend to be significant in the multinomial logistic regression model.

This is because, the Chi Square analysis examined the association between individual independent variables and the dependent variable. With the bivariate analysis, no variable was controlled in examining the strengths of one variable and the other variable. Thus, the association between some of the independent variables and the dependent variable might not have come out stronger since they were examined as individual variables against each other without controlling for other variables.

However, in the multinomial logistic regression, some variables were controlled. Controlling for these variables makes it possible for differences to emerge in their strengths therefore making some of the variables significant. Thus, after all controlled variables have been considered, it is -possible that some variables will have interactions with each other which will in turn make it possible for some differences to emerge in how they correlate with one another.

This accounts for the reasons why some variables turned to be significant in the multinomial logistic regression.

In examining the relationships for each of the independent variables, a particular category was used as a reference category. For example, the 45-49 year age group was used as a reference category and the likelihood of the respondents exhibiting wrong knowledge or good knowledge as against no knowledge was, for all the other age categories, compared to that of the 45-49 year age group.

The change in $-2\log$ -likelihood was used to determine the fit of the model. The significance of each independent variable in predicting the ovulation knowledge cycle of women was determined using the likelihood ratio test, which gives the p-value for each of the independent variables in the model.

The results of the model were interpreted using the odds ratios which give the likelihood of an individual having correct knowledge or incorrect knowledge of her ovulation as compared to having no knowledge. Thus, the likelihood of women in different categories of the independent variables having correct knowledge or incorrect knowledge compared to having no knowledge (the reference category) was reported using the odds ratio.

Evidence from the analyses (Table 6.1) indicates that the place of residence had a significant statistical influence on women's knowledge of their ovulation. Women residing in Agbogbloshie were found to be less likely to have both correct knowledge (0.47) and wrong knowledge (0.42) of their ovulation cycle than women residing in Ussher Town (the reference category) as compared with women having no knowledge of their ovulation cycle.

This is in support of the findings of Izugbara and Ochako (2011) who assert that poor urban settlement contexts set limits on the ability of women and men to safeguard their sexual and reproductive health, control their fertility, and implement their fertility aspirations.

Concerning education, a woman's educational attainment was found to be a significant determinant of a woman's knowledge of her ovulation cycle. As shown in Table 6.1, women with primary level of education are 4.1 times as likely to have correct knowledge of their ovulation cycle and 2.25 times as likely to have wrong knowledge of their ovulation as women with secondary and higher education. That is, primary level women are more knowledgeable about their ovulation cycle than women with secondary and higher education; whether their knowledge is correct or incorrect.

This confirms the findings of El-Adas (2007) who observed that, out of 480 female University students aged 17 to 48 years that were interviewed, less than 0.8% of the students sampled had adequate knowledge about the menstrual cycle, while three quarters had some knowledge. Even fewer still could correctly say when a woman is most likely to get pregnant in a menstrual cycle.

That women with primary level education are more likely to have correct knowledge of their ovulation cycle than women secondary and higher education could be as a result of the fact that these women may have ample time to learn about ovulation through cultural socialization as against those with education who may be overly concerned with modern contraception.

Reproductive health knowledge on the whole, and knowledge about unintended pregnancy and abortions in particular, seems to increase with the onset of sexual activity and even more so with marriage. This may be a combined result of greater access to family planning

counseling, and society's receptivity to communication about reproductive health matters among married people.

Religious affiliation of women in other religion was found to be significant in the model and have significant influence on women's knowledge of their ovulation cycle. Other Christians were 0.89 times less likely to have correct knowledge and 0.66 times less likely to have wrong knowledge of their ovulation cycle than those with other religious affiliations.

The findings do not support the hypothesis that Catholic women are as likely to have correct knowledge of their ovulation cycle as women in other religions. However, the results confirm the findings of Aryee (1989), who indicates that the proportion of the population which believes in African traditional religion is less likely to think about contraception; therefore they exhibit lower ovulation knowledge. In this study, other religions included the African Traditional Religion, Islam and the Eastern religions.

Ghanaian women who are currently married and formerly married are more likely to have correct knowledge of their ovulation cycle compared to women who have never married. That is, currently married women were about 2 times as likely to have correct knowledge of their ovulation as women who have never married. Again, formerly married women were about 3 times as likely to have correct knowledge of their ovulation as women who were never married.

Likewise married women with incorrect knowledge were about 1.1 times more than women who are not married whilst cohabiting women were about 2 times as likely to possess wrong knowledge of their ovulation cycle. In relation to the reference category (women with no knowledge), currently married and cohabiting women were more likely to have correct knowledge and more likely to have wrong knowledge of their ovulation cycle.

This findings confirms the second hypothesis that cohabiting women are more likely than women not in union to have good knowledge of their ovulation cycle.

The findings are in line with the findings of Sinai et al., (2006) who intimated that compared to unmarried women, married women are less likely to use contraceptives correctly and consistently and that couples in stable unions are more likely to have adequate knowledge of contraception (including the cyclical method) and their correct use to delay or prevent unplanned pregnancies.

Evidence from the analyses indicates that women's occupation had no significant statistical influence on women's knowledge of their ovulation. Women who had no occupation were found to be about 2.3 times more likely also to have wrong knowledge of their ovulation cycle than women in other occupations.

This is in support of the findings of Sinai et al., (2006) who observed that women who worked outside the home were less likely than those who did not work outside home to use their method correctly. Women who do not work outside the house may be more traditional; they may be more committed to the method and more opposed to other methods, and therefore more likely to use the natural methods of family planning which makes use of knowledge of ovulation cycle.

Also, periodic abstinence uses untested, traditional rules to identify the fertile period and so it is likely to be used by women with no occupation. Thus, these women may have less exposure to modern contraceptive methods and a higher commitment to using a natural family planning method.

Socio-demographic variables such as ethnicity and parity had no significant association with the dependent variable. The multinomial logistic regression analysis as indicated by Table 6.1 shows that the ovulation knowledge is generally poor in the study area.

Some variables which showed substantial influence on ovulation knowledge were religion, education, marital status, occupation, locality and education. When all independent variables were entered in the model, the R-squared value obtained was 0.174 which indicates a very strong association with the dependent variable – signifying a good fit.

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.1 Summary

The study employed a sample of 548 women from three urban poor communities in Accra – Agbogbloshie, James Town and Ussher Town – from the Urban Health and Poverty Survey (2011) dataset and examined the association between socio-demographic characteristics of women and knowledge of their ovulation cycle. The unit of analysis was individual women within their reproductive ages 15-49 years.

The study sought to bring out the factors that correlate with knowledge of ovulation cycle among women. Overall, religion, education, marital status, occupation and locality were the major correlates of a woman's knowledge of her ovulation cycle.

Poor urban settlement contexts were observed to set limits on the ability of women and men to safeguard their sexual and reproductive health, control their fertility, and implement their fertility aspirations. Such settlements had the ambiance of extreme poverty and poor livelihood conditions, limited access to family planning services, illiteracy, sexual violence, and lack of access to quality health care, including ante-natal and post-natal care services.

Recent developments in technology, social media and communication were shown to be possible reasons for the increasing knowledge of their ovulation cycle among women within the age group 15-24 years (Valente, 1996).

The study showed that women with secondary plus education had inadequate knowledge about the ovulation cycle, with fewer of them having the ability to correctly say when a woman is most likely to get pregnant in a menstrual cycle. That is, women with primary level education

were more likely to have correct knowledge of their ovulation cycle than women with secondary and higher education.

This could be as a result of the fact that women with minimal level of education are likely to stick to natural family planning methods which has at its core, the need for a woman to know about her ovulation. Reproductive health knowledge on the whole, and knowledge about unintended pregnancy and abortions in particular also, seem to increase with the onset of sexual activity and even more so with marriage. Therefore, the combined result of greater access to family planning counseling and society's receptivity to communication about reproductive health matters among married people is argued to increase ovulation knowledge among women with primary education.

It was also observed that although Catholics had correct knowledge of their ovulation cycle as compared with other religious groupings, the findings were not significant statistically. However, other Christians were less likely to have any knowledge (whether accurate or not) of the natural or rhythmic contraceptive method. This may be indicative of the fact that religious indoctrination has the power to influence the social and cultural behaviour of women especially with respect to their fertility and decision about when and how to space births or give birth.

Married couples were more likely to have adequate knowledge of contraception (including the cyclical method) and their correct use to delay or prevent unplanned pregnancies. In line with this thinking, the study found currently married and formerly married women more likely to have correct knowledge and more likely to also have wrong knowledge of their ovulation cycle as compared with women who had never married.

The fact that a woman is married or formerly married does not necessarily mean she will give birth. As such, women exhibiting wrong knowledge were to be expected because women who are married or formerly married but do not intend to give birth sooner might not to make use of a family planning method to advance her knowledge of the cyclical method. In the event of a strong preference for modern contraception, there are higher chances for wrong knowledge of the cyclical method.

7.2 Conclusion

The study observed that out of 548 women, more than half (56.4%) possessed wrong knowledge of their ovulation cycle whilst 24.5% and 19.2% had correct and no knowledge of their ovulation cycle respectively. This reveals that, in urban poor communities, ovulation knowledge which is very central to natural family planning is poor. This finding suggests that ovulation knowledge is primarily linked to education rather than socio-cultural, personal fertility and/or parenting experiences.

Overall, religion, education, marital status, occupation, place of residence and education were the major correlates of a woman's knowledge of her ovulation cycle. However, age and ethnicity were not strongly associated with women's knowledge of their ovulation cycle.

The study explored knowledge of the ovulation cycle of women in Ghana and filled the gaps between women's ovulation knowledge and how they are influenced by certain socio-demographic variables. The study also bridges the gaps in the literature with respect to the categorization of knowledge a woman will have about her ovulation cycle and the effect of correlates of that knowledge on wanted or unwanted fertility among women.

7.3 Recommendations

The study results raise the need for programs and strategies that will enable women to get quality knowledge of their ovulation cycle by improving health services and related education, socio-economic status as well as information and communication.

Concerted and coordinated multi-sectoral efforts are key to expanding access and uptake of family planning services with emphasis on the natural methods which has knowledge of ovulation cycle as a critical component. Increased access should be accompanied with improvement in the quality of care and availability of information about effective utilization of family planning methods especially natural methods.

That is government should champion the adoption of appropriate natural family planning method mix and educate women on the side effects of modern contraception and the need for every woman to acquire good knowledge of her ovulation cycle.

Committees should be set by government, local assemblies etc. within urban poor communities to design culturally acceptable curriculum and adopt the practical ways of disseminating it. Such a committee should comprise parents, health care providers, religious leaders and teachers.

Similarly, religious leaders through special classes for men and women during special sessions can discuss the core important and sensitive topics which otherwise build misconceptions about sexual health and natural methods of family planning.

The Catholic Church's indoctrination system should be adopted among church leaders to educate women on their ovulation cycle.

Future research should be aimed at investigating how ovulation knowledge affects childbearing among women.

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