

UNIVERSITY OF CAPE COAST

INTENTION TO USE AND ACTUAL USE OF POSTPARTUM
CONTRACEPTIVES AMONG PREGNANT WOMEN IN THE MFANTSEMAN
MUNICIPALITY OF CENTRAL REGION, GHANA

BY

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DECLARATION

Candidate's Declaration

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

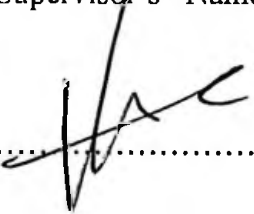
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Supervisors' Declaration

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

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ABSTRACT

Opportunities to reach women with family planning services, can occur along the continuum of care, throughout a woman's pregnancy, childbirth and postpartum. Evidence shows that integrating Postpartum Family Planning (PPFP) into Maternal, Newborn and Child Health (MNCH) programmes and services provides opportunities for increased use of family planning among women. This study assessed the intention of pregnant women in the Mfantseman Municipality of the Central Region of Ghana, to use and use postpartum contraceptives and the associated determinants. Changes in reproductive health behaviour were studied in the context of the proximate determinants framework.

It was a prospective panel study carried out in two phases (1 and 2). Initially, a total of 1,914 pregnant women attending antenatal clinics at Saltpond hospital, Mankessim, Anomabo and Biriwa health centres, were interviewed. The second phase was a follow up of 1,359 women who consented to be followed up in the postpartum period. Of that number, 1,004 were re-interviewed at least twelve months after delivery.

Prenatal intention to use family planning was a strong predictor of postpartum family planning use and decisions of women to adopt PPFP were influenced by the woman's acceptability and approval of family planning, supported by the partner. Pregnant women attending antenatal clinic and their partners need to be targeted for education and counseling on postpartum family planning by the midwives and doctors before they deliver.

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DEDICATION

To the Eliason family of Accra and Takoradi, Ghana

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LIST OF ACRONYMS

AAK	Abura Asebu kwaman
AEE	Agofo Eyan Esiam
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Clinic
AOR	Adjusted Odds Ratio
BCC	Behaviour Change Communication
CBA	Cost-Benefit Analysis
CBS	Community-Based Service Providers
CBV	Community-Based Volunteer
Cc	Index of Contraception
CC	Cape Coast
CEDAW	Convention on the Elimination of all forms of Discrimination Against Women
CHOs	Community Health Officers
CHPS	Community Based Health Planning and Services
Cm	Index of Proportion Married
CPR	Contraceptive Prevalence Rate
CR	Central Region
CRC	Convention on the Right of the Child
DFID	Department for International Development
DHS	Demographic and Health Survey
DOI	Diffusion of Innovation

DRC	Democratic Republic of Congo
EPI	Expanded Programme on Immunization
FGM	Female Genital Mutilation
FP	Family Planning
FPMCH	Family Planning and Maternal and Child Health Programme
GDHS	Ghana Demographic and Health Survey
GHS	Ghana Health Service
GSS	Ghana Statistical Service
HBM	Health Belief Model
HIV	Human Immune Deficiency Syndrome
ICPD POA	International Conference on Population and Development Programme of Action
IPPF	International Planned Parenthood Federation
IUD	Intrauterine Device
JHPIEGO	Johns Hopkins Program for International Education in Gyneacology and Obstetrics
KEEA	Komenda Edina Eguafo Abirem
LAM	Lactional Amenorrhoea Method
LMIC	Low- and Middle-Income Countries
MCHIP	Maternal and Child Health Integrated Program
MDG	Millennium Development Goals
MHD	Municipal Health Directorate
MICS	Multiple Indicator Cluster Survey

MNCH	Maternal Newborn and Child Health
MOH	Ministry of Health
MSI	Marie Stopes International
NGO	Non-Governmental Organization
NPC	National Population Council
OHCHR	Office of the High Commission for Human Rights
OPD	Out Patient Department
PhD	Doctor of Philosophy
PPAG	Planned Parenthood Association of Ghana
PPFP	Postpartum Family Planning
RCH	Reproductive and Child Health
RH	Reproductive Health
SSA	Sub-Saharan Africa
SSS	Seniour Secondary School
STBCM	Steps to Behaviour Change Model
SWOP	State of the World Population
TBA	Traditional Birth Attendants
TFR	Total Fertility Rate
THLD	Twifo Heman Lower Denkyira
TM	Total Marital Fertility
TNM	Total Natural Marital Fertility
TPB	Theory of Planned Behavior
TTM	Transtheoretical Model

UCC	University of Cape Coast
UDHR	Universal Declaration of Human Rights
UN	United Nations
UNFPA	United Nations Population Fund
US	United States
USAID	United States Agency for International Development
USCB	United States Census Bureau
USDHHS	United States Department of Health and Human Services
WHO	World Health Organization
WRA	Women in Reproductive Age

CHAPTER ONE

POSTPARTUM FAMILY PLANNING: ISSUES AND PERSPECTIVES

Introduction

According to the World Health Organization (WHO), family planning (FP) involves the promotion of maternal and child health (MCH), by helping individuals and couples attain the desired number and composition of their children and empowering them to decide, if and when to become pregnant, thus preventing unintended pregnancies and reducing the need for unsafe abortions (WHO, 2013). Global estimates indicate that about 200 million women who want to avoid pregnancy are either not using any means of modern family planning methods or are using only traditional family planning methods, which are considered ineffective (Singh, Darroch, Ashford, & Vlassoff, 2009). Similarly, 40 percent of the 186 million pregnancies that occur annually in developing countries are unintended, with about 82 percent of them having unmet need for modern family planning (Singh et al., 2009). Reasons for these observations include cultural or religious opposition, gender-based barriers, poor quality of available maternal health services, fear or experience of side effects of modern contraceptives, limited choice of modern contraceptive methods and limited access to contraception, especially among young people, poorer segments of populations, or unmarried people (World Health Organization, 2013).

Opportunities to reach women with family planning services, can occur along the continuum of maternal care, throughout pregnancy, childbirth and postpartum. Evidence shows that, 50 percent to 60 percent of pregnant women

make prenatal visits (Ross & Winfrey, 2001) or have multiple contacts with health care providers soon after delivery, during infant care and for other child health services (Ross & Winfrey, 2001; Singh et al., 2009). Integrating Postpartum Family Planning (PPFP) into Maternal, Newborn and Child Health (MNCH) programmes and services provides opportunities for improved care and expansion of services within the first year after delivery for women, increased use of family planning among women, reduction of high risk pregnancies, reduced unmet need for family planning and improvements in the health and survival of mothers and children (WHO, 2013).

This thesis examines the intentions of pregnant women to adopt postpartum family planning and the extent to which their intentions are translated into actual use after delivery in the Mfantseman Municipality of the Central Region of Ghana. The determinants of unintended pregnancies among these pregnant women were also examined. These objectives were informed by the fact that the municipal area is noted for low family planning uptake, high unmet need for contraception and high teenage pregnancy (Ghana Health Service, Central Region, 2010). Sex composition and its influence on fertility behaviour is also assessed and was informed by a study on the dynamics of reproductive health behaviours in rural coastal communities of southern Ghana by Akinyoade (2007), which revealed that, individuals in southern coastal communities preferred sons to daughters for propagation of their business.

Background to the Study

Determinants of Fertility

Fertility, an outcome of reproductive behaviour, has been a subject of debate in the past amongst ancient philosophers such as Plato, Aristotle and followers of Hippocrates. It is said that Plato when asked how population stability could be attained, answered, "if too many children are being born, there are measures to check propagation; on the other hand, a high birth-rate can be encouraged and stimulated by conferring marks of distinction or disgrace"(Pollard, 1994:p. 275). Debates on fertility have been ongoing since those ancient times till date, with the development of various perspectives, frameworks and theories, to explain fertility determinants and transitions, from the pre- to post-transition periods.

Davis and Blake (1956) proposed an analytical framework for the comparative sociology of fertility. They classified intermediate or direct determinants, through which, and only through which any indirect determinants (social, economic, cultural and environmental factors) could influence fertility. Three necessary steps required in the process of human reproduction were suggested - intercourse, conception and gestation and parturition, which were further classified into eleven (11) factors. Bongaarts (1978) re-classified the eleven (11) factors into eight and later seven proximate variables which, included the proportion of women of reproductive age that is married (as a measure of the proportion exposed to sexual intercourse); the use and effectiveness of contraception; induced abortion; postpartum infecundability (as primarily

determined by the duration and intensity of breast-feeding); the frequency of intercourse (including the effect of temporary separation and abstinence practices); the onset of permanent sterility (particularly as related to menopause) and spontaneous intrauterine mortality. Marriage, contraceptive use, abortion and postpartum infecundability have been shown to have by far the greatest effects on fertility and fertility transitions (Bongaarts & Potter, 1983; Bongaarts, 1993). These variables are so important that researchers have made them the focus of their research rather than fertility, and are looking for the determinants of these proximate determinants instead (De Bruijn, 2006). Contraceptive or family planning use, one of the most important proximate determinants of fertility is the central argument of this thesis.

Historical Perspectives in Family Planning

Available data reveal that the world's population has grown considerably, since the end of the Great Famine and Black Death in 1350 in Europe, from 370 million (Biraben, 1979) to one billion in 1804, and doubling to two billion after 123 years in 1927 (Kollodge, 2011). Growth rates of over 1.8 percent per annum occurred in the early 1950s through to the 1960s and 1970s. Annual population growth rate peaked at 2.2 percent in 1963, declining to below 1.1 percent as at 2010 (Census Bureau United States, 2011). The world's population was 7 billion in 2011 (Kollodge, 2011).

These population increases over the years gave rise to streams of thought and action that culminated in the global family planning movement. The first was

concerned about unintended pregnancies, unsafe abortions, high maternal deaths and women's rights and empowerment, a view which gave rise to the first family planning movement, pioneered by Margaret Sanger, Marie Stopes and others in the early years of the 20th century (Sinding, 2007). The second stream was led by neo-Malthusians such as John D. Rockefeller III in the post-World War II era who argued that imbalances between rapid population growth and a wide variety of resources, including food, had the potential to lead to political instability in developing economies (Sinding, 2007).

The main point of the first stream was that individuals could have control over fertility through universal access to contraception. The second stream believed in promoting policies that restricted population growth, but which had the tendency to restrict individual reproductive choices and freedoms. A third stream of thought championed by rights advocates, argued that, even though contraception is important, focusing on it obscures the much broader struggle for comprehensive women's rights. They envisioned high fertility rates and increased population as consequences of broader economic and gender inequities and therefore believed that premising family planning initiatives on reproductive and human rights, rather than fertility reduction, would yield the greatest benefits to women, their families, and the environment (Zehner, 2011.)

Over time, convergence of these streams of thought emerged in the proposition that: "Voluntary birth control programmes would be sufficient to bring about significant declines in fertility, and hence in population growth" (Sinding, 2007: p. 2). The commitment to voluntarism and non-coerciveness embedded in

the proposition ensured that, women and men had control over their reproductive lives and avoided unintended childbearing through improved access to and information about contraceptives. This policy response to rapid population growth, occurred alongside improved educational and health policies from the 1960s (Bongaarts & Sinding, 2009).

Despite renewed debates globally on the belief by pessimists that over-population and over-consumption account for mankind's doom and optimists' belief that technological advancement can improve living standards and that population growth may be a minor issue (Lomborg, 2001; Ehrlich & Ehrlich, 2009), voluntary family planning programmes still remain the principal global policy for reducing fertility rates as articulated in global commitments like the International Conference on Population and Development Programme of Action (ICPD POA) and the Millennium Development Goals (MDGs).

Some critics have questioned this global position by making assertions to the contrary. First, the view of a number of economists is that, family planning programmes have little or no effect on fertility (Pritchett, 1994; Connelly, 2009) because couples have the number of children they want and can afford (Becker, 1960; Pritchett, 1994). A second view is that, family planning programmes are no longer required because of global fertility declines which imply adequate solution to the population problem (Connelly, 2009). Despite widely accepted evidence on the impact of family planning programmes, these small and determined number of critics managed to influence funding cuts to the global family planning programme by about 30 percent from the 1990s (Bongaarts & Sinding, 2009).

In order to restore hope in, and integrity of, the global family planning programme, counter-views to the assertions made by the critics have been proffered. Bongaarts and Sinding (2009), in their response to the first critical view stated that, the views of the economists was simplistic and did not reflect the real world. They illustrated the impact of family planning by using experiences in the rural Matlab district of Bangladesh and Iran. In Bangladesh, a 20-year fall in fertility from over six to nearly three children per woman and an increase in contraceptive use from 10 to 50 percent was experienced from the 1970s, following the introduction of a comprehensive family planning and reproductive health programme (Cleland, Phillips, Amin & Kamal, , 1994; Reseach N.I. Bangladesh , 2005), whilst in Iran, fertility levels declined from over five children per woman from 1989 to two children per woman in 2000, following the provision of free contraceptive services throughout the country by an extensive network of village health workers (Roudi-Fahimi, 2002).

In response to the second critical view, Bongaarts and Sinding (2009) stated that, instead of the unprecedented population expansion of the past 50 years getting to an end in the face of declining fertility, it continues to increase every year since 1970, with large increases in population expected in Africa (by 1.1 billion), Asia (by 1.3 billion) and Latin America (by 0.2 billion). They gave three reasons for this observation. First, the average global decline in fertility from six to three births per woman still leaves fertility substantially above two surviving children per woman and every generation larger than the preceding one, thus propagating the population expansion. Second, declines in mortality (historically

the main cause of population growth) will almost certainly continue because of higher standards of living, better nutrition, expanded health services and greater investments in public health measures which have increased life expectancy by 50 percent since 1950. Thirdly, population momentum, which is the tendency for a population to keep growing even if fertility could immediately be brought to the replacement level of 2.1 births per woman, will produce more than enough births to drive population growth for decades to come.

Views and counter-views about fertility and population dynamics have been expressed historically and will continue to be expressed for a long time to come. In the face of all these, the fact still remains that individuals and couples hold the rights to determine their own fertility options, which eventually impact on population dynamics and socio-economic development globally.

Family Planning as a Human Right

Human rights are usually understood to be the inalienable fundamental rights to which a person is inherently entitled simply because he or she is a human being. For much of human history, rights and liberties have existed in alternative forms as conceptions of justice, political legitimacy and human flourishing that sought to realize human dignity, flourishing, or well-being entirely independent of human rights (Donnelly, 2013).

The “Cyrus Cylinder” has been recognized by the United Nations as the world’s first charter of human rights, which decreed religious freedoms and racial equality in Babylon around 539 B.C. Subsequently, human rights laws have been

derived from natural laws in India, Greece and later Rome and documents such as the Magna Carta (1215), the Petition of Right (1628), the US Constitution (1787), the French Declaration of the Rights of Man and of the Citizen (1789), and the US Bill of Rights (1791) (United for Human Rights, n.d.).

Modern human rights began to emerge following the end of the Second World War in 1945, when the United Nations Charter was launched. It was soon followed in 1948 by the adoption of the Universal Declaration of Human Rights (UN General Assembly, 1948). Although, this declaration did not mention family planning specifically, it mentioned the Family as the basic unit of society. It was upon this premise that the World leaders at the Human rights day celebration in 1966 made a declaration on population that “The majority of parents desire to have the knowledge and the means to plan their families; that the opportunities to decide the number and spacing of children are a basic human right.” To add impetus to the declaration, the United Nations Secretary-General, U Thant, in a statement during the signing of the 1966 declaration by World Leaders in 1967 on human rights day, said:

“The Universal Declaration of Human Rights describes the family as the natural and fundamental unit of society. It follows that any choice and decision with regard to the size of the family must inevitably rest with the family itself, and cannot be made by anyone else. But this right of parents to free choice will remain illusory unless they are aware of the alternatives open to them. Hence, the right of every family to information and the availability of services in the field is

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increasingly considered as a basic human right and as an indispensable ingredient of human dignity.' (Thant, 1967)

Following these preparatory declarations and statements, rights to family planning finally emerged as an integral part of human rights in the 1968 Teheran proclamation, during the United Nations International Conference on Human Rights (United Nations, 1968). The proclamation extended the 1945 UN Charter and the 1948 Universal Declaration of Human rights into family planning and reproductive health and stated that:

“Parents have a basic right to decide freely and responsibly on the number and spacing of their children and a right to adequate education and information in this respect” - (United Nations, 1968:p.15)

Implicit in this is the right of men and women to have access to safe, effective, affordable and acceptable methods of contraception of their choice, as well as other methods of their choice to regulate fertility which are not against the law (Krishnamurty, 2000). The right to family planning was considered as part of the right to life, the right to the highest attainable standard of health, the right to decide the number and spacing of one’s children, the right to privacy, the right to information, and the right to equality and non-discrimination (International Planned Parenthood Federation, 2012)

Globally influential statements and declarations that have reaffirmed family planning as a human right include the Programme of Action of the International Conference on Population and Development (ICPD POA), Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), Convention on the Rights of the Child (CRC), Beijing Platform for Action, the Millennium Declaration, Paris Declaration on Aid Effectiveness & Accra Agenda for Action, the UN Global Strategy for Women's & Children's Health, Muskoka Initiative on Maternal, Newborn & Child Health, and the protocol to the African Charter on Human and Peoples Rights (IPPF, 2012).

Family planning as a human right has not been spared the Universalism versus cultural relativism debates and controversies. The 1993 Vienna declaration sought to protect and promote strongly, universalism of family planning, like all other human rights. The declaration stated thus:

“All human rights are universal, indivisible and interdependent and interrelated. The international community must treat human rights globally in a fair and equal manner, on the same footing, and with the same emphasis. While the significance of national and regional particularities and various historical, cultural and religious backgrounds must be borne in mind, it is the duty of States, regardless of their political, economic and cultural systems, to promote and protect all human rights and fundamental freedoms” (United Nations, 1993:p.20)

The declaration took note of the threat of cultural relativism and sought to further re-emphasize the need for all states despite their cultural differences, to still protect human rights and fundamental freedoms. However, cultural relativists have presented a challenge to the propagation of universal human rights worldwide.

Views of cultural relativists vary. One view is that human rights, legal rights and obligations have not considered cultural histories, traditions and regional perspectives such as those of Africa or Asia (Cobbah, 1987; Bell, Nathan, & Peleg, 2001). Another view is that cultures have been hurriedly subjected to human rights and legal norms that those cultures were not prepared to accept (Teson, 1984). A third view is that, it is wrong for cultures to be subjected to human rights and legal norms that are foreign to them (Mayer & Mayor, 1991). In all these views, one common position held is that human rights were perceived by the West, implemented by the West and continues to be upheld by the West (Perrin, 2005). Although, evidence exists that non-western states played major parts in the process, there is still not a universal acceptance of these rights among all cultures and therefore new approaches to universalizing human rights are required (Perrin, 2005) to ensure socio-economic development.

Poverty Reduction and Socio-Economic Benefits of Family Planning,

Another argument which has emerged is the cost-effectiveness of family planning in socio-economic development in the developing world (Reproductive Health Supplies Coalition, 2009; Smith, Ashford, Gribble, & Clifton, 2009). A global cost-benefit analysis revealed that expenditures of up to US\$3.9 billion on

contraceptives for women in the poorest of developing countries could prevent 52 million unintended pregnancies and 22 million abortions, and save on health care costs (Singh et al., 2009) . Evidence from Bangladesh also showed that long-term investment in an integrated family planning and maternal and child health (FPMCH) programme contributed to improved economic security for families, households, and communities through larger incomes, greater accumulation of wealth, and higher levels of education (Smith et al., 2009) . Further evidence showed that every US dollar spent on family planning saved at least US\$4 that could have been spent treating complications from unintended pregnancies (Singh . et al., 2009; Speidel, Sinding, Gillespie, Maguire, & Neuse, 2009) and saved governments up to US\$31 in health care, water, education, housing, sewers, and many more (Singh et al., 2009)

The argument is that, if individuals and couples plan their pregnancies and families with improved use of contraception, they are more likely to have fewer and healthier children. This will reduce the socio-economic burden on them and allow more investment in each child's care including education, helping to break the poverty cycle. Opposing views to the assertion that family planning programmes are cost-effective exist. The assertion is that since many couples in developing countries perceive that they are better off with large families, the best way to reduce fertility is not by investing in family planning, but by improving women's education and improving their health and status in society (Pritchett, 1994).

Despite these opposing views, the fact still remains that many lives are being lost through unintended pregnancies. For example, 76 million unintended pregnancies in the developing world in 2003 resulted in 184,000 pregnancy-related deaths and 1.8 million infant deaths (Vlassoff, Singh, Darroch, Carbone & Bernstein, 2004). According to the World Bank, part of these deaths could have been averted by improving contraceptive use and hence made gains of \$100 per life year saved (Jamison et al., 2006). These gains would be difficult to make without improvements in access to contraceptives and strengthened family planning services. According to Ringheim (2011), the highly effective and economical way of preventing these deaths was by educating women about and offering them family planning in the postpartum period. The global postpartum family planning programme started on this premise.

Family Planning and the Health Care System

Family planning services have seen evolution since the launch of the pioneering works of Margaret Sangers and Marie Stopes (Bongaarts et al 2012). The evolution involved the changing content of services from the provision of only condoms and diaphragms to include family planning education, counseling, contraception for sexually active young people and women and men with disabilities, treatment for infertility, safe abortion (where legal) and post-abortion care, reproductive health needs of peri-menopausal women, advocacy related to eliminating practices such as female genital mutilation (FGM) and Sexual and

gender-based violence depending on the socio-cultural setting (Bongaarts et al., 2012).

Family planning services are now understood to be an integral part of reproductive health in particular and the health system in general. Improving family planning service performance depends on six factors, namely: service delivery, human resource, health information systems, access to essential medicines and technologies, health financing and leadership/governance (WHO, 2010) Leadership/governance and health information systems are cross-cutting components that provide the basis for the overall policy and regulation of the other system blocks. Financing and human resource are key input components, while medical products/technologies and service delivery reflect immediate system outputs (see Figure 1)

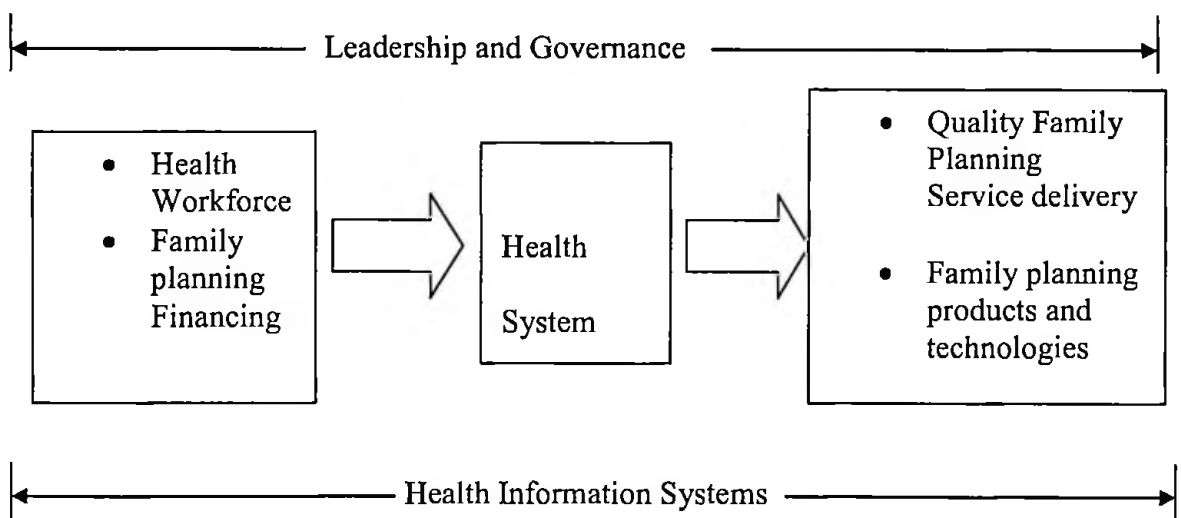


Figure 1: Pillars of Health System

Source: WHO (2010)

Family Planning Service Delivery

This is the most critical of all the pillars of health systems strengthening and ensures delivery of effective, safe, and high-quality family planning services, in an efficient and acceptable way to individuals, especially those most in need, and to communities served (Bongaarts, Cleland, Townsend, Bertrand, & Gupta, 2012). The current context of family planning service provision is multi-dimensional. First, clients' family planning providers play dual roles as their usual source of health and serve as gateways for their clients to other essential health care services (Frost, 2013). Second, primary care and other providers who provide a range of health-care services are expected to integrate family planning services for all persons of reproductive age, including those whose primary reason for their health-care visit might not be family planning. Third, clients could be referred for specialist care after initial screening at a family planning visit, or could be referred from specialists to family planning providers if clients have family needs (Bongaarts et al., 2012).

In the past, static clinics were the only means of providing family planning services. These were limited and provided very few options to clients. Currently, means of providing family planning services have expanded to include door-step services, pharmacies, community-based distribution, social marketing and social franchising. These have greatly improved contraceptive uptake and access to contraceptives (Prata, Vahidnia, Potts & Dries-Daffner, 2005; Azmat et al., 2013). The main service providers for contraceptives in Ghana are the Ministry of Health/Ghana Health Service public health facilities, followed by pharmacies

(including chemists and drug stores), private clinic facilities and NGOs such as Planned Parenthood association of Ghana (PPAG) and Marie Stopes International (MSI). These stakeholders provide services through Static Clinics; Community Based Distribution Points, Outreaches, Social Marketing and Social Franchising (Directory of MOH/GHS - Ghana National Reproductive Health Policy and Standards, 2003.). There continues to be a shift towards the commercial or private sector as sources of contraceptives in Ghana (Ghana: Market Segmentation Analysis, 2011). The package of services provided include Behaviour Change Communication (BCC), counseling on human sexuality and contraception, provision of full range of contraceptives, management of side effects, prevention and management of STI/condom use/safer sex, voluntary counseling and testing, logistic management and referral (Directory of MOH/GHS - Ghana National Reproductive Health Policy and Standards, 2003).

Equity in access to family planning services has been another consideration that affects contraceptive uptake. The richer have greater ability to procure contraceptives compared to those in the lower wealth quintile. In some countries like Bangladesh , door-to-door service delivery of contraceptive services ensured bridging of the equity gap, whilst in Kenya for example, the over-reliance on static clinics and private sources amongst other factors contributed to the wide gap between lower and upper wealth quintiles (Gwatkin et al., 2007). In Ghana, the richest (31%) use contraceptives more than the poorest (14%), with the richest relying more on the private facilities and pharmacies (65%) whilst the poorest rely

on the static public health clinics (62%) (Ghana: Market Segmentation Analysis, 2011).

A review of the service delivery environment in Ghana in 2011 revealed several opportunities and challenges (Meeting the Commodity Challenge: Ghana's National Reproductive Health Commodity Security Strategy 2011–2016)

Some of the opportunities were that:

- The active involvement of the private sector, community distribution networks and provision of outreach services encourage wide access to contraceptive methods in terms of geographic location and time. Furthermore, short term methods are easily available and also ensure easy access;
- Couples and individuals have strong desires and willingness to use family planning services and contraceptives and are continually aroused through education campaigns;
- The environment is conducive for education on various family planning methods and use of services and commodities;
- Most reasons for not using contraceptives are misconceptions, which can be corrected with education;
- The public sector is better trained and equipped especially for long-term and permanent methods; and
- Trainers and curriculum are available to train staff in family planning service delivery and supervision.

Some of the challenges identified with service provision are:

- The quality of services provided especially in the private sector remains poor. Many chemical and drug stores in the country are not manned by well trained personnel and give wrong information to clients;
- Increased demand for services are difficult to meet because of inadequate trained personnel, commodity availability and limited opening hours, especially in rural areas;
- Myths and misconceptions about some of the methods may be limiting uptake and contributing to high unmet need; and
- Inadequate number of providers trained to provide long-term and permanent methods in public and private sectors, limits access to and utilization of voluntary surgical contraception, implants and IUDs.

Therefore, interventions to improve family planning uptake, especially in rural settings need to bear in mind some of these challenges and opportunities.

Family Planning Products and Technologies

The assurance of consistent supply of safe, effective and affordable supplies of contraceptives is essential to meet the objects of all family planning programmes. To ensure contraceptive security, countries have developed Contraceptive Security Strategies which combine efficient procurement techniques and efforts to make contraceptives affordable and accessible. This is facilitated by the WHO's Essential Drug List. Ghana is currently implementing its second National Reproductive Commodity Security Strategy 2011-2016 after the expiry

of the first which was implemented from 2004 to 2010. The contraceptive methods and technologies currently being provided in Ghana according to the Ghana Reproductive Health Policy and Standards (2003) are classified under Temporary (short-term and long-term) and Permanent methods as follows:

A. Temporary Methods

a. Short-term

1. Oral - Microgynon (combination pill), Ovrette (Progestin-only pill), Micronor (Progestin-only pill), Pregnon (Emergency contraceptive pill); Duofem (Combination pill); Lo-femenal (combination pill), Microlut.
2. Injectables - Depo-Provera, Norigynon, Pregnon, Secure
3. Condoms - Generic, Be Safe male condom, Protector Plus male condom, Female Condom
4. Spermicides - Neo Sampoo, Today
5. Lactational Amenorrhoea Method (LAM)

b. Long-term

1. Intrauterine device (IUD) - Copper T
2. Hormonal Implants - Jadelle, Sino-implants, Implanon
3. Natural family planning methods

B. Permanent (Surgical)

1. Male - Vasectomy
2. Female - Tubal ligation

C. Emergency Contraception

1. Oral contraceptive pills

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1. Male - Vasectomy
2. Female - Tubal ligation

C. Emergency Contraception

1. Oral contraceptive pills

2. Intrauterine Device (IUD)

The following methods are provided at the different levels of the health system based on the category of staff at each level:

- a. Community level – condoms (male/female), spermicides, oral contraceptives and LAM;
- b. Sub-district level – condoms (male/female), spermicides, oral contraceptives, LAM, natural family planning methods, hormonal implants, injectables, IUD and emergency contraception;
- c. District level - condoms (male/female), spermicides, oral contraceptives, LAM, natural family planning methods, hormonal implants, injectables, IUD, voluntary surgical contraception (tubal ligation and vasectomy) and emergency; and
- d. Regional and Teaching hospitals – same as at district level.

Opportunities for ensuring contraceptive commodity security in Ghana, include but not limited to the fact that there is a policy that enables local procurement and manufacture of commodities and a strong donor support for commodity procurement, there exist sufficient quality control procedures and protocols and clear registration guidelines that are implemented by the Food and Drugs Authority and the current social marketing promotion strategies motivate more clients to accept commodities, especially the short-term contraceptive methods. Stockouts mainly due to inadequate flow of funds, transportation challenges, poor stock and financial management at the national, regional and

facility levels respectively, is the main challenge affecting availability of commodities and technologies in Ghana (Ghana Health Policy Project, 2012).

Financing Family Planning Programmes

Financing of family planning programmes is essential to ensure access to family planning services and contraceptive methods and technologies and also to provide incentives as motivation for family planning service providers. Investments in family planning provide very high return in savings in other development sectors like education and health (Singh et al., 2009). In developing countries, the main source of funding for contraceptives has been from development partners since the 1990s. Funding had increased from an estimated US\$79 million in 1990 to an estimated US\$223 million by 2007 (Gribble, 2010) and as much as \$408 million may be required by 2015 to respond to unmet need for family planning (Reproductive Health Supplies Coalition, 2009). Changing donor priorities worldwide like donors transition to more sustainable partnerships with national governments, health sector-wide approaches (SWAPs), direct budget Support from donors, special global funds that focus on specific health issues Such as HIV/AIDS & malaria and national development agendas based on poverty reduction strategies which may not include family planning, have prompted a concern that family planning programmes may be adversely affected if other sustainable ways of funding are not explored.

In response to changes in development assistance, many governments have become more active in supporting family planning efforts. Some strategies that

have been developed to meet the challenges include creation of budget line items in national budgets and committing to respond favourably to them, including contraceptives on essential drug lists and designating them as “essential commodities” and integrating family planning into national health insurance programmes and other benefit packages (Gribble, 2010).

In Ghana, family planning commodities had traditionally been provided to the Ghana Family Planning Programme through donations largely from USAID, DFID, and the UNFPA. The Ministry of Health (MOH) had contributed about 21percent of the total costs in recent years Increasingly, the World Bank has supported a substantial portion of the annual contraceptive financing gap mainly through basket funds (World Bank credits) (USAID, 2009)

The private sector also provides contraceptives and is the dominant source for short-term methods, while the public sector is the primary source for longer-term methods. Although family planning services including counseling are provided “free-of-charge” at public health facilities, there is usually a small charge for the commodity (averaging 10 percent of the international price). A policy to include family planning commodities under the National Health Insurance Package has been approved but the total cost of the package is yet to be computed before implementation of the policy begins (Ghana Family Planning Programme, 2015). The main challenge for family planning programme financing is that commitments by some partners are not always fulfilled (Ghana Family Planning Programme, 2015).

Human Resource for Family Planning

Health care is labour intensive and determining and establishing the right mix of personnel to safely deliver family planning services has been a major challenge for most health care organizations and health systems (World Health Organization, 2010) . Human resources should be deployed to achieve the best health outcomes within a given context, however, in developing countries where the ratio of trained health personnel to population is small and are poorly distributed, it is difficult to achieve the right mix of personnel to deliver the family planning services. Task-sharing (Higher level or lower level cadres perform the same task or perform different aspects of the same task) and task-shifting (Moving a task from higher level cadre completely to a lower level cadre in order to free the hands of the higher level cadre to concentrate on other important tasks) are being explored in developing countries where few trained medical practitioners are interested in reproductive health including family planning (Bongaarts et al., 2012).

As set out in the Ghana Reproductive Health Policy and Standards (2003), family planning services in Ghana are provided by trained service providers at various service delivery points as follows:

- a. Community level– Community based Service providers (CBS), trained Community Health Officers (CHOs), traditional birth attendants (TBAs), chemical sellers and pharmacists;
- b. Sub-district levels – Midwives, Nurses, physician /medical assistants, medical practitioners;

- c. District level – medical practitioners, physician/medical assistants, midwives, nurses, specialists;
- d. Regional level - Midwives, nurses, medical practitioners and specialists; and
- e. Teaching /Specialist Centres – Same as for regional.

Health Information for Family Planning

Governments, donors, programme planners and service providers require timely and accurate information for policy formulation or change, for decision making, to improve quality and coverage of family planning services, to improve programme performance and for resource mobilization among others.

For family planning programming, information generated are usually on results of surveys such as the Demographic and Health Surveys on contraceptive prevalence and unmet need by population segments, location and distribution of service delivery points, client records, procurement and supply information, trends of family planning services and products provided, and information on the location, skills, and training needs of providers and for identification of research needs (Directory of MOH/GHS - Ghana National Reproductive Health Policy and Standards, 2003; Bongaarts et al., 2012).

Leadership and Governance in Family Planning

Leadership in family planning involves bringing together multiple partners that work in family planning toward a common goal of improving family planning services and increasing contraceptive prevalence; whilst Governance refers to the

establishment of systems and procedures used to ensure the functioning of key organizations working in family planning. Governance and leadership in family planning requires accountability, transparency, integrity, and commitment to the common goal (National Strategic Plan for Family Planning in the DRC, 2014-2020).

In Ghana leadership and commitment to family planning has been shown by the government's development of family planning policies and legislation consistent with international conventions, by approval of the Roadmap for Repositioning Family Planning and other reproductive health policy documents and by effective collaboration with the private sector and development partners.

Although, the Ministry of Health (MOH) and Ghana Health Service (GHS) play leadership roles in strengthening the family planning programme and ensuring contraceptive security, there exists a national coordination mechanism that ensures the development and implementation of a coordinated strategy from which specific activities of various stakeholders derive. The membership of the coordination mechanism includes government, development partners, non-governmental organizations /civil society organizations and the private sector (Meeting the Commodity Challenge: Ghana's National Reproductive Health Commodity Security Strategy 2011–2016).

In addition to the coordination mechanism, there is an efficient logistics system which links the lower level facilities to the central level. The logistic system includes a logistic forecasting and quantification, supply and procurement, inventory control, storage and warehousing, transport and distribution and logistics

management information systems. Challenges with the leadership and governance system are the poor reporting system that fails to provide the required information for coordination, lack of follow-up on agreed strategies and plans and irregular coordination meetings (Meeting the Commodity Challenge: Ghana's National Reproductive Health Commodity Security Strategy 2011–2016, n. d.)

Postpartum Family Planning

Conceptually, the postpartum period may be divided into the following (Figure 2): (1) post-placental- within 10 minutes after delivery of the placenta, (2) Immediate postpartum - up to one week after delivery, (3) later postpartum – one week up to six weeks after delivery and (4) the Extended postpartum - six weeks up to one year after delivery (McKaig & Chase, 2007). Figure 2 depicts appropriate modern contraceptive methods that could be employed within the postpartum period for all women, breastfeeding women and non-breastfeeding women.

Postpartum family planning programme was initiated and launched by the Population Council in 1966. Its success led the Population Council to propose a global plan in 1971, with the dual aim of improving maternal and child health and providing better access to modern contraception (Taylor Jr & Berelson, 1971). Although the aims of this plan were not realized initially, postpartum family planning was considered to be an opportunity to offer family planning along the continuum of maternal health care: from pre-pregnancy and antenatal care, through the extended postpartum period (Ringheim, 2011). Postpartum family

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planning according to the WHO is, the prevention of unintended and closely spaced pregnancies through the first 12 months following childbirth. It is the time when a subsequent pregnancy holds the greatest risk for mother and baby and also when there is the greatest number of contacts with health care services (WHO , 2013)

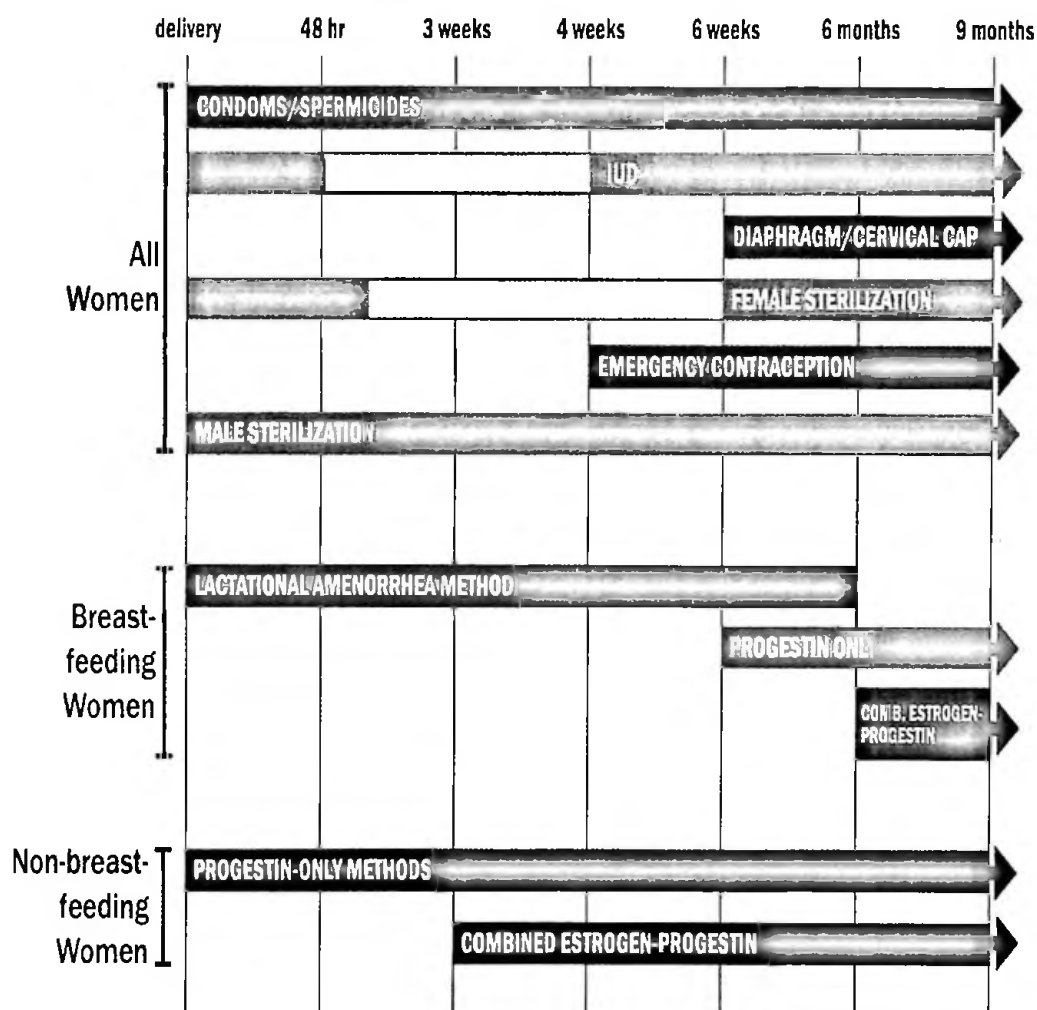


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Source: World Health Organization (2013)

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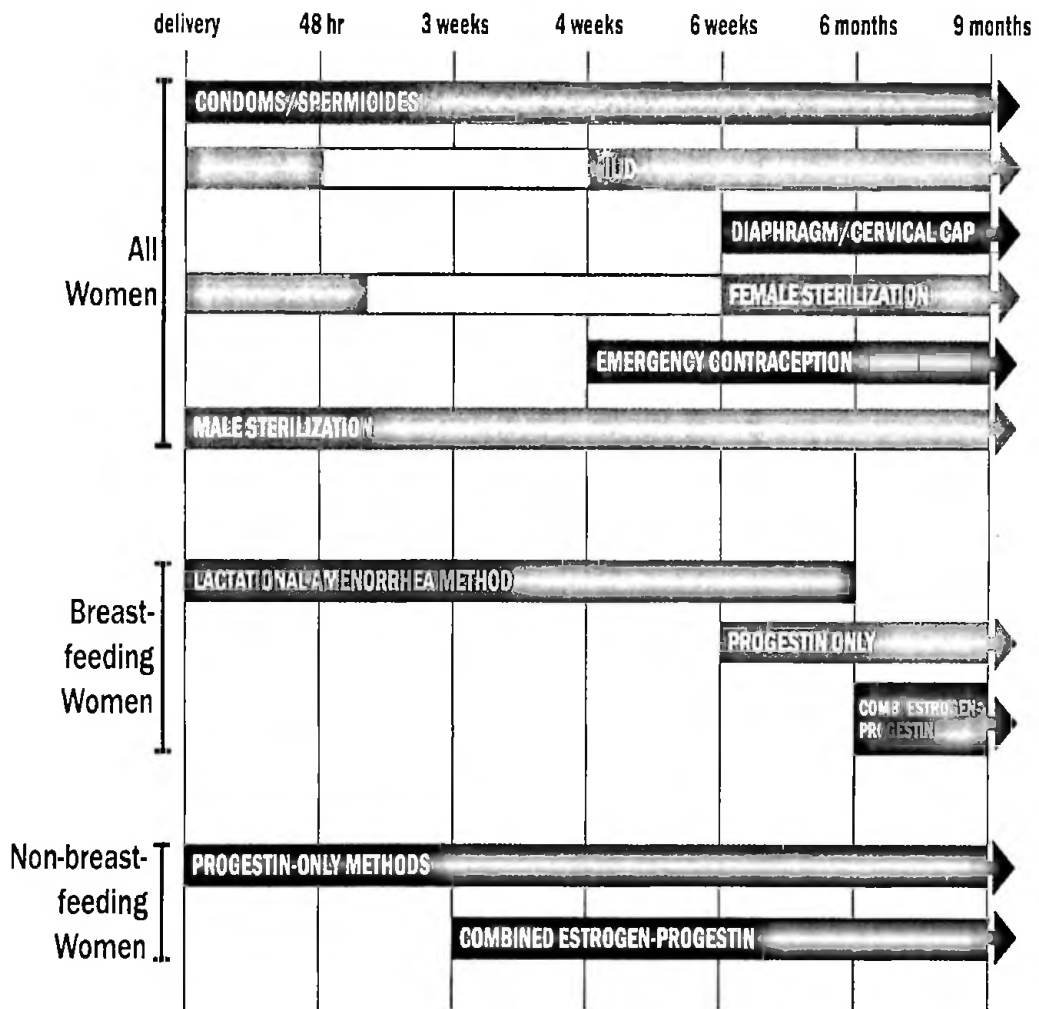


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Source: World Health Organization (2013)

The 2006 World Health Report proposed a 2-3 year birth interval following birth, and a six month interval following miscarriage or abortion, because they ensure good maternal and child health outcomes (WHO, 2006). Although most women would want to wait for more than two years before having another baby, there is still a high level of unmet need for family planning during the first year following birth when women are especially vulnerable to unintended pregnancy (Duong, Lee, & Binns, 2005). According to an analysis of DHS data from 27 countries, 65 percent of women who are 0–12 months postpartum, had an unmet need for family planning (Ross & Winfrey, 2001). The postpartum period, especially the immediate postpartum period, is a time during which couples generally have multiple encounters with the health-care system. Providing contraception during this time is cost-effective and efficient as a mechanism of family planning service provision (Singh et al., 2009; Warren, Mwangi, Oweya, Kamunya, & Koskei, 2010; World Health Organization, 2013).

Statement of Problem

United Nation's Millennium Development Goal five (MDG 5), aims at reducing maternal mortality by three quarters, between 1990 and 2015. An important intervention towards achieving this target is the promotion of modern FP among women (Sachs & McArthur, 2005; Cates et al., 2010). Within the first twelve (12) months postpartum, closely spaced pregnancies are the riskiest for mother and baby resulting in a 7.5-fold increased risk for induced abortion, a 1.6-fold increased risk of stillbirth, preterm births, low birth weight and small for

gestational age (DaVanzo, Hale, Razzaque, & Rahman, 2007). Evidence exists that if couples can space their pregnancies by at least two years through the use of postpartum family planning, up to 35 percent of maternal deaths and up to 13 percent of child mortalities could be averted (Cleland et al., 2006; Rutstein, 2008; Stover & Ross, 2010). Additionally, 25 percent of under – five mortalities could be averted if birth intervals were at least three years (Rutstein, 2008). Uptake of modern family planning methods remains low in Sub-Saharan Africa (SSA) and this is associated with a high incidence of unintended pregnancies, unsafe abortions, unplanned deliveries and maternal mortalities (Crossette, 2005; Cates et al., 2010).

In Ghana, unintended childbearing is estimated at about 0.7 births per woman (Johnson & Madise, 2011). According to the Ghana Demographic and Health Survey (GDHS), fertility rate, contraceptive prevalence rate (CPR) and unmet need in Ghana are 4.2, 27% and 30% respectively, with spatial and socio-demographic disparities. Women in rural areas have an average of two children more than those in urban areas (5.2 versus 3.4) and use modern family planning to the same extent as their urban counterparts (27% versus 26%) [GSS & Macro, 2014]. Women with at least some secondary education are nearly twice as likely to use contraception as women with no education; fewer women in the lowest wealth quintile are using a contraceptive method, compared with their counterparts in the highest wealth quintile (22% versus 29%) [GSS, Macro, & ICF, 2014].

At current rates, the targets set in Ghana's population policy are unlikely to be met by 2020. These targets are to reduce total fertility rate from 5.0 to 3.0, and

to improve contraceptive prevalence rate from 15 to 50 percent between 2000 and 2020. The postpartum period remains a very important ‘window of opportunity’ that could be utilized to improve contraceptive uptake. This period is critical because postpartum women have a high need for contraception and have multiple contacts with the health facility either for postnatal or child immunization visits. Although, the majority of postpartum women indicate a desire to use contraceptives, family planning methods are often not offered to, or taken up by women after delivery or in the first year postpartum (Ross & Winfrey, 2001; Adeyemi, Ijadunola, Orji, Kuti, & Alabi, 2005; Adegbola & Okunowo, 2009). Furthermore, lack of knowledge about the return of fertility in the postpartum period increase women’s susceptibility to unintended pregnancy as many of them incorrectly believe that fertility returns with resumption of menses (Adeyemi et al., 2005; Borda, Winfrey, & McKaig, 2011; Ndugwa, Cleland, Madise, Fotso, & Zulu, 2011). Many women also resume sexual activity prior to the resumption of menses, putting themselves at risk of a mistimed or unwanted subsequent pregnancy in this period. Seizing the opportunity to offer family planning services to women in the postpartum period may result in a steeper increase in the uptake of family planning methods and a reduction in unintended pregnancies (Speizer, Fotso, Okigbo, Faye, & Seck, 2013).

Very little is known about how pregnant women in Sub-saharan Africa (SSA), including Ghana arrive at their PFP decisions. This information is nevertheless critical to the design of strategies to increase the uptake of PFP (Adegbola & Okunowo, 2009; Warren et al., 2010).

Objectives of the Study

The main objective was to assess the factors that influence pregnant women's intention to use and use postpartum family planning.

The specific objectives were to:

1. Ascertain the level and determinants of unintended pregnancies among pregnant women
2. Examine the influence of socio-demographic characteristics of pregnant women on intention to use family planning postpartum
3. Assess the influence of partner socio-demographic characteristics on women's intention to use postpartum family planning
4. Analyse the influence of sex composition of children (in the context of sex preference) on intention to use and use of postpartum family planning
5. Determine the relationship between intention to use postpartum family planning and actual use
6. Estimate the timing of postpartum family planning use in relation to postpartum susceptibility to pregnancy (influenced by breastfeeding, postpartum amenorrhoea and postpartum sexual abstinence)

Hypotheses of the Study

This study tested three main hypotheses, including:

1. H_0 : There is no significant relationship between socio-demographic background characteristics of respondents and their intention to use postpartum family planning;
2. H_0 : There is no significant relationship between sex composition of children ever born by the women and unintended pregnancy, intention to use and use of postpartum family planning; and
3. H_0 : There is no significant relationship between intention to use and actual use of postpartum family planning among women.

Rationale of the Study

The Programme of Action of International Conference on Population and Development (ICPD/POA) in Cairo in 1994 established a clear link between population dynamics and sustained economic development. Since then, the Ghana National Population Policy (developed in 1969 and revised in 1994) has sought to ensure acceleration of socio-economic growth by 2020. Targets set included reduction of Total Fertility Rate (TFR) from 5.5 to 3.0; increase of contraceptive prevalence rate to 50 percent for modern methods and reduction of population growth rate from 3.0 to 1.5 percent by 2020. To ensure the attainment of these targets, the government of Ghana has worked to build a positive policy and programmatic environment by the development of subsequent policy documents such as the Ghana National Reproductive Health Policy and Standards 1994

(revised in 2003), a Roadmap for Repositioning Family Planning, Family Planning Protocols and the institution of a strong family planning programme. Some progress has been made: Total Fertility Rate is 4.2, Contraceptive Prevalence Rate is 27% (GSS, Macro & ICF 2014), and population growth rate is 2.5(Ghana Statistical Service, 2012), whilst unintended births improved from 42 to 37 percent between 1999 and 2008 (GSS & Macro, 2009). Ghana has since moved from a low income to a lower middle income country. At current rates, the targets set in the population policy may not be achieved despite the progress made. Ghana could have attained a higher socio-economic growth if the targets set out in the population policy had been achieved. The postpartum period offers good opportunity for family planning but has not been utilized. The reasons may reside in individual, partner, programme, institutional or socio-cultural factors and need to be ascertained.

Although fertility declines have been observed in the past three decades in some countries in the sub-region, certain socio-cultural factors and household, kinship and community institutions that favour childbearing remain highly influential (Makinwa-Adebusoye, 2007). Sex composition in the context of “son preference” is only one dimension of these socio-cultural factors which may influence reproductive health outcomes. The influence of sex composition of children on various reproductive health outcomes has been extensively studied in South and South East Asia, where an estimated 30-70 million women are believed to be “missing” (Qian, 2008), and sex ratios at birth as high as 130 males to 100 females have been observed (United Nations, 2011). Among the reasons

identified to account for the situation are, the patriarchal nature of the society, the attitude that sons are more important and valuable than daughters in carrying out important religious roles, that sons have the right to inherit land to support aged parents, and perpetuate the family name (Calhoun, Nanda, Speizer, & Jain, 2013).

Of the twenty-eight (28) sub-Saharan African countries reviewed, balance was found to be the most popular preference in 24 countries in sub-Saharan Africa (Fuse, 2010). The study further revealed that although son preference is observed in every sub-region within sub-Saharan Africa, it appeared to be particularly prevalent in West Africa, especially Mali, Senegal and Burkina Faso. Daughter preferences have also been observed in some West African countries including Ghana, Liberia and Sierra Leone. A study on the dynamics of reproductive health behaviours in rural coastal communities of southern Ghana by Akinyoade (2007) revealed that individuals in southern coastal communities preferred sons to daughters for propagation of their business.

In spite of these studies, there appeared to be paucity of research on sex composition or sex preferences and reproductive health behaviours in Africa which take into account the various social arrangements. One of the identified factors influencing son preference is the patriarchal nature of the society. However, there are no studies on sex preference, for instance, in the matrilineal societies. One of the questions then is whether there will be preference for one sex or the other in matrilineal areas.

This thesis addresses some of these issues by examining the postpartum family planning intentions of pregnant women and the determinants associated

with translation or otherwise of family planning intentions during pregnancy into reality after delivery. The study will then provide evidence of some of the strategies that family planning programme managers can use to target women and match interventions to actual performance to promote the health of both mother and child.

Organization of the Thesis

The study is organized into nine chapters. Chapter One captures the introduction to the study and sets the background for the study. It discusses some historical perspectives of family planning; family planning as a human right; cost benefit-analysis of family planning; family planning and the health service; and postpartum family planning. It also discusses the problem statement, purpose, objectives and rationale of the study.

Chapter Two puts the study within the context of empirical body of knowledge on intention to use and use of family planning and discusses various theories and concepts related to behaviour change and fertility.

Chapter Three discusses the methodological approach to the study. It also discusses the limitations and challenges of the study and how they were mitigated. Chapter Four presents the background characteristics of the respondents in general and also compared the characteristics of those who intended to be followed up and those who were actually followed up. Determinants of unintended pregnancies, an outcome of poor family planning use are also discussed in this chapter, whilst

factors influencing the intention of women to use postpartum family planning are discussed in Chapter Five.

Postpartum family planning use, the relationship between intention to use and actual use of postpartum family planning, the most methods used and the determinants of actual use are assessed and discussed in Chapter Six. Chapter Seven describes the sex composition of children ever-born and assesses the possible existence of sex preference within the matrilineal inheritance system of the Mfantseman Municipality and further assessed the influence of sex composition on reproductive health outcomes (unintended pregnancy, intention to use and actual use of postpartum family planning). In addition, this chapter estimates the average timing of postpartum contraceptive use and discusses its relationship with breastfeeding, postpartum amenorrhoea and postpartum sexual abstinence among the postpartum women.

Chapter eight concludes the study with summary of main findings, conclusions, and contributions to knowledge, policy implications, recommendations and future research perspectives.

CHAPTER TWO

CONCEPTUAL, THEORETICAL AND EMPIRICAL ISSUES ON INTENTION TO USE AND USE OF POSTPARTUM FAMILY PLANNING

Introduction

There is growing consensus that behavioural change is likely to occur if people are motivated to undertake the change and if environmental barriers are reduced or removed (Fishbein & Cappella, 2006). Empirical research over the past three decades has led to the recognition that specific behaviours can be predicted with considerable accuracy by assessing intentions to engage in the behaviours under consideration (Fishbein, 2008). The presumption that intentions can be reasonably used to predict behaviours is based on the view that individuals translate intentions to actual behaviour (Agha, 2010; Callahan & Becker, 2014). This chapter discusses unintended pregnancy, a core consideration in intentions to use and use of contraceptives; examines existing body of knowledge on intention to use and use of contraceptives and the extent to which intentions are translated into actual behaviour. Theories and models of behaviour change and fertility that will guide the study are also discussed.

Unintended Pregnancy

Prevention of unintended pregnancy is a core consideration in individuals' and couples' intention to use and use of contraceptives. It refers to pregnancies

that are not wanted or those that are mistimed at the time of conception (Centers for Disease Control, 2010). Out of the 208 million pregnancies estimated worldwide, in 2008, 41 percent were unintended (Singh, Sedgh, & Hussain, 2010). Rates of unintended pregnancies, though declining world-wide, are still high. Rates declined by 20 percent from 71 to 57 per 1000 from 1995 to 2008 among women aged 15 to 44 years in Low- and Middle -Income Countries (LMICs) (Singh et al., 2010) . In 2008, 75 million women in LMICs reported that their pregnancies were unintended, with 23 percent of these pregnancies occurring in SSA (Singh, Wulf, et al., 2009). Unintended pregnancies were estimated in 2008 at 49 per 1000 pregnancies in Asia, 72 per 1000 in Latin America and the Caribbean and for women aged 15 – 44 years in Africa, 86 per 1000 (Singh et al., 2009); that of Africa was rated as the highest and stated that in Ghana, 37 percent of all births are unintended (Sedgh, 2010).

These pregnancies may carry serious consequences for women and their families, including possible unsafe abortion, delayed prenatal care, poor maternal mental health, reduced mother/child relationship quality, poor developmental outcomes for children, physical abuse and violence of women, increased risk of low birth weight of babies as well as increased maternal morbidity and mortality (Santelli, 2003; Singh et al., 2010). Available data suggests that induced abortion and related complications are the most common outcomes of unintended pregnancies.

The concept of unintended pregnancy has been found to have many facets (Santelli et al., 2003): First, 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 because of contraceptive failure and a woman's happiness or unhappiness after discovering she is pregnant; and third, having mixed feelings or contradictory ideas about avoiding pregnancy may be expressed in imperfect contraceptive use (Trussell, Vaughan, & Stanford 1999).

A major problem with surveys on unintended pregnancy is that most measure women's intentions after a birth has occurred. This situation can be influenced by the presence of the baby so that an otherwise unintended pregnancy may become more positive over time (Joyce, Kaestner, & Korenman, 2000). Another problem with measurement of unintended pregnancy is the inherent heterogeneity. According to Luker (1999), unwanted and mistimed pregnancies commonly represent different life choice considerations: unwantedness reflects the intentions or desires of a woman and her partner after the couple has had all the children they want. In contrast, mistimed pregnancies can occur throughout the reproductive years but are most common among adolescent and young adult women (Pulley, Klerman, Tang, & Baker, 2002)

Unintended pregnancy may be a reflection of ambivalence about sexuality and may be expressed through inconsistent use of contraceptives. Emotional and psychological factors influence, to a large extent the complex fertility decisions women make and their pregnancy intentions; furthermore, current measures of pregnancy and fertility intentions are not designed for individual level assessment but for population level assessment (Santelli et al., 2003). In view of these factors, some researchers have suggested that intended and unintended pregnancies should

not be seen as dichotomous but be considered as two ends of a spectrum (Bachrach & Newcomer, 1999). This spectrum should include the desire for a baby or affective dimension, which is related to the community, partner and individual values about childbearing; and a pregnancy dimension which is concerned with preparation for pregnancy, life goals and education (Stanford, Hobbs, Jameson, DeWitt, & Fischer, 2000). A woman's feelings about a particular pregnancy and decision about abortion may be shaped by changes in the relationship with her partner, pressure from family and friends, antenatal diagnostic tests and medical, psychiatric and psychological conditions (Santelli et al., 2003).

Anthropological studies of reproduction have noted a complex set of relationships within which pregnancies occur, thereby raising the question "intended by whom" (Santelli et al., 2003). Answers to this question will require a critical analysis of how gender inequality and culturally constructed ideals about relationships and sexuality shape women's interactions with their partners, as well as on women's interactions with their lineage and kinship groups, peers and healthcare providers (Santelli et al., 2003). In this regard, anthropological literature suggests that public health research on pregnancy intendedness should take into consideration contextual factors or socio-cultural factors such as gender inequalities and structural factors within the health delivery system.

Intention to Use and Use of Family Planning

Studies in family planning on intention to use, and its further translation into actual use are very few. Adegbola and Okunowo (2009) in their study on intended

postpartum contraceptive use amongst 423 pregnant and puerperal women in a teaching hospital in Nigeria reported that fifty-four percent (54%) of the respondents intended to use contraceptives after delivery when the prevalence of previous contraceptive use was 35.5%. In a longitudinal study conducted in rural Bangladesh (Callahan & Becker, 2014), it was reported that women (pregnant and non-pregnant) who were not using a method of contraception but said they intended to use a method in the future were more likely to go on to use a method than women with no intention to use. It was further reported that women who intended to use a specific method were even more likely to begin use than women who were unsure of what method they wanted to use (Callahan & Becker, 2014).

Keogh (2012) and colleagues, in their study, followed 5,284 pregnant women throughout the extended postpartum period in Northern Tanzania. The study outcome revealed that demand for delaying births was matched by intention to use family planning (over 77 percent) both at baseline and follow-up. They further reported that intentions often did not translate into actual contraceptive use in the postpartum period; while 72 percent of women intended at baseline to start family planning in the first year postpartum only 40 percent had actually managed to (or still intended to) at follow-up.

Factors Influencing Intention to Use Contraceptives

Some studies have observed strong association between some socio-demographic, socio-cultural and socio-economic characteristics of women and significant others, and intention to use and/or use of contraceptives while others

have not. For instance, age (Adegbola & Okunowo, 2009) and high parity (Adegbola & Okunowo, 2009; Kariuki, 2011) have been found to predict intention to use postpartum contraceptives. Level of education (Adegbola & Okunowo, 2009; Kariuki, 2011; Di Giacomo, Sbarlati, Bagnasco, & Sasso, 2013) and family planning counseling by providers (doctors and nurses) increased the intention to use contraceptives, including postpartum contraceptives (Adegbola & Okunowo, 2009). According to Kariuki (2011), being married is a significant predictor of intention to use postpartum contraceptives among first time mothers.

Agha (2010) observed that, the perception that one's in-laws support family planning, belief in the importance of spacing children, availability of method of choice and facilities with competent staff as well as spousal discussion were drivers of intentions to use contraceptive methods. The obstacles to a woman's intention to use contraceptive methods were her belief that family planning decisions were made by her husband, fertility was determined by God's will and fears that family planning would harm a woman's womb (Agha, 2010)

Factors Influencing Actual Use of Contraceptives

Factors that influence actual use of contraceptives are also generally socio-demographic and socio-economic. Older age (Jabeen, Gul, Wazir, & Javed, 2012; Sharma, Mohan, Das, & Awasthi, 2012), higher educational status (Arbab, Bener, & Abdulmalik, 2011; Yihunie, Tamene, Benedict, & Deribe, 2011; Jabeen et al., 2012; Buyinza & Hisali, 2013), high parity (Jabeen et al., 2012; Sharma et al., 2012; Yihunie et al., 2013), higher household income and highest wealth quintile

(Arbab et al., 2011; Yihunie et al., 2013) are associated with actual use of family planning.

Yihunie and colleagues (2013) analysed 10,204 women from the 2011 demographic and health survey data of Ethiopia and reported that being employed, being in a monogamous relationship, attending community conversation and being visited by a health worker at home increased the likelihood of using modern contraception. Some factors that were found to negatively influence contraceptive use included living in rural areas, being in polygamous relationship, being Muslim and witnessing one's own child's death (Yihunie et al., 2011).

Theories and Models

Most interventions to change and improve health-related behaviour are guided by formally stated theories, or by less formally defined ideas about behaviour that are derived from people's experiences, opinions and intuitions (Glanz, Rimer, & Viswanath, 2008). The design of interventions that yield desirable changes can best be done with an understanding of theories of behaviour change and an ability to use them skillfully in research and practice (Grol, Bosch, Hulscher, Eccles, & Wensing, 2007). According to McGuire (1983), the adequacy of a theory is often assessed using three criteria: (1) its logic, or internal consistency in not yielding mutually contradictory derivations, (2) the extent to which it is *parsimonious*, or broadly relevant while using a manageable number of concepts, and (3) its *plausibility* in fitting with prevailing theories in the field.

Not many studies that use behaviour change theories, measure actual behaviour change, or use rigorous methodologies and designs; neither do they compare multiple behaviour change theories. According to Noar and Zimmerman (2005), out of nearly three thousand (3000) studies reporting the use of behaviour change theories, only nineteen (19) of them compared different behaviour change models. Of these, only three (3), according to Weinstein and Rothman (2005), used rigorous designs (longitudinal as opposed to cross sectional) and behavioural outcomes.

Behaviours are influenced by many factors. However, McLeroy, Bibeau, Steckler and Glanz (1988) identified five factors (affected by existing social environment) that influence health-related behaviours, namely: Intrapersonal or individual factors; interpersonal factors; institutional or organizational factors; community factors; and policy level factors.

Individual and interpersonal health-behaviour theories are generally classified under Cognitive – Behavioural Theories, which have behaviour and knowledge as major concepts influencing them, despite the presence of other factors in the social environment. Although, group, community and national level behaviour change interventions are important, it is extremely useful to target individuals who make up the groups and communities, in order for a particular behaviour change to be effective. Individual level targeting is important, especially for sensitive and sometimes controversial issue such as use of family planning.

Several philosophical ideas, theories and models have been proffered to explain behaviour modification. Among them are the Health Belief Model; Stages of Change (Transtheoretical), Theory of Planned Behaviour (TPB); Social Cognitive Theory; Diffusion of Innovations Theory (DOI), Steps to Behaviour Change Model (STBCM); Postpartum Behaviours Model; and Davis and Blake Model of fertility. The core issues of these models are examined to inform the study.

Health Belief Model

In order to understand why individuals fail to use behaviours such as disease prevention strategies or undergo screening tests for early detection of disease, Social Scientists in the United States of America (USA) developed the Health Belief Model in the 1950s (Hochbaum, 1958). Susceptibility, Seriousness, Benefits and Barriers, Cues to action and Self efficacy are primary constructs that predict an individual's ability to prevent and control disease conditions in this model. Individuals are likely to take mitigating actions to reduce their risks if their susceptibility leads them to believe that a given condition may have serious consequences, a certain course of action will reduce their susceptibility and possible severity of the condition, and the anticipated benefits of taking that action far outweigh the barriers. Some other demographic and socio-psychological variables influence perceptions and may indirectly affect behaviours, working through the constructs (Figure 3).

The theory's intuitive logic and clearly stated central tenets make it appealing (Brewer & Rimer, 2008). Other strengths are its ability to explain health related behaviours and provide useful theoretical basis for analyzing cognitive determinants of behaviour (Orji, Vassileva, & Mandryk, 2012). Furthermore, it can help to develop change strategies and develop messages that are likely to persuade individuals to make healthy decisions. Finally, it is a proven way of helping to identify health behaviour correlates (Brewer & Rimer, 2008).

These strengths notwithstanding, the HBM has some weaknesses. First, it does not account for a person's attitudes, beliefs, or other individual determinants that dictate a person's acceptance of health behaviour. Second, behaviours that are taken for non-health-related issues and habitual behaviours are also not accounted for by the theory (Champion & Skinner, 2008). Third, like all the other theories, it does not integrate socio-economic and environmental variables into the framework. Fourth, its assumptions that cues to action are widely prevalent and that individuals have equal amounts of information on health conditions are flawed. Finally, a major weakness worth noting is also that the relationships between the various constructs are not clearly defined and make measurements quite difficult (Armitage & Conner, 2000; Orji et al., 2012).

Overall, the Health belief model has stood the test of time despite its limitations. It is a cognitive model that is widely used by researchers in the area of behaviour change. The cognitive sequences are very ordered and work better; and depending on the setting and the type of behaviour change applied to, the weight of the various constructs may vary.

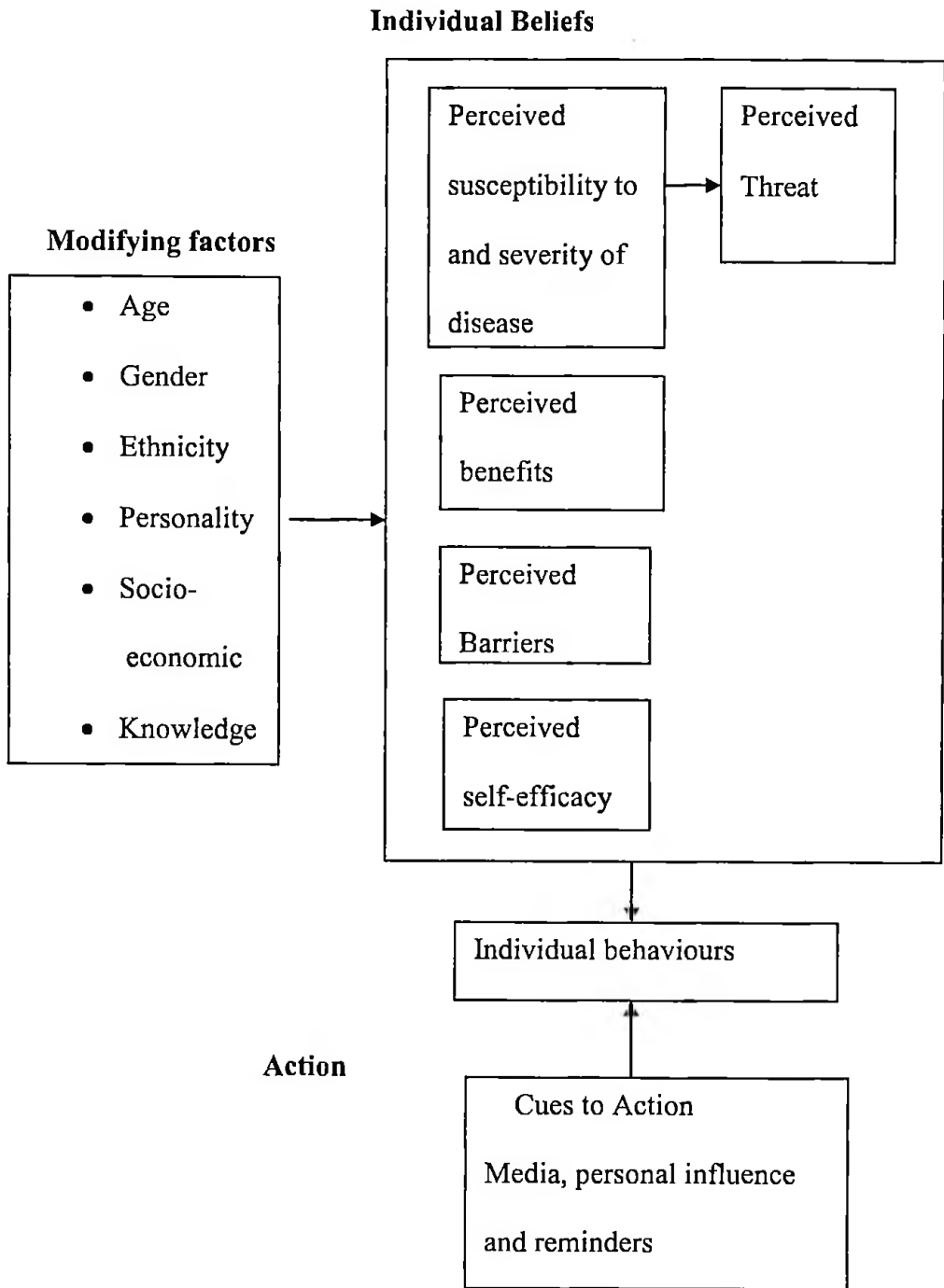


Figure 3: Health Belief Model

Source: Rosenstock et al. (1994)

The theory is designed to predict behaviour change, but it is better at describing present or current behaviour status than predicting change. The combination of susceptibility and severity makes it stronger at predicting behaviour than models that use threat alone.

Social Cognitive Theory

This theory developed by Albert Bandura explains human behaviour in terms of a three-way, dynamic, reciprocal theory in which personal factors, environmental influences, and behaviour interact continually (Bandura, 1997). The key constructs of this theory can be grouped into five categories namely: psychological determinants of behaviour (outcome expectations and self-efficacy); observational learning; environmental determinants of behaviour (environmental determinism, incentive motivation and facilitation); self-regulation, and moral disengagement (McAlister, Perry, & Parcel, 2008).

The psychological determinants include outcome expectations and self-efficacy. Outcome expectations are expectations about how different people will evaluate our behaviour and our willingness to be guided by their evaluation (McAlister et al., 2008). Inherent in this is the concept of self-evaluative outcome expectation which is also very critical. It functions like a social outcome, however, it can be governed partly by people's anticipation of how they will feel about themselves if they do or do not perform certain behaviours. Evidence shows that expectations about self-evaluative outcomes can be more powerful than expectations about social and material outcomes for some individuals (McAlister

et al., 2008). The creation of this category of outcome expectation explains how individuals can resist social pressures to meet their own standards of approvable conduct.

Self-efficacy, for which the social cognitive theory is most widely known, consists of a person's beliefs and confidence about her ability to take actions that affect her life and the quality of actions taken (Bandura, 1997). Four ways in which self-efficacy can be developed include mastery experience, social modeling, improving physical and emotional states, and verbal persuasion (Bandura, 2004). Of all the four ways, mastery experience is considered the strongest influence on self-efficacy. It involves creating an enabling environment for a person to succeed in attainable but increasingly challenging performances of desired behaviours. This requires extensive practice.

The second source of influence on self-efficacy is observational learning or modeling whereby people judge their capabilities in relation to others whom they regard as similar to themselves. For example, a person who intends to overcome a certain phobia, benefits from seeing others who are in similar situation and are making progress with overcoming their phobias. This helps individuals to overcome the difficulties associated with the process by learning the experiences of the models. The third source which is verbal persuasion, involves encouraging individuals to boost their confidence enough to induce the initial efforts at behavior change. Finally, improvement in physical and emotional states goes a long way to boost self-efficacy. Acquiring skills to reduce uncomfortable

physiological reactions such as stress and depression by relabeling these as “excitement” helps individuals overcome these.

The social cognitive theory has a reciprocally deterministic view point and posits that no amount of observational learning will lead to behaviour change unless the observers’ environments support the new behaviours (Bandura & Bryant, 2002). Incentive motivation and facilitation are two basic forms of environmental change that influence behaviour. Incentive motivation involves use of rewards or punishment which increase or decrease respectively, the probability that behaviours will be enhanced. Similarly, facilitation (more empowering than motivation) is the provision of new structures or resources that enable behaviours or make them easier to perform (Bandura, 1998).

Self-regulation is the extent that one accurately reflects on his or her progress toward a learning goal, and appropriately adjusts his or her actions to maximize performance. Three characteristics of self-regulation include self-observation (monitoring one's activities), seen as the most important of these processes; self-judgment (self-evaluation of one's performance) and self-reactions (reactions to performance outcomes) (Zimmermann, 2000).

Weaknesses of the social cognitive theory are that: it is so broad and lacks any unifying principle or structure and is difficult to implement in its entirety; it does not take into consideration biological differences and the influence of hormonal responses on one’s behavior. In addition, it ignores genetic factors that could lead to disparities between people’s cognitive abilities and behavior; it does not consider maturation and lifespan behavior changes in that as people move

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through life, their behavioral patterns can change drastically with little change in their environment. The strengths are that it: is accurate and easy to understand, optimistic in a good way, offers opportunity to explain how behaviour is learned, provides a way to integrate social and cognitive theories, is able to explain a large number of behaviours, can handle inconsistencies in behaviour and can allow and account for cognitive processes.

Diffusion of Innovations Theory

The concept of diffusion had been studied extensively prior to the publication of Everett Roger's theory of Diffusion of Innovations (DOI) (Pemberton, 1936) . The DOI is a broad socio-psychological theory that seeks to describe the patterns of use, explains and helps to predict whether and how innovations, strategies or ideas are used (Rogers, 2008).

According to Rogers (2008), diffusion is the process by which ideas, strategies or innovations spread to members of a social system over time, through certain communication channels. Thus, the author deduced that five elements which influence the spread of innovations or ideas are: the innovations or ideas themselves; communication channels; time; existing social systems and the messenger. In addition to these, various diffusion stages exist. The first stage is innovation development, followed by dissemination, adoption, implementation, maintenance, sustainability, and institutionalization (Orlandi, Landers, Weston, & Haley, 1990; Oldenburg & Glanz, 2008).The decision to adopt an innovation occurs through knowledge, persuasion, decision, implementation and confirmation

(Cain & Mittman, 2002; Rogers, 2008). The end result of diffusion is that individuals within a social set up use new behaviours and ideas. Perception of an idea or behaviour as new or innovative forms the main basis or backbone for use.

Within a social system, individuals do not use an idea or behaviour at the same time. Some use earlier than others, whilst some may be for or against the innovation. It is therefore important to stratify the population of interest, based on their different characteristics, in order to design different strategies to target them. Five (5) user audiences exist according to Rogers (2003) (Figure 4): Innovators; Early adopters; Early Majority; Late Majority; Laggards.

Innovators are usually people who are not afraid to use new ideas or behaviours, are innovative, want to be first to use them and are risk takers. Generally, little to nothing needs to be done to convince such individuals. Early adopters are usually aware of the need to change and are not afraid to use new ideas. They have characteristics of opinion leaders and enjoy leadership roles. Such individuals only need information on how to implement or use the idea or behaviour. Late users are skeptics and need to be convinced beyond reasonable doubt that an idea or a change of behavior pays off. They will usually try new ideas or behaviours if they are convinced that many people have tried and tested them. Strategies that appeal to such people are success stories and statistics about numbers of individuals who have used ideas and behaviours successfully. Laggards are the most difficult to convince, are conservative and bound by entrenched traditions and beliefs. They may have little or no formal education, likely to be rural dwellers and may be in the lower wealth quintiles compared to

innovators and early users. These people will require success stories, targeting by peer groups and fear to eliminate fear and provide reassurance.

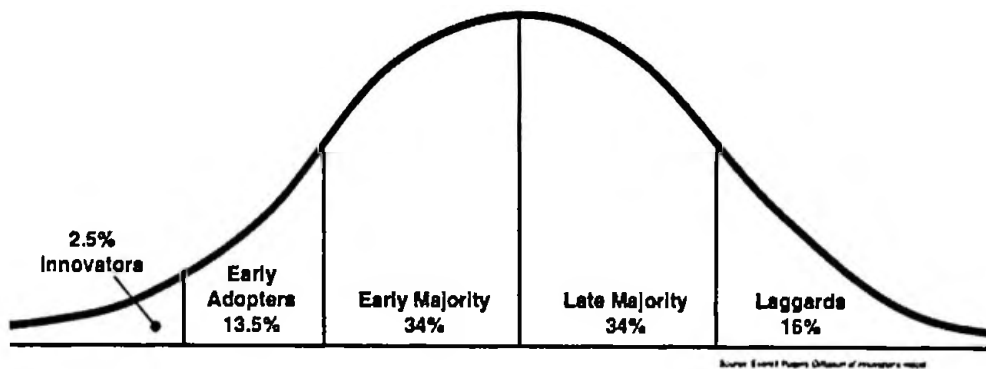


Figure 4: Diffusion of Innovation Model

Source: Rogers (2003)

At play, to different extents, at the four user categories are: the idea's or behaviour's relative advantage over the previous or existing one; its compatibility with the users' needs, experiences and values; how complex or difficult the behavior or idea is to understand; the ease with which the innovation could be tried before being used and the extent to which it provides results which are tangible (observability) (Oldenburg & Glanz, 2008).

The importance of the theory are first, it strengthens the adoption-decision process by introducing innovation, communication channels and the nature of the society to which the innovation is targeted into the model. Second, it adds the extent of change agents' promotion efforts to the contextual factor of the adoption-decision model. Third, it confirms adoption is a mental process in which the individual's attitude influences decision to adopt or reject the innovation. Fourth, the concept of the adopter's perception about innovation strengthens the adoption-

decision model through the five characteristics of innovation (Botha & Atkins; 2005).

The theory is however limited by the fact that, it assumes a hundred percent adoption of innovation and does not allow for rejection (Waterman, 2004). The theory also assumes the characteristics of the innovation do not change over time (Wolfe, 1994). According to Kole (2002) the model has pro-innovation and individual biases in that it assumes all individuals should adopt innovation and do it more quickly and that it only focuses on the individual adopter and ignores the individual's resources or the social support to use the behaviour.

For behaviour such as adoption of postpartum family planning, the diffusion of innovation theory will help us understand the characteristics of the women being studied, their knowledge base and the influence it may have on their subsequent use of postpartum family planning, the social system (culture, beliefs and practices) in which they live and which may influence the use of the experience, timing of the use and factors that influence the rate of use.

Transtheoretical (Stages of Change) Model

This was developed by Prochaska and DiClemente in 1983 whilst studying experiences of smokers who quit on their own (Prochaska, DiClemente, & Norcross, 1992). It is an Intentional Change Model which focuses on the decision-making of an individual. The model is based on the assumption that change in behaviour occurs through a cyclical process (Figure 5) and that behaviours are not

changed quickly or decisively. Different theories where effective, can be applied to different stages of the cycle.

According to them, six stages are proposed namely (Figure 5): Precontemplation; Contemplation, Preparation, Action, Maintenance and Termination. The last stage was not part of the original model and may not apply to health behaviour change. At the Precontemplation stage, people lack insight into their negative behaviours and do not intend to change in the immediate future. They tend to focus more on the negative rather than the positive consequences of behaviour changes that are proposed to them.

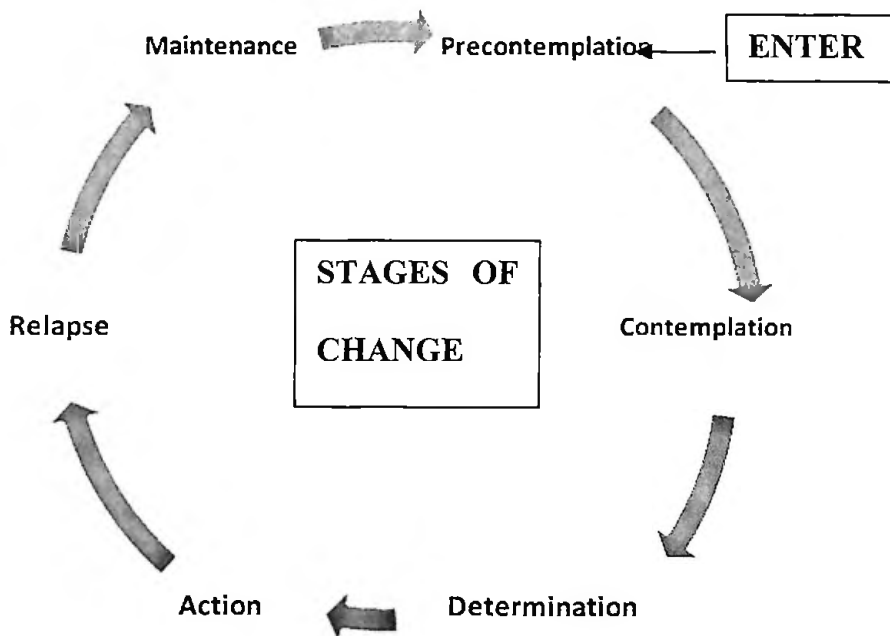


Figure 5: Stages of Change Model

Source: Proschaka and Di Clemente (2008)

In the Contemplation stage, individuals have some insight into their problems but still have contradictory feelings towards changing behaviour. They now have intentions to change their behaviours in the immediate future (next six months). Equal emphases are placed on both positive and negative outcomes of using new behaviours and experiences.

At the Determination stage, people begin to take some minor steps towards changing their behaviours because they are now convinced of the positive outcomes of it. They may be likely to take major steps in the following month. Some individuals have a change of mind as they progress along this stage, but may re-enter to complete and enter the action stage. In the Action stage individuals have actually changed their behaviours in the last six months and may be progressing towards maintaining their behaviours. Some individuals are unable to sustain their behaviours and may relapse. Some may remain in the relapse stage and fail to progress, whilst some others may take up the new behaviours again and progress to the Maintenance stage. In this stage, individuals make a strong effort not to relapse. They usually have maintained the new behaviours for over six months and may be progressing. The Termination stage is difficult to attain in health behaviour-change programmes and is often not considered. Here individuals are convinced strongly that they will never return to their old ways.

The strengths of the model are that it helps effective targeting of interventions at individuals in different stages, to ensure positive behaviour-change outcomes and treats behaviour change as a dynamic rather than an “all or nothing” phenomenon (Marshall & Biddle, 2001) . The limitations of applying this model to

this study are that, the socio-cultural and socio-economic environment in which behaviour-change occurs are not considered; furthermore, the theory assumes the following: that individuals planning to use new behaviours do so logically and coherently, whilst this is not observed in practice; assigning individuals to particular stages may be arbitrary because no set criteria exist and no clear durations exist for how long individuals spend in each stage (BUMC, 2013).

The application of this model to postpartum family planning may be practical, in the sense that there may be some women in the pre-contemplation stage who, for fear of side effects of contraceptives, may have no intentions of using postpartum family planning whilst others may be in the contemplation, determination, action or maintenance stage because they appreciate the benefits of postpartum family planning.

Theory of Planned Behaviour

This theory started as the Theory of Reasoned Action in the 1980s which assumed that people had absolute control over their behaviours. However, this was limited by the fact that some individuals believe they have little or no control over their behaviours. To overcome this limitation, Ajzen introduced the element of perceived behavioural control into the Theory of Reasoned Action, thus transforming it into the Theory of Planned Behaviour (Figure 6). According to Ajzen and Fishbein (1980), the most important determinant of behaviour is the individual's behavioural intent. They described the constructs as follows:

1. Behaviour: The transmission of intention or perceived behavioral control into action;
2. Behavioral Intention: Indication of how hard people are willing to try and of how much an effort they are planning to exert, in order to perform the behaviour. These are influenced by a person's *attitude* toward performing the behaviour, the perceived social pressure, called *subjective norm* and *perceived behavioural control*;
3. Attitude: It is the degree to which the person has a favourable or unfavourable evaluation of the behaviour under consideration and is the first determinant of behavioural intention;
4. Subjective Norm: It is the second predictor of behavioural intention and defined as the influence of social pressure that is perceived by the individual (*normative beliefs*) to perform or not perform a certain behaviour and weighted by the individual's motivation to comply with those perceived expectations (*motivation to comply*); and
5. Perceived Behavioral Control: Described as the third antecedent of behavioral intention, this construct is defined as the individual's belief concerning how easy or difficult performing the behaviour will be and often reflects actual behavioural control.

They assumed that individuals are usually rational, make systematic use of information available to them and consider the implications of their actions before they decide to engage or not engage in a given behaviour. According to Ajzen

(1991), the Theory of Planned Behaviour assumes a causal link between attitudes, subjective norms and perceived behavioural control, and behaviours, through behavioural intention (Figure 6).

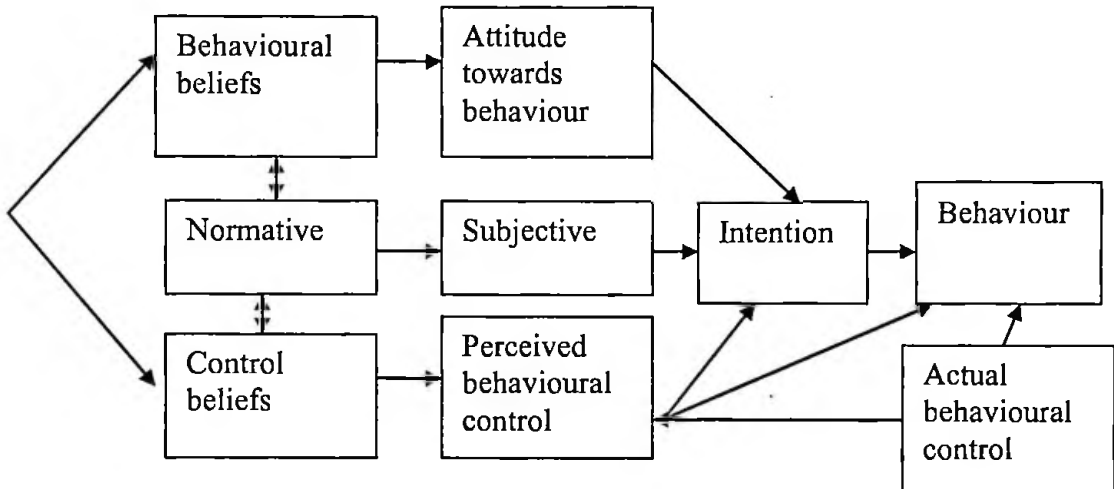


Figure 6: Theory of Planned Behaviour Model

Source: Ajzen (1991)

The strengths of the theory of planned behaviour are that it can explain the relationship between behavioral intention and actual behaviour, help predict health-related behavioral intention and explain individuals' social behaviour by considering "social norm" as an important variable (Ajzen, 1989).

Brewer and Rimer (2008) assessed several aspects of the causal link claim by Ajzen and Fishbein and think that, highly specific behavioural intention measures that match the intended behaviours are required. Firstly, they suggested that intentional measures like planning, desire and expectations are likely to match behavioural intentions. Based on these suggestions, the following examples could

be used in this study as intentional measures: “do you plan to use family planning after delivery?”, “would you like to use family planning after delivery?”, “is it likely that you would use family planning after delivery”? . Gollwitzer (1999) however asserts that behavioural willingness is a stronger predictor of behaviours compared to behavioural intentions. Secondly, empirical evidence suggests that intentions do not always lead to behaviour as postulated by the Theory of Planned Behaviour.

Despite the strong intention-behaviour relationship observed in some longitudinal studies (Callahan & Becker 2014), the relationship is weaker for very well designed experimental studies, studies of intentions measured further away in time from behaviours, risk behaviours performed within a social context and behaviours influenced by habits (Webb & Sheeran, 2006). Thirdly, Brewer and Rimmer (2008) further observed that the influence of attitude on behaviour is not always mediated by intentions. They assert that both intentions and attitudes change, depending on factors such as fear, threat, mood changes or past experiences, making their relationships to behaviour something of a moving target.

Despite consideration of normative influences and regardless of the individual’s intention, socio-economic and environmental factors, and opportunities and resources needed to be successful at performing the behaviour, were not considered. The theory assumed that, perceived behavioural control predicted actual behavioural control, but this may not always be the case and thus may create some measurement problems.

Applying the theory to this study, use of postpartum family planning would be the behaviour of interest, whilst attitude towards the behaviour may be the woman's thinking that, subsequent birth less than two years from the last one could be detrimental to her health and that of the child. Approval or non-approval of postpartum contraceptive uptake based on normative beliefs of partner, mother- or father-in-law, religious group or any other social influence defines the subjective norms, whilst the woman's perception that she can still use postpartum family planning despite disapproval by significant others, implies a perceived behavioural control.

Steps to Behaviour Change Model

This model was developed by Piotrow et al. (1997) to explain behaviour change in their studies on family planning. They described the five major constructs of Knowledge, Approval, Intention, Practice and Advocacy in adopting family planning (Table 1, Figure 7). According to Piotrow and colleagues, individuals and groups progress from knowledge to sustained behaviour change and advocacy; and at any point in time people will be at different stages of change and will constitute distinct audiences that require different approaches, to meet their needs. They further observed that, not all individuals go through each step of the process in the same order, same speed, or at the same time; and that as knowledge and approval reach high levels in advanced programmes, emphases shift to later steps. The strengths of the model are that it helps effective targeting

of interventions at individuals in different stages, to ensure positive behaviour-change outcomes (Piotrow et al., 1997)

Because this model was developed within the context of behaviour change related to family planning, it is easy to assume that it is the most suitable for this study. Some limitations that make the model inadequate are that: it focuses on the individual without considering effect of structural and environmental issues on ability to enact change; it does not account for social norms and public policy which also have effect on behavior change; the steps present a descriptive rather than a causative explanation of behaviour. It is important to point out that there is no direct relationship between knowledge and practice.

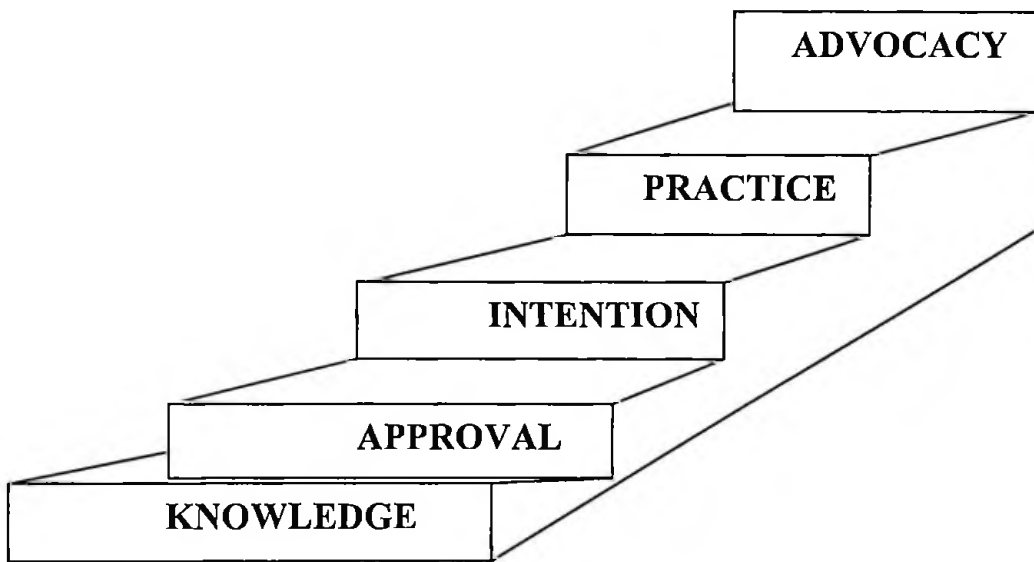


Figure 7: Steps to Behaviour Change Model

Source: Piotrow et al., (1997)

Table 1: Steps to Behaviour Change Constructs

Construct	Description
Knowledge	Individuals recall family planning messages, understand what family planning means and can name family planning method(s) and/or source of supply.
Approval	Individuals approve of family planning and respond favourably to family planning messages. They further discuss family planning with personal networks (family, friends, community and any significant others) and have the perception that they approve of family planning.
Intention	Individuals recognize that use of family planning can produce positive outcomes and can meet personal needs; therefore, they intend to consult a provider and also intend to practice family planning at some point.
Practice	Individuals go to a provider of information/supplies/services to seek information, choose methods and begin family planning use. Some individuals who may have started family planning use at some point in time continue usage.
Advocacy	Individuals experience positive outcomes of family planning and acknowledge personal benefits; they advocate practice to others and support programmes in the community.

Source: Piotrow et al. (1997)

Postpartum Contraceptive Use and Postpartum Behaviours Framework

This framework was developed by Gebreselassie and colleagues in 2008 to study the relationship between contraceptive use and postpartum behaviours consisting of breastfeeding, sexual abstinence and amenorrhoea (Gebreselassie, Rutstein, & Mishra 2008). In this dynamic framework (Figure 8), the trajectory from birth to use of contraception is described. For example, a woman may use a reversible contraceptive like intrauterine device (IUD) or sterilization method immediately after birth, thus preceding the commencement of menses, sexual activity and weaning. Furthermore, the period of insusceptibility, which is influenced by sexual abstinence and breastfeeding, lengthens the time until the next birth. Use of contraception within this period offers extra protection against the risk of a subsequent pregnancy. The timing of such use should not fall more than a month after this period.

Postpartum sexual abstinence tends to have additional contraceptive benefits if the duration of abstinence exceeds that of postpartum amenorrhea. It should be noted that socio-cultural norms strongly influence the length of postpartum abstinence. The contraceptive effect of breastfeeding is felt when the mother fully or nearly fully breastfeeds, whilst remaining amenorrheic. Over 98 percent protection against pregnancy is offered when these conditions are fulfilled (Gebreselassie et al., 2008)

The relationship between contraceptive use after birth and amenorrhea is complex. The use of a particular method, especially, hormonal methods, before the resumption of menses may have a direct influence on the duration of postpartum

amenorrhoea. Injectables for example are known to produce extended periods of amenorrhoea in users and thus, if started before the resumption of fecund menstrual cycle, may lead to an abnormally long duration of postpartum amenorrhoea. In contrast, women who use the pill have a shortened length of postpartum amenorrhoea. A major limitation of this framework is that the pathway is not sequential, in that depending on the type of contraceptive method selected and the postpartum situation of the mother, the decision to start using contraception takes place any time after birth.

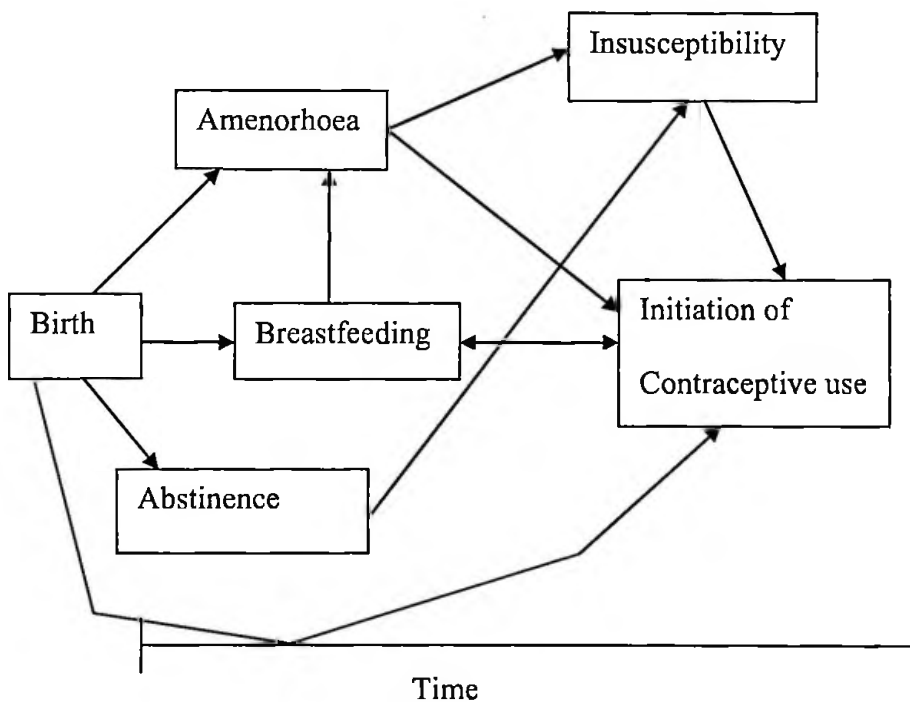


Figure 8: Postpartum Contraceptive Use and Postpartum Behaviours Framework

Source: Gebreselassie, Tesfayi, Shea O. Rutstein, and Vinod Mishra(2008).

Davies and Blake Model of Fertility

This model was developed by Davis and Blake in 1956, in their work on 'Social Structure and Fertility'. Davis and Blake (1956) proposed eleven (11) intermediate variables through which any social or indirect factors influencing the level of fertility must operate. They proposed that these factors are those that are directly associated with the process of reproduction (intercourse, conception and gestation & parturition) as shown in Figure 9.

In the framework, the indirect factors consist of individual characteristics such as demographic and socio-economic characteristics of the women, and the environmental factors which include (a) the social factors such as parental / family characteristics and Partner characteristics; (b) institutional factors such as Religion, community norms and values, health systems and the economy; and (c) policy, legal and political factors. These indirect factors do not bring about a direct change in fertility but do so through the intermediate determinants.

The intermediate determinants are those that directly affect fertility and through which and only through which the indirect factors work to influence fertility. They consist of intercourse factors, conception factors and gestation/parturition factors. The intercourse factors determine the probability of a couple attaining conception. They consist of age of entry into sexual union, proportion of women never entering sexual unions (permanent celibacy), amount of reproductive period spent after or between unions (when unions are broken by divorce, separation or desertion or when unions are broken by death of partner),

voluntary and involuntary abstinence (from impotence, illness, unavoidable but temporary separations) and coital frequency (excluding periods of abstinence).

The conception factors consist of fecundity or infecundity as influenced by involuntary factors, use or non-use of contraception and fecundity or infecundity as affected by voluntary factors such as sterilization, sub-incision or medical treatment. The gestation variables are those that are associated with foetal loss mediated by involuntary factors such as spontaneous abortion miscarriage or foetal loss mediated by voluntary factors such as induced abortion.

From a comparative sociological point of view, Davies and Blake (1956) quantified the influence of the intermediate determinants on fertility in different societies depending on their level of economic development. In developing countries where this model was mostly applied, they classified the intermediate determinants into those with high, intermediate, low and indeterminate values or influence on fertility.

Those with high influence included age of entry into unions, permanent celibacy, contraception and fecundity or infecundity as affected by voluntary factors like sterilization; whilst those with intermediate influence included time between unstable unions, post -widowhood celibacy and voluntary foetal loss. The intermediate determinants with low influence included voluntary abstinence and involuntary foetal loss and those with indeterminate influence consisting of involuntary abstinence, coital frequency and involuntary sterility (Davis and Blake, 1956).

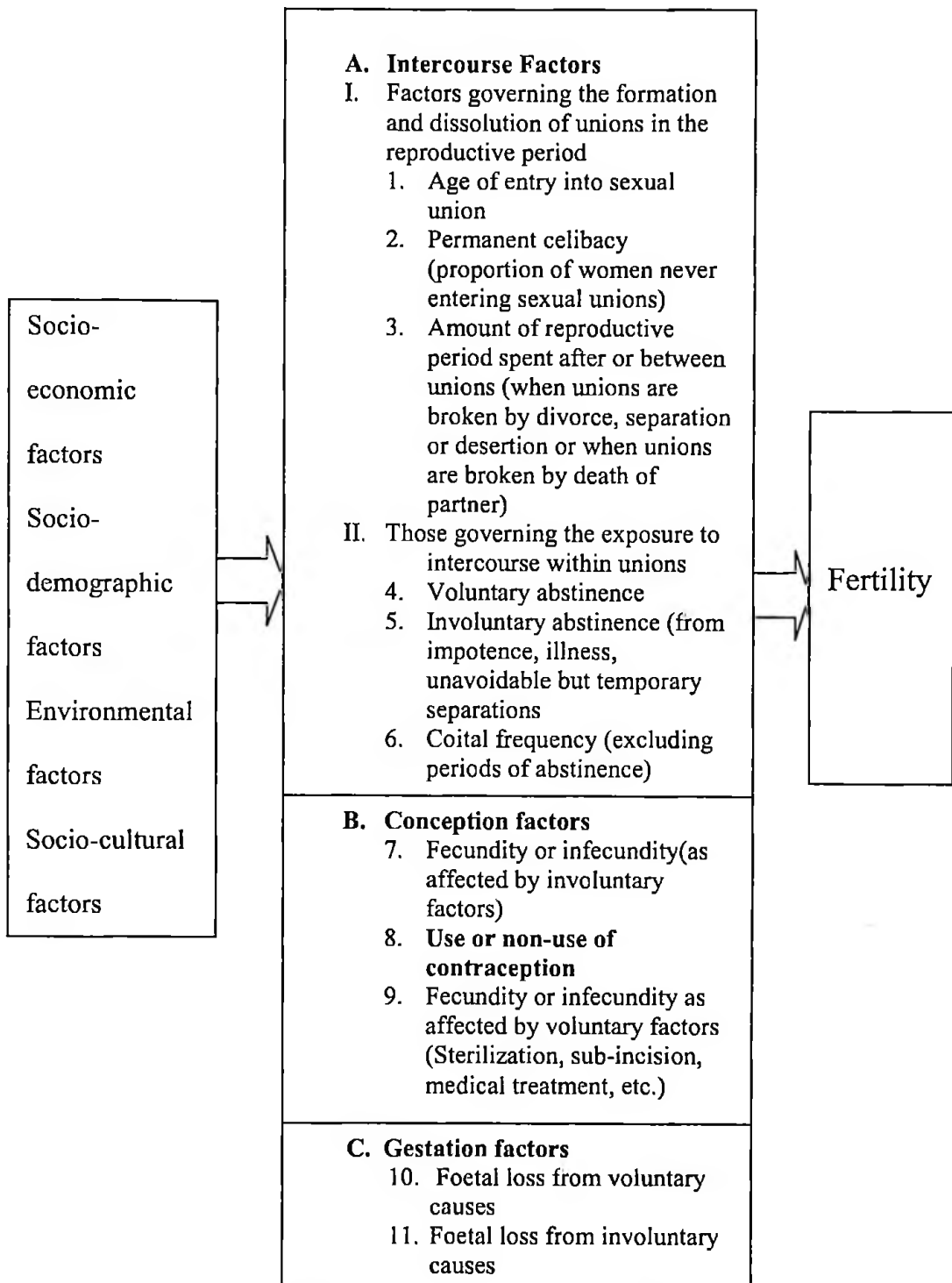


Figure 9: Davies and Blake Model of Fertility

Source: Davies and Blake (1956)

The strength of the model is its easy application using widely available data to decompose the contribution of each of the intermediate variables selected on the current levels of fertility over time and across regions (Anyara & Hinde, 2006). The fact that the model considers the social, economic and environmental factors in its framework also makes it easily applicable to this work. The model was limited by its application at the levels of population and society and not at individual levels and also by the fact that values for all the intermediate variables were difficult to derive (De Bruijn , 2006). This latter limitation made (Bongaarts, 1978) translate the social model of Davies and Blake into a bio-social model comprising eight proximate determinants classified as follows: (a) Exposure factors: proportion married (1); (b) Deliberate marital fertility control factors: Contraception (2), Induced abortion (3); and (c) Natural marital fertility factors: Lactational infecundability (4), frequency of intercourse (5), sterility (6), spontaneous intrauterine mortality (7), duration of fertile period (8).

Conceptual Frameworks Adapted for the Study

Following the review of all the theories, models and frameworks, two models were adopted to inform this study. These were the Davies and Blake model of fertility developed in 1956 and the Steps to behaviour change model developed by Piotrow et al. in 1997. All the constructs in the steps to behaviour change model (Knowledge, Approval, Intention, Practice and Advocacy) were fully adopted in this study (see Figure 7 and Table 1). For the Davies and Blake model of fertility, not all the constructs were important to this study and therefore the

model was adapted to suit the study. The Indirect and proximate determinants that influence fertility were the main factors considered. The Indirect determinants, mainly Socio-demographic (age, sex, gravidity, parity, marital status, religion), socio-economic (education, occupation, living conditions) and socio-cultural (family sex composition). The proximate determinants mainly considered were the intercourse (voluntary sexual abstinence) and conception factors (infecundity, breastfeeding and lactational amenorrhoea and contraceptive use) [Figure 10].

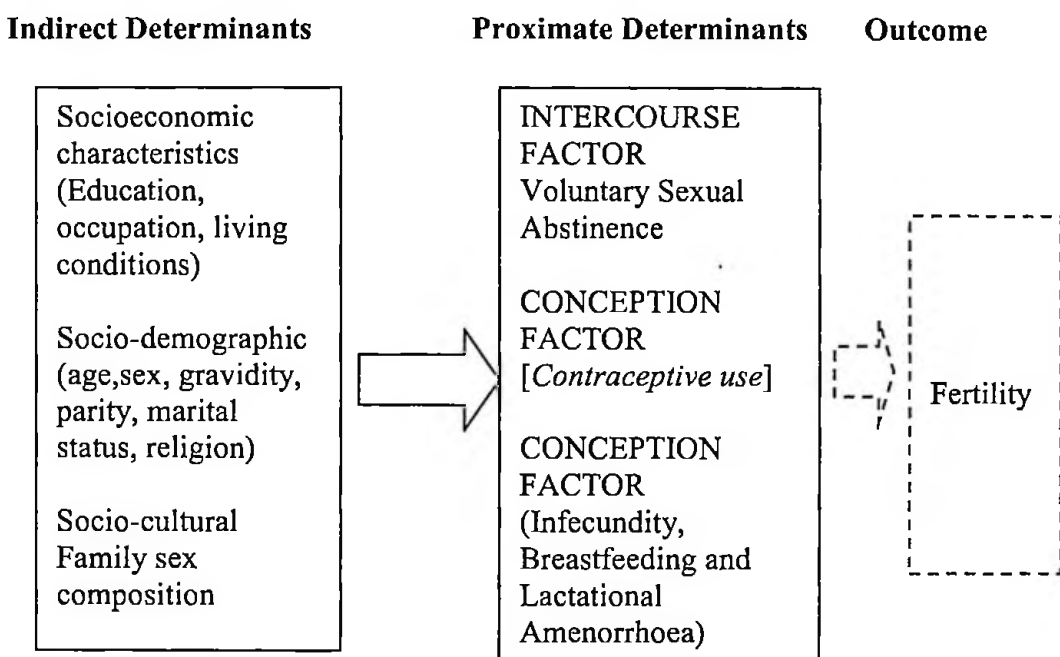


Figure 10: Adaptation of Davies and Blake Model 1956

Source: Davies and Blake (1956)

Summary

This chapter identified some of the issues on postpartum contraceptive use and some models used in studying behaviour change and fertility which have implications for postpartum contraceptive use. Among the issues on postpartum

contraceptive use reviewed were intention as a predictor of behaviour, basis for interest in women's intention to use and use of family planning, factors influencing intention and actual use of contraceptives and unintended pregnancies and associated determinants. The review showed growing consensus about the likelihood of occurrence of a given behaviour if individuals have strong intentions to carry out the behaviour. This was however premised on condition that there are no environmental barriers and the individuals have some skills and abilities to carry out the behaviour. Evidence exists that intentions reasonably predict behaviours (Fishbein, 2008; Adegbola & Okunowo 2009; Agha, 2010; Keogh, 2012; Callahan & Becker, 2014). This study assessed the value of intentions of pregnant women as a predictor of family planning adoption in the postpartum period.

A basis for interest in contraceptive use by individuals, families, communities and programmes is unintended pregnancy, which for purposes of this study refers to pregnancy that is not wanted or mistimed at the time of conception (Center for Disease Control, 2010). High rates of unintended pregnancies have been observed in SSA including Ghana and are linked to various negative outcomes which predispose families to poverty, high tendency to maternal morbidity and mortality. Non-use of contraception, inconsistent or incorrect use of contraceptives and contraceptive failure have been linked to unintended pregnancy. In this study, the magnitude of unintended pregnancies which is an indication of unmet need for contraceptives is estimated whilst its determinants are also elucidated to help determine interventions to reduce its incidence.

Factors influencing intention to use and actual use of family planning are varied and depend on the setting and the context. These have generally been observed to be socio-demographic and socio-economic. Age, educational status, marital status, wealth quintile and parity for example, have been the most common predictors in various studies to influence contraceptive use intention and actual use (Adegbola & Okunowo, 2009; Agha 2010; Arbab et al., 2011; Kariuki, 2011;; Sharma, Mohan, Das, & Awasthi, 2012; Yihunie et al., 2013). Obstacles to contraceptive use intention are commonly linked to socio-cultural factors (see Agha, 2010) whilst those linked to actual use are mainly socio-cultural and socio-economic (see Agha, 2010; Arbab et al., 201; Yihunie et al., 2013). This study contributes to the search for predictors of contraceptive use intention and actual use and will enrich the existing body of knowledge. It will also help design interventions to increase contraceptive adoption.

This chapter also discussed theories, models and frameworks that influence human behaviour. Those discussed include the Health Belief Model, Social Cognitive Theory, Transtheoretical (Stages of change) Model, Diffusion of Innovations Model, Theory of Planned Behaviour, Steps to Behaviour Change Model, Framework for Postpartum Contraceptive Use and Contraceptive Behaviour and Davies and Blake Model of Fertility. These have been used in different contexts and settings to explain human behaviour apart from contraceptive use intention and actual use.

Steps and processes involved in changing contraceptive behaviour which have theoretical underpinnings help improve contraceptive prevalence. This is

more applicable and relevant in areas of low contraceptive use and among poorer women (Creanga, Gillespie, Karklins, & Tsui, 2011). Theories based on contraceptive behaviour are often inspired by processes through which people learn to adopt the new behaviour. This involves acquiring knowledge of the risks and benefits of adopting contraceptives, developing the confidence that one has the power to adopt contraceptive behavior (belief in self-efficacy), and determining outcome expectations based on a cost-benefit analysis of adopting or not adopting contraceptive behaviour (Michie et al., 2005). Evidence exists that although health behaviour theories nominally have universal relevance, many questions remain about their applicability to contexts outside the ones in which they were developed (Michie et al., 2005). The two models that were adopted to inform this study were the adapted Davies and Blake model of fertility developed in 1956 and the Steps to Behaviour Change model developed by Piotrow et al. in 1997.

CHAPTER THREE

METHODS OF DATA COLLECTION AND ANALYSES

Introduction

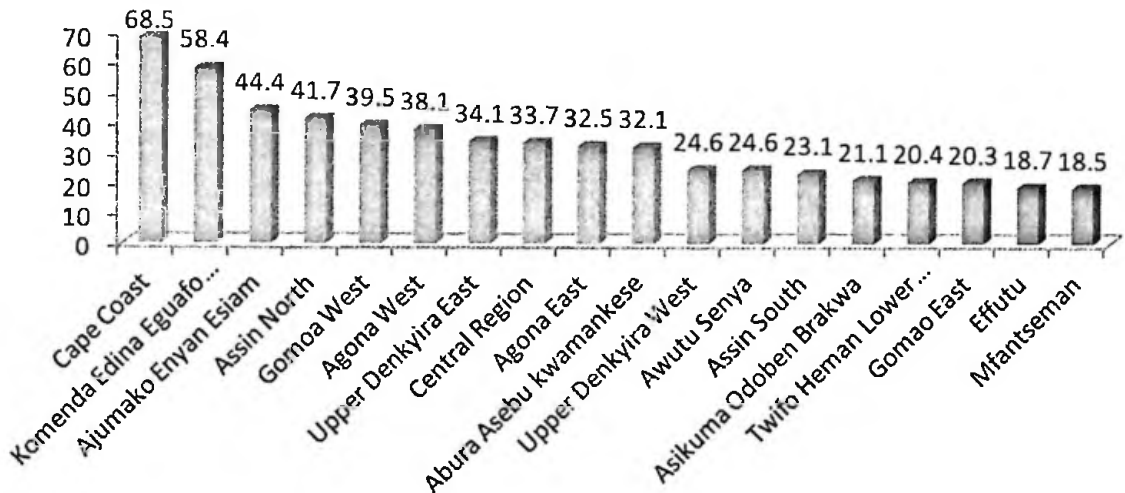
This chapter describes the research design, data sources, sampling procedures (sample size and sampling methods), methods of data collection, study implementation, data, processing and management; data analysis and limitations to data collection. It also covers the experiences and challenges encountered during the study, ethical issues and data quality assurance.

Profile of Study Area

The study was carried out in the Mfantseman Municipal Area of the Central Region of Ghana. The Central region was selected because the Ghana Demographic and Health Survey (GDHS) (2008) report revealed that, the region had the highest rate of teen pregnancies (23%), lowest rate of discussion of family planning with health providers, poor attitudes of men towards family planning and the highest unmet need for family planning in the country (50%) (GSS & Macro, 2009).

The Mfantseman Municipal was selected because according to the annual report (2010) of the municipality, teen pregnancies were high (13.6% of all pregnancies; i.e. totaling 1,024), abortion rates amongst the teens were high and family planning uptake in general were lowest in the region over the three year period from 2007 to 2009 (Figure 11). This Low uptake of family planning

prompted a comment in the 2010 report of the municipality thus: “*this trend is worrying and calls for urgent action to address this challenge*” (Mfantseman Municipal Health Directorate, Annual Report, 2010:25)



**Figure 11: Family planning Acceptor Rate by District (%), Central region
2007 – 2009**

Source: Central Regional Report, Ghana Health Service (2010)

The Mfantseman Municipality is one of the 20 Metropolitan, Municipal, and Districts in the Central Region of Ghana, with Saltpond as its administrative capital. The Municipal area is located along the Atlantic coastline of the Central Region of Ghana and extends from latitudes 5° T to 5° 20” North of the Equator and longitudes 0° 44” to 1° 11” West of the Greenwich Meridian, stretching for about 21 kilometers along the coastline and for about 13 kilometers inland. It covers an area of 612 square kilometers. The Municipality shares boundaries with Gomoa West District to the East, to the West with Ekumfi District, to the North

with Ajumaku-Enyan-Essiam District and to the South with the Gulf of Guinea (Figure 12).

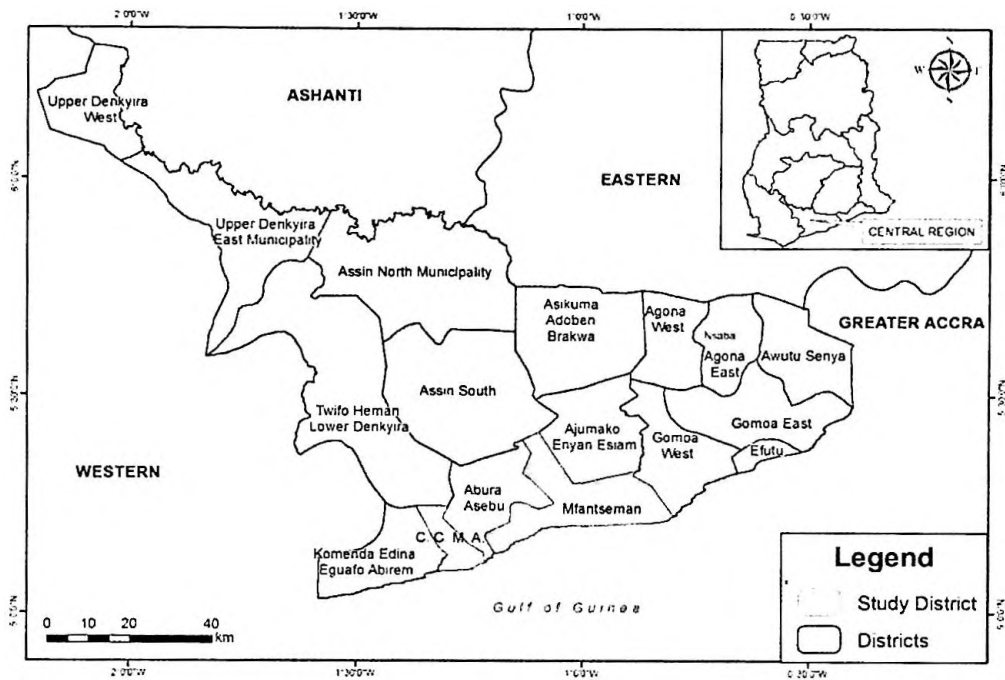


Figure12: Map of Central Region Showing Mfantseman Municipal Area

Source: University of Cape Coast, GIS Unit, UCC (2014)

The Mfantseman Municipal Area is situated in a low-lying area at an elevation of less than 60 metres above sea level and is drained by a number of rivers, lagoons and streams. It is characterized by milder temperatures of between 24 °C and 28 °C because of its close proximity to the Atlantic Ocean. It has a relative humidity of about 70 percent, and experiences double maximum rainfall, with peaks in May–June and October. The vegetation consists of dense scrub tangle and grass that grow to an average height of 4.5 metres. Such flora together with the fauna offers good opportunities for agriculture and fishing. The major towns, Biriwa, Anomabo, Saltpond, Otuam, Abandze and Kormantse, are all along the coast. The major inland town is Mankessim (Figure 13)

According to the 2010 population and housing census, the Mfantseman Municipality has a total population of 196,563, consisting of 89,025 males and 107,538 females respectively (sex ratio – 82.8). The annual population growth rate of the municipality is estimated to be 2.8 percent. Approximately, 27.9 percent of the total population of the municipality lives in urban settlements (population exceeding 5,000), while 72.1 percent falls into the category of rural residence (average population for most rural settlements is about 950). The population is predominantly Fanti, however, Ewes, Grushies, Dargatis, Moshis and Mamprusis are also found in in all the major towns. Fishing and farming constitute the main economic activities of the Mfantseman Municipal. Occupational distribution is as follows – fishing -51percent, farming -30 percent, and commerce -19 percent.

The Municipal area has 27 health facilities consisting of hospitals, health centres, CHPS centres and outreach points. The two main hospitals in the municipal area are the Saltpond Government hospital which serves as the main referral facility for most health facilities in the Municipal area, and Fynnba hospital a private hospital located in Mankessim. The health centres are located at Anomabo, Mankessim, A beadze Dominase, Essuehyia, Otuam and Biriwa (affiliated to Amicus Onlus). Nsanfo, Taido, Narkwa, Nanaben, Ekumpoano, Edumafa, Eyisam and Ekrawful, host functional Community Based Health Planning and Services (CHPS) compounds. Two maternity homes, St Anthony's Maternity home located at Mankessim and God's Gift Maternity home located at Ekrawful exist in the Municipal area.

A Reproductive and Child Health (RCH) Clinic and Ghana Health Service Community clinics which are government owned are located at Saltpond/Kormantse, Ebuakwa and Srafa Kokodo respectively. An outreach post is also located within the Mankessim market. Five other private clinics which complement the government sector are found in Yamoransa, Mankessim and Eyisam.

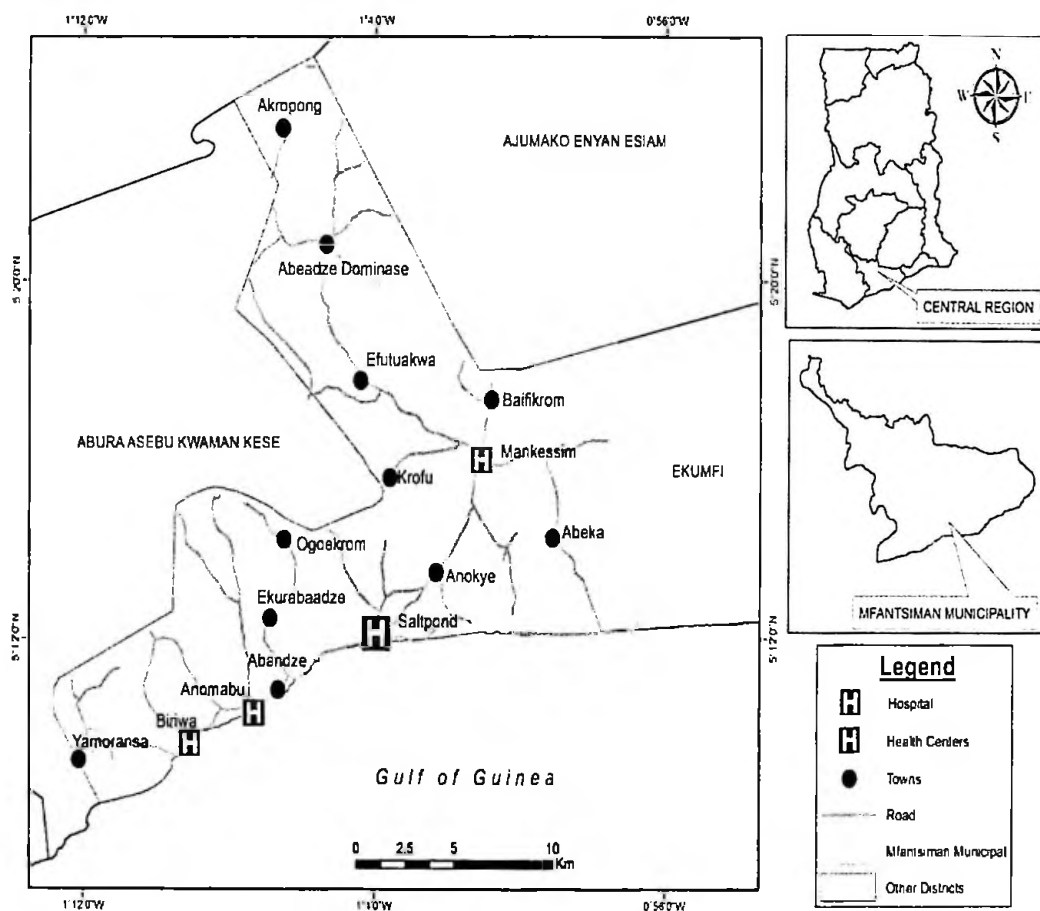


Figure 13: Map of Mfantseman Municipal Area Showing Selected Health Facilities Used for the Study

Source: University of Cape Coast, GIS Unit, UCC (2014)

Maternal health services provided by the hospitals and health centres in the Municipal area include antenatal, skilled delivery, postnatal, family planning and emergency obstetric and neonatal care services. Antenatal care coverage has been high (Table 2). For example, between 2008 and 2010, average coverage has been over 90 percent (93.3%), with average antenatal visits of 4.5 per woman within the period. Pregnant women attending antenatal care, four or more times between 2008 and 2010 was also quite high (average 74.3%).

Table 2: Trends in Maternal Health Indicator Coverages 2008 - 2010

INDICATOR	2008 (actual)	2009 (actual)	2010 (target)	2010 (actual)
Antenatal coverage (%)	104.0	94.0	95.0	87.5
Average No. of visits	4.2	4.7	5.0	4.7
Pregnant women with 4+ visits	61.1	84.7	85	77.3
Teenage pregnancies (%)	15.2	14.5	-	13.6
Skilled deliveries (%)	41.2	42.5	45.0	44.0
TBA deliveries (%)	28.0	15.7	15.0	20.8
Maternal deaths	6.0	2.0	0.0	0.0
Postnatal coverage (%)	64.7	62.2	62.0	49.5

Source: GHS, Municipal Health Directorate, Mfantseman, Annual Report (2010)

These performances notwithstanding, antenatal care coverage fell short of the 95 percent and 85 percent targets set in 2010 for single and 4+ visits respectively.

Teenage pregnancies are high risk pregnancies and are also generally unintended. In 2010, 1,024 teen pregnancies representing 13.6 percent of all pregnancies were recorded. This was an improvement over those recorded in 2008 and 2009 (Table 2). This improvement has been attributed largely to improvement in the adolescent friendly services in the municipality, with the establishment of four adolescent friendly centres and community libraries/recreational centres.

A total of 4,864 deliveries were recorded in all health facilities in the municipal area in 2010. Of these, 44 percent (3,292) were by skilled attendants. This was a 1.5 percentage point increase over that reported in 2009. One of the goals of the national safemotherhood programme is to increase deliveries by skilled attendants and reduce considerably those conducted by Traditional Birth Attendants (TBAs). This notwithstanding, the deliveries by TBAs in the municipal area increased from 15.7 percent to 20.8 percent (over and above the target of 15%).

Maternal deaths in the municipal have reduced to zero from six and two respectively in 2008 and 2009. This achievement had been attributed to early referral system, use of partograph, life-saving skills training for midwives and emergency obstetric and neonatal care services. Postnatal care coverage declined from 64.7 percent in 2008 to 49.5 percent in 2010. The decline could be explained by entrenched socio-cultural factors and wrong perception by couples that mother

and child have low risk of postnatal morbidity and mortality (Ghana Health Service, Municipal Health Directorate, Mfantseman, Annual report, 2010)

Family planning uptake in the Mfantseman Municipal area has been the lowest in the region from 2007 to 2009. Efforts had been made in the past to improve the uptake of family planning. For instance, a family planning campaign was launched by Ghana Health Service to promote injectables, condoms and combined pills; but these were not successful because of myths and negative beliefs about modern contraceptives (Ghana Health Service, Municipal Health Directorate, Mfantseman, Annual Report, 2010). The Municipal Health Directorate is also actively engaging the communities using community-based volunteers (CBVs) and Traditional Birth Attendants at outreach sites and CHPS compounds to improve uptake of family planning.

Study Design

The data for this study was primary and was obtained using a prospective panel design. This involved the collection of quantitative data in two Phases. In Phase 1, data was collected from pregnant women attending antenatal clinics in four selected health facilities in the Mfantseman Municipal area within the survey period to find out about their intention to use family planning after they had delivered. In Phase 2, the same groups of women were followed up to two years after the first interview in Phase 1 to collect data about the translation of their intention to actual use of postpartum family planning among other postpartum issues. Attrition is accounted for in subsequent sections.

Study Population

The study population consisted of pregnant women attending antenatal clinic (ANC) at the Saltpond hospital, Mankessim health centre, Anomabo and Biriwa health centres. These health facilities were purposively selected because they have well established and well patronized Reproductive and Child Health (RCH) centres and because they give a good mix of semi-urban and rural characteristics. In Ghana, an urban area is defined as a locality with a population of 5,000 or more (Ghana Statistical Service, 2012), with an economic sector that is mainly non-agricultural. On the other hand, a rural area is defined by populations less than 5,000 (Ghana Statistical Service, 2012) and with an economy that is predominantly agro-based.

This simplistic rural-urban dichotomy has led to the use of the concept such as semi-urban, which strides rural and urban areas. Several researchers have criticized the dichotomous basis of urban and rural definitions, arguing that many of the characteristics that define rural and urban areas exist along a continuum within which individuals, households and communities and institutions distribute themselves (Jaquinta & Drescher, 2000). These descriptions best fit the two semi-urban settlements in this study i.e., Mankessim and Saltpond. They both have populations greater than 5,000 but their economies are predominantly agro-based. Mankessim's economy is characterized by crop farming whilst that of Saltpond is characterized by fishing. The two other areas selected (Anomabo and Biriwa) are mainly rural in nature. Their economies are characterized mainly by fishing.

Pregnant women in these areas were selected because their reproductive health behaviours would be influenced directly by socio-cultural practices and economic activities in their areas of residence, by reproductive health (including family planning) interventions put in place by the Municipal Health Directorate and the health facilities in the area and by their individual characteristics.

Target Population

The target population consisted of pregnant women between 15 and 49 years who resided in the municipality and attended antenatal clinic in any of the selected health facilities (Saltpond Government hospital, Mankessim health centre, Biriwa health centre and Anomabo health centre) at the time of the survey (first quarter of the year 2012). To be included in the study, participants had to be Ghanaian women, pregnant at the time of the study and living in communities within the Mfantseman Municipality of the Central Region. Verification of their Ghanaian status was not done because their reported citizenship in the Ghanaian languages spoken was considered adequate. Ownership of an approved Ghana Health Service antenatal card bearing an OPD number was a necessary condition imposed by the study. The rationale for choosing the ages 15 to 49 years is that, it is the defined age group for women in reproductive age (WRA) in Ghana (GSS & Macro, 2009).

Antenatal attendance and subsequent delivery in any of the health institutions within the municipal ensures maximum contact with the health system and its resultant influence on uptake of reproductive health services including

family planning. Table 3 shows the number of pregnant women aged 15-49 years attending antenatal clinic at the selected health facilities in the municipal area from 2008 to 2010. Because the survey was planned for the first quarter of the year 2012 the target population was estimated based on average first quarter ANC attendance from 2008 to 2010 (available data). The target population was computed by adding the first quarter ANC attendance for the three years (2008 to 2010) and dividing the total by 3 to obtain a target population of 4,218 pregnant women likely to be encountered during the survey period and from which sample for the study was taken.

Table 3: Pregnant women 15 to 49 years Attending Antenatal Clinic at Least Once at Selected Health Facilities in Mfantseman Municipal (2008 – 2010)

Total number of women attending antenatal clinic						
Year	Saltpond	Mankessim	Biriwa	Anomabo	Total	Total per quarter (N/4=4218)
2008	9,459	2,700	2,578	2,639	17,376	4,344
2009	8,756	2,826	2,812	2,819	17,213	4,303
2010	8,155	2,640	2,608	2,624	16,027	4,007
Target population						4,218*

*Average total number of women visiting ANC at all selected health facilities per quarter, per year from 2008 to 2010

Source: Central Region Reproductive and Child Health Reports (2008-2010)

Sampling Procedures

Based on the estimated target population of 4,218, and the assumption that 50 percent of pregnant women intend to adopt postpartum family planning, within a margin of error of 3 percent, a minimum sample size S_T , was estimated as follows:

For a finite population, the sample size S_T , is estimated by the formula

$$S_T = A / [1 + (A-1)/T] \text{ (Creative Research Systems, 2012)}$$

Where A is given by $[Z^2 * P * (1-P)] / C^2$; T = estimated target population; Z= Z value (1.96 for 95% confidence); P= Proportion of pregnant women who intend to adopt postpartum family planning; and C = margin of error.

$$A = [1.96^2(0.5)(0.5)]/0.03^2 = 1,067$$

$$S_T = 1,067 / [1 + (1,067-1)/4218] = 852; \text{ (approximated to 900).}$$

For effective antenatal care and early identification and management of complications, it is important and advisable for all women to report to antenatal clinic as soon as they realize they are pregnant; implying that all pregnant women would be assumed to register in the first trimester of pregnancy. Evidence shows that this is not the case: only 43 percent register in their first trimester, whilst the remainders register in the second or third trimesters (Ghana Health Service, Central Regional Family Health Report, 2011). It is also recommended that all antenatal registrants would deliver at the health facilities at term to ensure adequate supervision during delivery by skilled personnel. However, only 44% of them deliver at the institutions within the municipal area (Ghana Health Service, Central Regional Family Health Report, 2011). This implied a default rate of close to 60 percent. To take care of defaults and late registrations, the minimum sample size ($S_T = 900$) computed was doubled to 1,800 with an additional 10% mark-up

for women who would decline to be interviewed. The estimated total sample size is 1,980 (Table 4).

Table 4: Sample Size by Selected Health Facility

Facility	Estimated sample size
Saltpond hospital (S_m)	990
Mankessim health centre (S_{hc})	330
Anomabo health centre (S_{hc})	330
Biriwa health centre (S_{hc})	330
Total (S_T)	1,980

Source: Field data (2012)

The estimated minimum sample size (S_T) of 1,980 eligible pregnant women attending antenatal clinics in the municipality were selected from the Saltpond hospital and Mankessim, Anomabo and Biriwa health centres based on trends in antenatal attendance records from 2008 to 2010. Records of the Municipal Health Directorate indicated that the ratio of ANC attendance at the Saltpond hospital to each of the health centres was approximately 3:1 (Table 3). Therefore, the estimated sample size for each health centre is given by $S_{hc} = S_m/3$; where S_m is the sample size for the Saltpond municipal hospital. The estimated sample size for the Saltpond municipal hospital was approximately 990 and that of each health centre was 330 (Table 4).

Within the survey period, each of the selected health facilities was visited during the days designated for antenatal. At the selected health facilities, all antenatal registrants (pregnant women), irrespective of the period of gestation, who lived in the Mfantseman Municipal area and who were aged 15 to 49 years, were targeted to be part of Phase 1 of the study. They were selected if they gave their consent. They were also requested to give their consent for follow-up (i.e Phase 2). For Phase 2 (follow-up) of the study, it was assumed that all eligible respondents in Phase 1 would agree to be followed up. However, only 71% of the 1,914 respondents agreed to be followed up, giving an estimated Phase 2 sample size of 1,359.

Methods of Data Collection

A quantitative survey technique using questionnaires were employed in collecting data for the study in Phases 1 and 2. Two types of data collection strategies were employed in this study. They are Face-to-face and Telephone interviews. Face-to-face interviews were employed in Phase 1, whilst, Telephone and face-to face interviews were employed in Phase 2. Details of actual data collection are discussed in subsequent sections.

Data Collection Instruments

Two types of instruments were used (Appendices 2 and 3): one for Phase 1 and the other for Phase 2. As much as possible, survey questions were adapted

from standardized questionnaires used in Demographic and Health Surveys, Maternal Health Surveys and Multiple Indicator Cluster Surveys in Ghana.

The questionnaire used for Phase 1 consisted of twelve sections (A-L). Section A was on background information of the pregnant women such as age, highest completed education, ethnicity, marital status, number of children ever born, area of residence, facility where client was interviewed (facility code), religion and occupation. Section B was on background characteristics of respondent's partner (if any) such as age, ethnicity, highest completed education, religion, occupation, previous marital relationships and other children besides those with respondent. Section C had questions on relationship issues such as number of years relationship with present partner has lasted, living arrangements with current partner (living in same house or not), whether partner has other wives or spouses apart from respondent.

Section D covered socio-economic status of respondent, whilst Section E had questions on reproductive history and current pregnancy such as gravidity, history of abortions/miscarriages, history of loss of children and status of current pregnancy (whether intended or unintended). Section F, had questions on knowledge and ever use of family planning methods (modern and traditional) whilst Sections G,H and I had questions on knowledge of lactational amenorrhoea method (LAM), acceptability of postpartum family planning by respondent and significant others (partner, mother-in law, father-in-law, religious influence) and past experience with postpartum family planning respectively.

Sections J and K had questions on postpartum family planning intentions (to use or not and which methods) and whether respondents would allow to be followed up in Phase 2 respectively. Section L is supplementary to Sections A and B and consisted of detailed questions about religious denomination, number of children ever born (number dead or alive), relationship with partner and partner's relationship with other women.

The follow-up (Phase 2) questionnaire was in four sections (A-D). Section A was the same as that of Phase 1 and was to confirm that, it is the same person who was engaged in Phase 1. Section B had questions on delivery or postpartum outcomes such as, outcome of pregnancy (live term, stillbirth, pre-term or miscarriage), place of delivery, sex of newborn, mode and date of delivery. Section C asked questions on some postpartum behaviours such as amenorrhoea, sexual abstinence, breastfeeding, information about family planning and spousal discussion about family planning. Finally, Section D enquired about postpartum contraceptive use. It explored whether the respondent had used or was using family planning following delivery and at what point within the extended postpartum period that was done. For those who had not used any method, this section explored reasons behind their decision not to use family planning.

Preparatory Visits to Study Area

Before the study began, letters were written to the Central Regional and Mfantseman Municipal Directorates of the Ghana Health Service informing and introducing the researcher and the study to them and indicating the time for

discussion with the Directorate. Meetings were held with the Municipal Health Directorate and the Medical Superintendent of the Saltpond Municipal Hospital on 20th June 2011 and on 21st November 2011 respectively. The meetings offered opportunity to discuss and explain the study, and to recruit research assistants and supervisors. The next visits were to the Mankessim, Anomabo and Biriwa Health Centres where meetings were held with the Medical Assistants in charge of the facilities, to explain the objectives of study and sought permission and their support.

Pre-testing of Study Instruments

Selection of field assistants and supervisors was carried out with the help of the Municipal Director of Health Services and the Medical Superintendent of the Saltpond hospital using the following criteria: Prior research and data collection experience within the district, tertiary level education, fluency in English and Akan languages and knowledge of the communities in the municipality. Based on these criteria, nine field assistants (8 females and one male) were recruited out of fifteen (15) persons who applied for the Phase 1 data collection in January 2012. The only male recruited was made the supervisor based on his extensive research experience. Six field assistants were also recruited based on the same criteria for Phase 2 of the data collection in January 2014.

For both phases of data collection, three-day training sessions were organized. Day one was used for the theoretical basis of family planning and postpartum family planning and family planning programming in Ghana and the

district. Day two was used for review of the data collection instruments, whilst day three was used for translation, role playing and pre-testing. Resource persons included the principal investigator, Municipal Director of Health services and the Medical Superintendent. An experienced district court registrar who doubles as a translator was employed to support the translation and role plays.

The study instruments were pre-tested and this was carried out at the Cape Coast Metropolitan Hospital and the Adisadel Health Centre in Cape Coast for both Phases 1 and 2. For Phase 1, pre-testing was conducted amongst pregnant women, whilst that of Phase 2 was conducted amongst postpartum women attending postnatal clinic at sixth week post-delivery.

In the pre-test of the Phase 1 questionnaire, it was noted that the information on the cover page that explained details of the study were not adequate and needed to be beefed up. It was also noticed that it was necessary to capture the specific location of respondents to aid follow-up in Phase 2. Other aspects of the questionnaire that were refined included details of religion and number of children ever born. The religion was disaggregated into denominations, whilst details such as number of children born but later died were included. No major differences in responses were elicited amongst the respondents generally.

It was realized during the pre-testing of the Phase 2 questionnaire that eliciting responses was more difficult than the Phase 1 questionnaire. This was because respondents had to provide several dates and time durations (date of delivery, duration of breastfeeding, onset of sexual intercourse, period of amenorrhoea, etc.) with reference to their time of delivery. Recalls of these were

difficult for most of the clients. More time was spent on improving skills of field assistants to elicit responses and pre-testing the questionnaire (seven days instead of three days) to ensure errors were reduced to the minimum. This made three of the research assistants leave the study, with the excuse that remuneration was not commensurate with the amount of effort exerted. These were replaced with new assistants.

Data Collection

Phase 1 of the field work was carried out from January to April 2012 at the four study sites (Saltpond hospital, Mankessim, Anomabo and Biriwa health centres). Five field assistants were assigned to the Saltpond hospital, whilst one field assistant each was assigned to the three health centres. One Supervisor and the Principal Investigator supervised the research assistants.

Table 5: Number of Instruments Administered and Response Rates by Health Facility

Facility	Estimated Sample Size	Number of questionnaires administered	Response rate (%)
Saltpond hospital	990	968	97.8
Mankessim health centre	330	289	87.6
Anomabo health centre	330	327	99.1
Biriwa health centre	330	330	100.0
Total	1,980	1,914	96.7

Source: Field data (2012)

A total of 1,914 questionnaires were completed within the period. This was 3.4 percent short of the 1,980 questionnaires estimated based on the sample size to be administered. The questionnaires administered by facility and response rates are as shown in Table 5.

The high response rates observed in Phase 1 were due to the following reasons:

1. The survey was facility based and made it possible and easier to meet many potential respondents during their scheduled antenatal visits;
2. A positive publicity about the survey was generated by the Municipal Health Directorate and the staff of the hospital and the health centres where the study was conducted. This generated interest amongst the pregnant women about the issues contained in the questionnaire;
3. The research assistants made administration of the questionnaires interesting, attractive and easy to complete because they understood and found the issues interesting and meaningful. This also made them tailor and personalize the communications between them and the respondents; and
4. Respect and positive regard was shown by the research assistants to the respondents and this motivated them to respond and complete the survey questions.

The relatively lower response rate observed at the Mankessim health centre (Table 5) was because one of the research assistants assigned to the health centre was taken ill towards the end of the survey period and could not complete the required number of questionnaires assigned to her.

Before Phase 2 of the survey started, periodic phone calls and occasional visits were made to respondents between 2012 and 2014 to be sure they would be available when Phase 2 began, and if they still wanted to be interviewed. Through the telephone contacts 540 respondents were traced. For the 819 who could not be contacted by phone, 481 of them were traced to their homes based on the descriptions of houses and localities provided during Phase 1. The remaining 338 could not be contacted either through the telephone calls or by means of the descriptions of houses provided.

Phase 2 was carried out from January to May 2014. For the survey, two research assistants were assigned to the communities in and around Saltpond, whilst one research assistant each was assigned to the communities in and around Mankessim, Anomabo and Biriwa. Of the 1,359 who agreed to be followed up, 1,004 could be identified, giving a response rate of 74 percent. Two main methods of follow-up were used in this phase. These included tracing the respondents to their homes and by telephone calls. In Phase 1, respondents who accepted to be followed up were made to describe directions to their homes and also provide telephone numbers on the completed questionnaires. Two of the field assistants were assigned to the communities in and around Saltpond, whilst one field assistant each was assigned to the communities in and around Mankessim, Anomabo and Biriwa.

Home visits and telephone calls were the two main approaches used to trace respondents for interviews in Phase 2. Based on descriptions of houses and communities and telephone numbers provided by respondents in Phase 1, attempts

were first made to trace the houses of the respondents. When respondents were traced to their houses, they were interviewed face-to-face. In some circumstances respondents could not be traced to their houses. These respondents fell into three categories:

- a. Those who agreed only to be interviewed via telephone.
- b. Those with no or poor descriptions of houses and localities but were accessible through telephone numbers provided.
- c. Those with no or poor descriptions of houses and localities and were not accessible through telephone.

For those in categories (a) and (b) telephone interviews were conducted once they agreed. However, it was difficult to interview those in category (c) because contacts could not be made with them. After these processes, 1,004 respondents were interviewed, 340 by telephone and 664 by face –to-face interviews. These constituted about 53 percent of the 1,914 respondents interviewed in Phase 1 and 74 percent of the 1,359 respondents who agreed in Phase 1 to be followed up (Table 7). The high retention rate (90%) in Mankessim was due to the fact that descriptions of houses and localities provided by the respondents were very accurate and the telephone numbers provided were easy to reach. The relatively lower retention rates in Saltpond (45%), Biriwa (41%) and Anomabo (55%) (Table 7) were due to poor or inaccurate descriptions of houses and localities, inaccurate or inaccessible telephone numbers, non–provision of descriptions of houses and telephone numbers and refusal of some respondents to be interviewed.

Table 6: Number and Percentage of Women Targeted and Interviewed per Health Facility Attended in Phases 1 And 2

Health facility	Phase 1		Phase 2		Percentage of Phase 1 respondents interviewed (a)	Percentage of Phase 2 respondents interviewed (b)	Percentage of Phase 2 respondents in Phase 2 (b/a)
	Number of respondents targeted	Number of respondents interviewed	Number of respondents targeted	Number of respondents interviewed			
Saltpond hospital	990	968	654	432	44.6	44.6	44.6
Mankessim health centre	330	289	283	259	89.6	89.6	89.6
Anomabo health centre	330	327	242	179	54.7	54.7	54.7
Biriwa health centre	330	330	180	134	40.6	40.6	40.6
Total	1,980	1,914	1,359	1,004	52.5	52.5	52.5

Source: Field data (2012 and 2014)

Two hundred and twelve (212) women could not be reached at all, whilst 144 declined to be interviewed claiming, we were either bothering them, were no more interested or partners were not available.

Fieldwork Challenges

The study was initially conceived as a cross-sectional, quantitative study to determine factors associated with intention of pregnant women to use postpartum family planning and was to be completed within three years. However, it was decided that many benefits would be derived if the study was changed from a cross-sectional to a prospective panel (longitudinal) study. The change in design implied a waiting period of two years within which the pregnant women who were at different stages of their pregnancy, would have to deliver and be exposed adequately to some factors which would determine whether their intentions to use or not to use family planning or not would be translated into actual behaviour after delivery. This long waiting time interval greatly affected the completion time of the study.

In the first phase of the study, the work was made easy because the women were identified at health facilities. Phase 2 involved tracing women to their homes in various communities within the municipality with poor house numbering. This created difficulties for research assistants and supervisors. The research assistants and supervisors had to travel over wide areas to locate the houses before questionnaires were administered. This made it time consuming and, therefore, affected the speed with which questionnaires were planned to be completed. These challenges made the research assistants agitate for increase in fees charged. It was

explained to them that there was no funding attached to the study and therefore they had to try their best to support us. Three of them abandoned the study and new research assistants had to be recruited to replace them.

Recalls of dates and durations of events in relation to the time of delivery was a challenge for some of the women. There were inconsistent reporting of periods of postpartum behaviours such as breastfeeding, resumption of sexual intercourse and amenorrhoea in relation to date of delivery and therefore research assistants spent time helping respondents to remember.

Some of the women complained that the questionnaire was long and therefore in some cases the interviews had to be terminated and rescheduled for another time. Others complained that it distracted their household activities such as cooking, cleaning and feeding their children. Some respondents especially in Saltpond, Anomabo and Biriwa complained that they were tired of being interviewed in several studies without any financial rewards or any improvements in their lives and refused outright to be interviewed.

Some funding from the USAID Small Grants programme was available for the study, but only for Phase 1. This is because the follow-up phase was not envisioned as part of the proposal presented to USAID for funding. This meant that Phase 2 had to be funded entirely by the Principal Investigator. Altogether, 3,273 questionnaires (minimum 3-pages each) were printed. This came at a huge financial cost especially in Phase 2. The recruitment and training of research assistants in Phase 2 also came with some logistical and financial demands. Between January and May 2014, several travels to and from the houses of

respondents and telephone calls had to be made by the research assistants and supervisors to avoid high attrition. These brought about huge transportation and telephone costs.

Despite the training, pretesting and motivations offered to the research assistants and supervisors to ensure quality of data collection, some of the data that were collected showed inconsistencies. For Phase 1, if these inconsistencies were detected whilst the pregnant woman was still at the health facility, she was re-interviewed on those responses that showed inconsistencies. However, if the pregnant woman had left the facility attempts were made to contact her by phone to correct the inconsistencies. In cases where the respondents could not be traced and the inconsistencies were few, those responses were treated as missing. Otherwise, the questionnaires were discarded if the inconsistencies were unacceptable. For Phase 2, wrong and inconsistent responses were corrected via telephone calls or re-visiting the respondents at their homes.

Despite the challenges, the study offered opportunities for learning the conduct of research, applying theoretical research principles and appreciating problems related to longitudinal studies. Diverse socio-cultural procedures, especially pertaining to community entry were encountered and these led to strengthening of the community engagement skills of the principal investigator.

Ethical Issues

Ethical and administrative approvals were obtained from the Ethics Review Committee of the Ghana Health Service (GHS), and the Municipal Health

Directorate (MHD). Written informed consent was obtained from each participant with a witness. Before each interview, the aims, objectives and benefits of the study were explained to respondents; they were then allowed to ask any questions for clarifications. Once they consented, they were made to sign with a witness of their choice. Interviews were conducted in places that guaranteed maximum privacy. For individuals who could have emotional problems from interviews, the research assistants were taught to reassure clients and immediately report to the Principal Investigator (who is a Physician) to manage those concerned. A Clinical Psychologist from the School of Medical Sciences, University of Cape Coast was recruited on stand-by to handle cases that were beyond the control of the Principal Investigator.

Data Processing and Analyses

At the end of each interview, field assistants and/or supervisors checked the questionnaires for completeness and consistency before the clients were allowed to leave. Each of the selected health facilities was assigned peculiar codes to allow for easy identification and tracking if errors and inconsistencies were detected. For data entry, a coding manual was developed in order to ensure consistency.

The data were double-entered using EPI-DATA, verified and cleaned. The clean data was exported into STATA (version 11) for analysis. Descriptive analyses were carried out to describe the socio-demographic and socio-economic characteristics, intendedness of pregnancy, knowledge and past use of

contraceptives, intention to use and use of PFP among respondents. Chi square and logistic regression analyses were performed to explore relationships and the influence of socio-demographic and socio-economic characteristics on unintended pregnancy, intention to use and use of family planning postpartum. The influence of socio-cultural factors (sex composition of children) on pregnancy intendedness, intention to use and use of family planning and the relationship between intentions to use postpartum family planning were also explored using logistic regression. P-value was set at 0.05 unless otherwise stated.

Two models were used in a bivariate logistic regression analyses to test the association between independent variables and an outcome variable (unintended pregnancy). The significance level threshold was initially set at 0.05 (Model I). However, given so many independent variables in the study, $p < 0.05$ may not be appropriately robust enough to determine which associations were real and which were by chance and so a second model (model II) was introduced. In model II, the significance level threshold was set higher to 0.003 by conducting a Bonferroni correction. Factors found to be significantly associated with the main outcome of interest, were included in a multivariate logistic regression model (Model III), to identify significant independent predictors of unintended pregnancy. Tests of covariance were conducted among all the significant variables and those found to show covariance were dropped from model III. The outcome variable (unintended pregnancy) was defined as any pregnancy that was not wanted at all at the time it occurred or in the future, or mistimed i.e. wanted at a later time but not at the time

it occurred. An intended pregnancy was defined as any pregnancy that was wanted at the time it occurred or wanted at an earlier time but occurred later.

To assess the factors influencing the intention of pregnant women to use postpartum family planning, three logistic regression models were used (Models I, II and III): Models I and II are bivariate and multivariate models respectively that assessed the influence of knowledge and past use of contraceptives and acceptability of family planning by close relations. The overall model (Model III) is a multivariate model which includes all knowledge, past use and acceptability variables which emerged significant ($p < 0.05$) from model III. The factors which emerged significant from Model III after running the regression analysis were considered the predictors of pregnant women's intention to use PFP.

In order to test the association between sex composition of children ever born and reproductive health outcomes such as unintended pregnancy, intention to use and use of PFP, sex composition of children was categorized into five groups. Based on the number of children ever born and the sexes of these children the categorization was as follows: zero sons, one or more daughters; zero daughters, one or more sons, daughters and sons, but more daughters than sons; daughters and sons but more sons than daughters; and equal numbers of daughters and sons.

For those who used postpartum contraception, average timing of contraceptive use was calculated with average timing categorized into the following: less than three months, 3-6 months and 7-12 months and over 12 months. The relationship between timing of PFP use and postpartum behaviours

such as breastfeeding, sexual abstinence and amenorrhoea were further assessed using descriptive statistics

Study Limitations, their Mitigation and Quality Assurance

Attrition rate of 47 percent is high and may affect the generalizability of the conclusions drawn from Phase 2 of the study. The attrition could have been worse but for the periodic visits and phone calls made to respondents in the period between Phases 1 and 2.

A possible Hawthorne effect may have occurred in Phase 1. Despite the low rate of past use of contraceptives (<30%), 70 percent expressed intention to use PFP. To minimize the occurrence of this effect, especially in Phase 2, research assistants and supervisors were trained adequately to ask questions in local languages in order to elicit the right responses. They were also taught to critique the answers provided and to seek further clarifications from respondents to ensure that they had understood the questions posed.

To ensure that selection bias was reduced to the minimum, the research assistants were requested to explain the study objectives and their implications very well to the respondents. Also, the data collectors were made to tally and calculate the proportion of eligible respondents who consented to be recruited into the study. The result of these actions was that a high percentage of respondents agreed to be recruited (97.7%). The total number of eligible respondents who declined recruitment into the study were fifty-two (52). Overall, inferences drawn from Phase 1 may be generalisable to the entire population, but the same cannot be

said of Phase 2. Nonetheless, the approach has provided unique data for the study of postpartum family planning intentions.

Summary

A prospective study design was adopted to track the translation of intentions to actual behaviour as opposed to the retrospective approach which relies on recall of past events. Prospective studies have inherent strengths and weaknesses. First, ability to demonstrate clear temporal sequence between exposure and outcome in these studies, make it easier to demonstrate causal associations. Second, a direct computation of incidence rates is permitted for both exposed and unexposed. In this study, incidence of family planning adoption postpartum among pregnant women with intention and without intention to adopt postpartum family planning could be computed. Third, prospective studies provide opportunity for assessing multiple outcomes. Fourth they can be used to study exposures that are relatively uncommon. Weaknesses of prospective studies include potential large sample size requirements, long follow-up periods, and a need to reassess exposure on a frequent basis

Recall bias and reliance on administrative data (which most often have missing and some poorly captured information) are greatly minimized in prospective studies. Data for hypotheses testing about the effects of a wide range of individual, family and community variables was also provided by this study design (Taplin, 2005).

Phase 1 involved sampling of study participants from antenatal clinics in health facilities. This made it possible to interview a high percentage of women. Although all the women were given equal chances to be part of the study, losses to follow up experienced in this study could lead to sampling bias, reduced generalizability of study results and increased variance of study estimates. Evidence exist that different factors influence dropout rate. These include low educational status, unemployment, not being married (de Graaf, Bijl, Smit, Ravelli, & Vollebergh, 2000; Bjerkeset, Nordahl, Larsson, Dahl, & Linaker, 2008; Nilsen et al., 2009; Tambs et al., 2009; Torvik, Rognmo, & Tambs, 2012), smoking, high alcohol consumption and physical inactivity (Van Loon, Tjihuis, Picavet, Surtees, & Ormel, 2003; Nilsen et al., 2009; Thygesen, Johansen, Keiding, Giovannucci, & Grønba ek, 2008; Torvik, Rognmo, & Tambs, 2012). Social factors such as support from spouse or friends and characteristics of children, may also affect drop out(Gustavson, von Soest, Karevold, & Røysamb, 2012).

Several strategies to reduce non-response and attrition and improve retention rates have been developed over the years and documented in several studies (Hunt & White, 1997; Brown-Peterside et al., 2001; Coday et al., 2005; Robinson, Dennison, Wayman, Pronovost, & Needham, 2007; Booker, Harding, & Benzeval, 2011). Some of the strategies employed in this study to improve retention rates included the following: first, giving detailed explanations about the study objectives and its possible impacts on the individual, family and society and allaying any anxieties and fears about participating in the study, whilst ensuring

that emotional support was on hand to deal with extreme cases; second, obtaining detailed personal information including names, telephone numbers, house addresses (where available) and detailed descriptions of directions to houses of respondents; third, providing adequate motivation for participation by ensuring that the research assistants were friendly, showed respect and courtesy to the respondents and provided adequate privacy at the environment of the interview; fourth, improving rapport between research team and respondents by making periodic contacts with the respondents who agreed to be followed up through telephone calls, home visits and personal contacts; fifth, providing learning opportunities to the research assistants by the comprehensive training given. This motivated the research assistants to engage the respondents in ways that improved rapport and encouraged participation; sixth, providing research assistants in Phase 2 additional incentives for transportation to help them access all the respondents assigned to them, especially to the remotest parts of the municipality and seventh, regular sensitization about the study carried out by the Municipal Health Directorate through their health centres, outreach points, CHPS centres and home visits.

CHAPTER FOUR

SOCIO-DEMOGRAPHIC CHARACTERISTICS AND DETERMINANTS OF UNINTENDED PREGNANCIES

Introduction

Sexual and reproductive health of individuals are influenced by a complex set of factors ranging from sexual and reproductive behaviours, attitudes and societal factors, to biological and genetic factors. Understanding sexual and reproductive health issues also requires deeper appreciation of the underlying social, demographic, economic and cultural characteristics of individuals that make them vulnerable to risks (WHO 2006) or influence reproductive health outcomes. Socio-demographic characteristics have been shown in several studies to influence family planning and reproductive health behaviours and outcomes. One such outcome that has resulted from low family planning use is unintended pregnancy.

Sub-Saharan Africa is known to experience high rates of unintended pregnancies (Goicolea & San Sebastian, 2010). Among the reasons for the situation are contraceptive failure, lack of access to contraception, religious beliefs, and poor knowledge about fertility and pregnancy, a history of previous unintended pregnancy, insufficient reproductive health education, desire for at least two children, parity of five, lack of communication or support within relationships, husband's reluctance to limit family size, and sexual violence

(Rosenfeld & Everett, 1996; Glasier et al, , 2006; Amin Shokravi et al, 2009; Goicolea & San Sebastian, 2010).

In Ghana, Omane-Adjepong et al. (2012) identified age, marital status, place of residence, educational status, occupation, gravidity and parity as predictors of unintended pregnancies. Given that one of the goals of family planning is the prevention of unintended pregnancies, understanding the predictors of unintended pregnancies can help to develop strategies to improve family planning uptake (World Health Organization, 2013). This chapter describes the background characteristics of the respondents who were initially recruited into the study, those who expressed intention to be followed up and those who were actually followed up in Phase 2. It also discusses the determinants of unintended pregnancies among the pregnant women.

Socio-Demographic Characteristics of Respondents in Phase 1

Of the 1,914 pregnant women aged 15 - 49 years who were interviewed in Phase 1, mean age was 25 ± 6.5 years, with the highest proportion (29.7%) in the 20-24 year group. Overall, the number of respondents in each age group decreased with increasing age, reflecting the young age structure of the country. Nearly three-quarters (72.8%) of the respondents interviewed in Phase 1 were below 30 years old. All the women were either married, had never married or had ever married. Table 7 shows that 57.2 percent of them were married with 32.4 percent more married under the traditional than the ordinance system.

Table 7: Socio-Demographic Characteristics of Respondents

	Phase 1 respondents	Respondents who Intended to be followed up	Respondents actually followed up in Phase 2
Characteristic	Percent	Percent	Percent
<i>Age</i>			
15-19	17.8	13.2	11.3
20-24	29.7	29.4	25.2
25-29	25.3	28.2	28.0
30-34	15.3	16.3	20.7
35-39	9.0	9.4	11.2
40+	2.9	3.5	3.6
<i>Education</i>			
None	21.6	17.7	8.3
Primary	22.4	22.4	21.4
Middle/JSS	44.1	46.2	54.1
SSS/SHS/Voc	8.7	9.6	11.9
Tertiary	3.2	4.1	4.3
<i>Religion</i>			
Christian	93.2	92.7	92.2
Muslim	4.6	5.1	5.5
Traditionalist	0.5	0.4	0.4
Other	1.7	1.8	1.9

Table 7 continued

<i>Parity</i>			
0	35.2	33.2	-
1 -2	40.3	42.5	59.3
3-4	18.4	19.1	33.0
5+	6.1	5.2	7.7
<i>Ethnicity</i>			
Fante	91.0	91.0	88.8
Other	9.0	9.0	11.2
<i>Marital status</i>			
Married by ordinance	12.4	11.9	11.2
Married (Traditional)	44.8	46.6	43.2
Engaged	14.7	17.2	20.9
Cohabitation	14.0	13.9	13.3
Divorced/separated	0.4	0.4	0.5
Single	13.7	10.0	10.9
<i>Occupation</i>			
Fishmonger	16.6	13.3	7.0
Farmer	3.5	3.5	3.3
Petty trader	47.8	47.4	56.3
Civil/Public Servant	4.4	5.7	6.1
Student	6.5	5.9	3.2
Other	21.2	24.2	24.1

Table 7 continued

<i>!Area of residence</i>			
Saltpond	22.2	27.8	31.6
Biriwa	12.1	9.6	12.5
Anomabo	17.1	12.7	16.8
Mankessim	29.8	29.8	27.8
Other	18.8	20.1	11.3
Total (%)	100.0	100.0	100.0
Total Number	1,914	1,359	1,004

! Difference between total and 1,914 =Missing values; education level=highest level reached irrespective of whether respondent completed level or not.

Source: Field data (2012 and 2014)

About a fifth of the women had attained primary school education, whilst a little over a tenth (11.9%) of them had attained secondary school education or higher. Forty-four percent of the women had attained middle or junior secondary school education and 22% had no formal education.

From Table 7, ninety-one percent belonged to the Fante ethnic group, 93.2 percent were Christians and Muslims were 4.6 percent of the respondents. The main occupations of the respondents were petty trading (47.8%) and fish mongering (16.6%). The average number of children ever born amongst the respondents was 2 ± 2 with the highest proportion of them having up to two children.

Socio-Demographic Characteristics of Follow-up (Phase 2) Respondents

Columns 3 and 4 of Table 7 show the background characteristics of women who expressed intention to be followed up and those who were actually followed up in Phase 2. The total number of women interviewed in Phase 2 was 1,004. These constituted nearly 53 percent of Phase 1 respondents and 74 percent of those who expressed intention to be followed up.

The mean age was 27 ± 6.5 years, with the highest proportion (28%) among the 25-29 year age category. Most (54.1%) of these women had attained Middle/JSS education, were mostly Christians (90.3%) and Fantes (88.8%) respectively. Four out of ten women were married under the traditional system (32% more than those married under the ordinance system) and 51.3 percent were petty traders. The mean number of children ever born among these women was 2.7 ± 2 with a greater proportion having between one to two children.

Wantedness of Current Pregnancy

Pregnant women were asked if the pregnancies they were carrying at the time of the survey were wanted at the time they occurred and at the right time (wanted); wanted but not at the time they occurred (mistimed) or never wanted at the time they occurred or anytime in the future (unwanted). As shown in Table 8, 70 percent of the women indicated that the pregnancies they were carrying were unintended, with 39 percent being mistimed and 31 percent unwanted. Unintended pregnancies were highest in the extreme ages (91% and 80.4%) among those 15-19 and 40 years or older. Reporting of unwanted pregnancy showed a similar

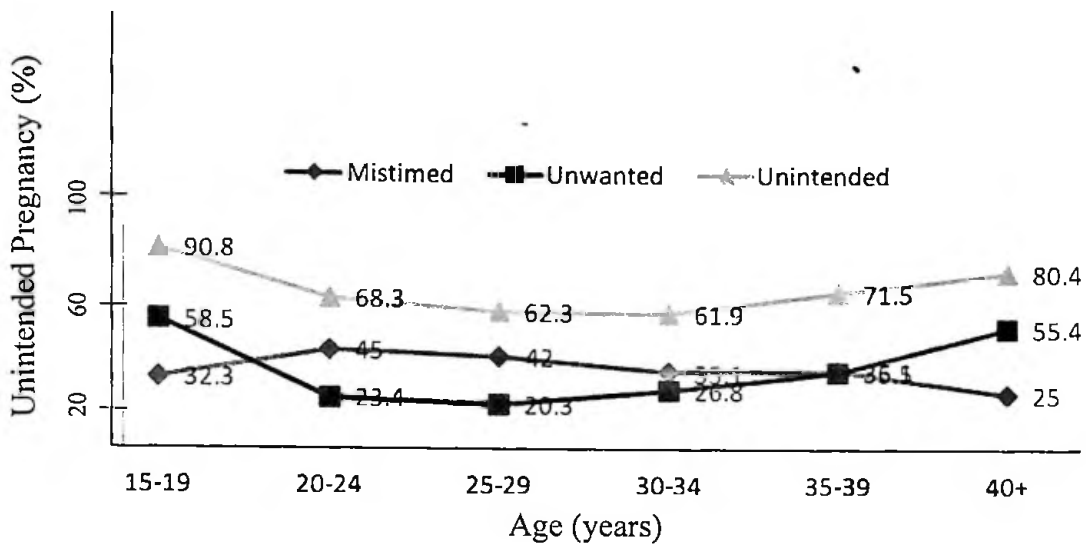


Figure 14: Age and Unintended Pregnancy

Source: Field data (2012)

pattern. However, the reporting of mistimed pregnancy was highest among those aged 20 – 24 years and lowest among those 40 years and older (Figure 14).

Unintended pregnancies were 2.5 times among women with no formal education compared to those with tertiary education (77% versus 31%).

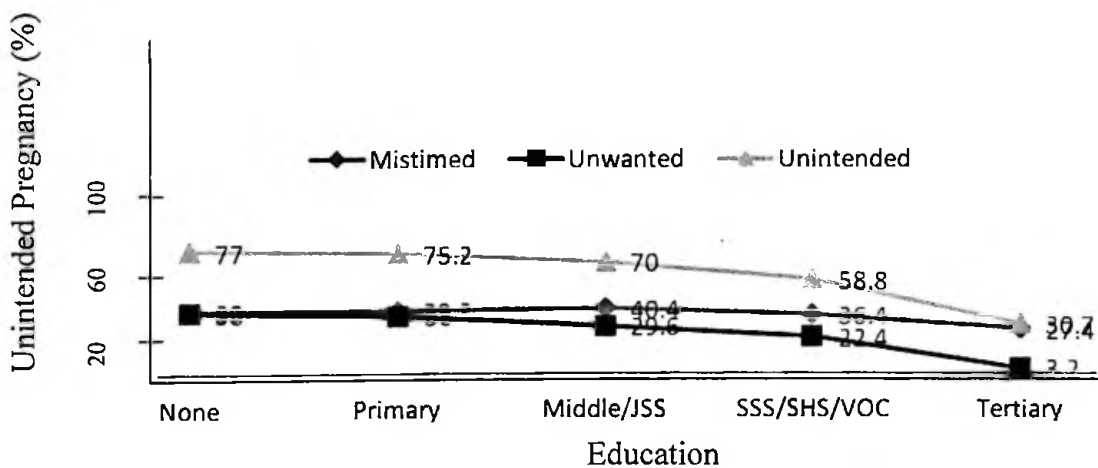


Figure 15: Education and Unintended Pregnancy

Source: Field data (2012)

Unwanted pregnancies among women without formal education were 10 times those among women with tertiary education (38% versus 3.2%). Mistimed pregnancy also showed irregular but decreasing trend with increasing level of education (Figure 15).

Among all religious groups, unintended pregnancies were highest among the traditionalists (82%), followed by Muslims (43%) and Catholics (36%) ($p < 0.001$) (Table 8). Expectant mothers with five or more children reported higher levels of unwanted pregnancies (61%) compared to those with up to four or less children. Compared to all other marital arrangements, women who were married under the ordinance had the least unintended (50.4%) and unwanted (17.8%) pregnancies. Of the 256 respondents who were never married, only a tenth of the pregnancies were intended. Similarly, only a third of women who were married under the traditional system, engaged or cohabiting had intended pregnancies.

Unintended pregnancies among students ($n=124$) was high (90%) compared to women employed in the formal sector as civil/public servants (32% of the 84 respondents). Three out of every four pregnancies among women in the informal sector (petty traders, fishmongers and farmers), were unintended. Intended pregnancies amongst those living in the two semi-urban settlements (Mankessim and Saltpond) were higher than those in the rural areas (Biriwa and Anomabo) (35% versus 20%), ($p < 0.001$) (Table 8).

Table 8: Socio-Demographic Characteristics of Women by Pregnancy Status

Demographic Characteristics	Number	Overall Pregnancy Status (%)				
		Percent of total sample size	Intended (%)	Mistimed (%)	Unwanted (%)	*Unintended (%)
<i>Age**</i>						
15-19	340	17.8	9.2	32.3	58.5	90.8
20-24	569	29.7	31.7	45.0	23.4	68.3
25-29	483	25.3	37.7	42.0	20.3	62.3
30-34	291	15.3	38.1	35.1	26.8	61.9
35-39	172	9.0	28.5	36.1	35.5	71.5
40+	56	2.9	19.6	25.0	55.4	80.4
<i>Education level**</i>						
None	414	21.6	23.0	39.0	38.0	77.0
Primary	429	22.4	24.8	39.3	36.0	75.2
Middle/JSS	843	44.1	30.0	40.4	29.6	70.0
SSS/SHS/VOC	166	8.7	41.2	36.4	22.4	58.8
Tertiary	62	3.2	69.4	27.4	3.2	30.7
<i>Religion**</i>						
Christian	1,783	93.2	29.3	39.0	31.7	70.7
Muslim	88	4.6	39.8	36.4	23.9	60.2
Traditionalist	10	0.5	20.0	60.0	20.0	80.0
Other	33	1.7	22.6	41.9	35.5	77.4

Table 8 continued

<i>Gravidity**</i>						
1 -2	1,025	53.8	31.8	36.7	31.5	68.2
3 -4	531	27.9	30.5	46.9	22.6	69.5
5+	348	18.3	21.6	34.2	44.3	78.5
<i>Parity**</i>						
0	673	35.2	30.9	31.1	38.0	69.1
1 -2	772	40.3	34.1	46.3	19.6	65.9
3 -4	353	18.4	23.1	42.2	34.8	76.9
5+	116	6.1	11.2	27.6	61.2	88.8
<i>^Marital Status**</i>						
Married by Ordinance	236	12.4	49.6	32.6	17.8	50.4
Married (Traditional)	857	44.8	29.3	42.1	28.6	70.7
Engaged	282	14.7	38.1	40.2	21.7	61.9
Cohabitation	267	14.0	24.2	45.3	30.6	75.9
Divorced/Separated	8	0.4	0.0	62.5	37.5	100.0
Single	262	13.4	9.6	26.7	63.8	90.4
<i>^Occupation**</i>						
Fishmonger	318	16.6	21.5	38.6	39.9	78.5
Farmer	67	3.5	19.4	43.3	37.3	80.6
Petty trader	913	47.8	28.1	42.3	29.6	71.9
Civil/Public Servant	84	4.4	67.9	23.8	8.3	32.1
Student	124	6.5	9.8	30.9	59.4	90.2
Other	406	21.2	39.0	37.0	24.0	61.0

Table 8 continued

<i>^Area of residence**</i>						
Saltpond	422	22.2	36.3	38.9	24.9	63.7
Biriwa	231	12.1	21.2	35.9	42.9	78.8
Anomabo	324	17.0	20.1	41.1	38.9	79.9
Mankessim	567	29.8	34.0	36.5	29.5	66.0
Other	358	18.8	28.8	43.6	27.7	71.2
<i>!Religious Denomination**</i>						
Catholic	199	11.2	35.7	32.16	32.16	64.3
Protestant/Charis/pent	1,361	76.9	30.1	39.75	30.2	70.0
Muslim	81	4.6	43.2	39.51	17.28	56.8
Traditionalist	74	4.2	17.6	48.65	33.78	82.4
No/other religion	54	3.1	22.2	46.3	31.48	77.8
Overall Total	1914	100.0	29.6	39.1	31.4	70.4

*Unintended (mistimed + unwanted), (Pearson Chi2 Statistic - **p<0.001),
^N=1912(difference from total=missing) !N=1769(difference from total=missing), "N=1904(difference from total=missing)

Source: Field data (2012)

Factors Influencing Status of Pregnancy

Unintended pregnancy (outcome variable) was regressed on each of the identified independent variables relating to background characteristics of respondents and partners, characteristics which bother on seriousness of relationships such as living arrangements with partners, partners' relationships with other women and number of years spent in relationship with partners and

others including knowledge and past use of family planning methods and previous experience with abortions and miscarriages(Model I). These characteristics have been shown in other studies to have influence on pregnancy status but have not been explored in the study setting. Only those independent variables that were found to be significantly correlated ($p<0.05$) with the outcome were subjected to Bonferroni's correction ($p<0.003$) (Model II) (Table 9).

The results of Bonferroni's correction (Model II) showed that women aged 20 years and older had significantly lower odds of having unintended pregnancy (OR 0.83, 95% CI 0.77-0.89) compared to those 15 -19 years. Factors found to be significantly associated with higher odds of unintended pregnancies included: not married under the ordinance system (OR 1.41, 95% CI 1.30-1.52); partner not living in the same house as the woman (OR 2.15, 95% CI 1.70 -2.72) and parity of one or more (OR 1.20, 95% CI 1.12-1.29). Respondents who were aware of modern and traditional family planning methods or had ever used traditional methods, showed significantly lower odds of carrying an unintended pregnancy [OR 0.40, 95%CI(0.25-0.62); OR 0.50, 95% CI(0.40-0.64); OR 0.68, 95%CI(0.55-0.82) respectively]. Education was not found to be a significant factor influencing unintended pregnancies in this study (Table 9).

The variables which emerged significant following bivariate analysis with Bonferroni's correction ($p<0.003$) were parity, marital status, partner living in same house as woman, awareness of modern and traditional methods of family planning and past use of traditional family planning. These were put in a multivariate logistic regression model and analysed (Table 9, Model III).

Table 9: Logistic Regression Analyses of Unintended Pregnancy and Selected Independent Variables: Models I and II (Bivariate) and Model III (Multivariate)

Independent Variables	MODEL	MODEL	MODEL	
	I	II	III	
	OR(95%CI)	Non-adjusted P-Value	Bonferroni Adjusted P-Value	Adjusted Odds Ratio (AOR)
<i>Age</i>				
Ref: 15-19 years	1.00			
≥ 20 years	0.83(0.77-0.89)	<0.001	<0.001	NA
<i>Educational Status</i>				
Ref: None	1.00			
Primary or more	0.98(0.92-1.03)	0.45	0.450	NA
<i>Ethnicity</i>				
Ref: Fante	1.00			
Others	1.00(0.98-1.02)	0.89	0.890	NA
<i>Religion</i>				
Ref: Christian	1.00			
Non-Christian	1.04(0.99-1.09)	0.15	0.150	NA
<i>Parity</i>				
Ref: 0	1.00			1.00
≥ 1	1.20(1.12-1.29)	<0.001	<0.001	
1-2				1.48(1.14-1.93)**
3-4				2.64(1.88-3.71)***
5+				6.06(3.24-11.38)***

Table 9 continued

<i>Marital status</i>				
Ref: ordinance	1.00			1.00
Non -ordinance	1.41(1.30-1.52)	<0.001	<0.001	
Traditional rites				1.81(1.33-2.45)***
Engaged				1.58(1.10-2.28)*
Cohabitation				2.91(1.96-4.31)***
Single				7.32(4.21-12.75)***
<i>Partner Age</i>				
Ref:15-19 years	1.00			
≥ 20 years	0.97(0.95-0.98)	<0.001	<0.001	NA
<i>Partner Religion</i>				
Ref: Christian	1.00			
Non-Christian	1.25(1.06-1.47)	0.009	0.162	NA
<i>Partner with Children From other women</i>				
Ref: Yes	1.00			
No	1.33(1.08-1.64)	0.008	0.144	NA
<i>Years of marriage</i>				
Ref: <1Year	1.00			
≥1 year	1.02(1.00-1.05)	0.019	0.342	NA

Table 9 continued

<i>Partner Lives in same house as woman</i>				
(Ref: Yes)	1.00			1.00
No	2.15(1.70-2.72)	<0.001	<0.001	1.72(1.28-2.30)***
<i>Partner has other spouses</i>				
Ref: Yes	1.00			
No	1.47(1.06-2.23)	0.019	0.342	NA
<i>Gravidity</i>				
(Ref:1-2)	1.00			
≥ 2	1.08(1.12-1.14)	0.004	0.072	NA
<i>Previous Abortion or miscarriage</i>				
Ref: Yes	1.00			
No	1.00(1.0-1.0045)	0.043	0.774	NA
<i>Awareness of Modern FP methods</i>				
(Ref: No)	1.00			1.00
Yes	0.40(0.25-0.62)	<0.001	<0.001	0.70(0.42-1.17)
<i>Awareness of Traditional FP methods</i>				
(Ref: No)	1.00			1.00
Yes	0.50(0.40-0.64)	<0.001	<0.001	0.66(0.49-0.89)**

Table 9 continued

<i>Ever use of modern FP method</i>				
Ref: No	1.00			
Yes	0.78(0.64-0.95)	0.014	0.250	NA
<i>Ever use of Traditional FP</i>				
Ref: No	1.00			1.00
Yes	0.68(0.55-0.82)	<0.001	<0.001	0.95(0.75-1.21)

NB: Age of respondents and partner dropped from Model III because it failed test of covariance, ***p<0.001, **p<0.01, *p<0.05

Source: Field data (2012)

Increasing parity was significantly associated with increasing odds of unintended pregnancy. The odd of carrying unintended pregnancy among women with five or more children was four times higher than those with 1-2 children [AOR 6.06, 95% CI (3.24-11.38) versus AOR 1.48, 95%CI (1.14-1.93)].

Women who were married under the traditional system and those unmarried showed significantly higher odds of carrying unintended pregnancy compared to those married by ordinance system (Table 9). Single women showed the highest odds of carrying unintended pregnancy [AOR 7.32, 95% CI (4.21-12.75)]. Women not living with their partners exhibited increased odds of having unintended pregnancies compared to women who lived with their partners (AOR 1.72, 95% CI: 1.28 - 2.30). Awareness of traditional methods of family planning

(withdrawal and rhythm) was associated with lower odds of having unintended pregnancy compared to non-awareness (AOR 0.66, 95%CI (0.49-0.89)).

Summary

Generally, the background characteristics of Phases 1 and 2 respondents were comparable: They were all likely to be below 30 years, had attained middle school/JSS education, be Fante, and likely to be Christian. They were all mostly married under the traditional system and mostly petty traders. The implications of this observation are that the postpartum family planning decisions taken and behaviours expressed by the Phase 2 respondents may be a true reflection of the intentions expressed in Phase 1. Similarly, inferences drawn in Phase 2 may generally be representative of the entire population of respondents.

Studies have shown that reproductive health behaviours and outcomes are influenced by diverse background characteristics of individuals (DeRose, Dodoo, & Patil, 2002; Lehrer, 2004; Grown, Gupta, & Kes, 2005; Kumi-Kyereme, Awusabo-Asare, Biddlecom, & Tanle, 2007; Doctor, Phillips, & Sakeah, 2009).

The age distribution of respondents in this study showed that they were mostly younger and below 30 years. This largely reflected the relatively young age structure of the women who give birth in this country (GSS & Macro, 2009). Young age structure of women who give birth have been shown consistently in studies to be associated with negative reproductive health behaviours and outcomes (GSS & Macro, 2009; Duncan, Edwards, & Alexander, 2010; Jutte et

al., 2010) mainly due to barriers to reproductive health services (Warenius et al., 2006; Regmi, Van Teijlingen, Simkhada, & Acharya, 2010)..

Education offers opportunity for people to acquire knowledge and skills and is one of the strongest predictors of reproductive health. More educated women are more likely to have greater knowledge of contraception, use modern methods of contraception, have desired family sizes and have improved spousal communication (Ashton, Giridhar, Holcombe, Madon, & Turner, 2015). This study revealed that women of reproductive age in the municipality had generally low educational status. Closely related to educational attainment is literacy (the ability to read and write) which is an important personal asset. Although not directly measured in this study, the low educational background gives a clue as to the possible low level of literacy in the area.

Evidence from demographic studies has highlighted that health and mortality outcomes for married persons are better than for unmarried persons because married people have more advantages in terms of support for healthy lifestyles, economic resources, and social and psychological support (marriage protection effects); and/or because healthier individuals are more likely to marry and to stay married (marriage selection effects) (Verbrugge, 1979; Waldron, Hughes, & Brooks, 1996; Waldron, Weiss, & Hughes, 1997; Schoenborn, 2004). The finding in this study that the women were mostly married than unmarried creates a window of opportunity for family planning programming. Whilst this opportunity exists, family planning programme managers need to be mindful of the socio-

cultural influence on family planning, especially those married under the traditional system.

Petty trading was the main source of income for most of the women in this study. This picture generally reflected that of the 2008 Ghana Demographic and Health Survey which showed that women in the fertile age were mostly employed in the sales and services sector (51.4%) (GSS & Macro, 2009). Evidence exist that women who earn income are empowered, have decision making power in the household, and are more likely to use reproductive health services including family planning (Bloom, Wypij, & Gupta, 2001; Furuta & Salway, 2006; Gill, Pande, & Malhotra, 2007; Malarcher, 2010).

The women in this study were mostly Christians. Religion has been found to be a significant factor in maternal health service utilization. According to Gyimah, Takyi, and Addai (2006), Moslem and Traditional women are less likely to use such services compared with Christians. Designing of strategies in family planning needs to take this into consideration.

This study has attempted to identify the determinants and predictors of unintended pregnancies in the Mfantseman Municipality. Reported unintended pregnancy was high among the women in the municipality, nearly twice the national average of 37% (GSS & Macro, 2009). Although age was excluded from the multivariate analysis because of covariance, the descriptive analysis in this study nevertheless identified a trend towards increasing unintended pregnancy with increasing age from 35 years, and is consistent with studies in Nigeria (Okonofua, Odimegwu, Ajabor, Daru, & Johnson, 1999), Iran(Abbasi-Shavazi &

Hosseini-Chavoshi, 2004), Nepal(Adhikari, Soonthorndhada, & Prasartkul, 2009) and Tanzania (Exavery et al., 2014). Perceived decreased risk of pregnancy, cessation of contraceptive use because of perceived intolerable side effects and unstable partnerships which negatively influence contraceptive use with increasing age (Godfrey, Chin, Fielding, Fiscella, & Dozier, 2011) have been proffered to explain this finding.

Mistimed pregnancies generally decreased as a woman's age increased. This finding is consistent with those of other studies in Nigeria (Sedgh et al., 2006) and Kenya (Ikamari, Izugbara, & Ochako, 2013), but contradicts studies in Tanzania (Takwimu & Macro, 2011). Reasons advanced to explain the contradiction are that younger women may have sexual intercourse for other reasons apart from childbearing or may have lower knowledge and skills surrounding pregnancy control mechanisms such as contraceptive use compared with their older counterparts (Exavery et al., 2012).

In the logistic regression analysis, education was not found to be a significant factor influencing unintended pregnancy in this study. However, the descriptive analysis revealed that as educational status increased to tertiary level, the proportion of women reporting unintended or unwanted pregnancies decreased. This is consistent with other studies (Bennett, Culhane, McCollum, & Elo, 2006; Akalework, 2008; Omane-Adjepong et al., 2012; Calvert et al., 2013) and emphasizes the point that education empowers women with knowledge about reproductive health issues and enables them to make informed decisions

concerning pregnancy, childbirth and contraception (Yonas, 2005; Malik & Courtney, 2011).

Factors which were identified in the multivariate logistic regression analysis to be significantly associated with unintended the pregnancy included parity, marital status, living arrangement with partner and awareness of traditional methods of contraception. The expectation was that the level of unintended pregnancy would be lower with increasing parity. However, this study showed that high parity was significantly associated with unintended pregnancy and is consistent with other studies (Hamdela, Tilahun, & others, 2012; Omane-Adjepong et al., 2012; Ikamari, Izugbara, & Ochako, 2013). In India, the desire for sons, or not having any son, was associated with an increase in parity (Chaudhuri, 2012). This supports prior research in South East Asia (Das, 1987; Bairagi, 2001; Sathar & Phillips, 2001; Das Gupta et al., 2003). In a southern coastal district such as the Mfantseman Municipality where fishing is one of the main sources of livelihood, the search for sons to help with the fishing business (Akinyoade, 2007) may also be a reason for the increase in unintended pregnancies associated with increasing parity.

This study found that women married under the traditional system and unmarried women had higher odds of unintended pregnancies compared to those married under the ordinance system. The finding of unmarried women having higher odds of unintended pregnancies than married women is consistent with other findings (Korenman, Kaestner, & Joyce, 2001; Bouchard, 2005; Thomson, 2005; Lachance-Grzela & Bouchard, 2009; Calvert et al., 2013; Achana et al.,

2015). This observation could possibly be due to the use of pregnancy as a prelude to marriage or for solidifying relationships (Bouchard, 2005) which eventually do not materialize. Evidence exist that pregnancy among unmarried couples may increase commitment to and encourage transition to marital life prior to birth as couples idealize their future childbearing and family life (Kendall et al., 2005; Guzzo & Hayford, 2014). The finding that women who were married under the traditional system had higher odds of unintended pregnancies compared to those married under the ordinance system, presents an issue for further investigation within the Ghanaian context.

High knowledge of family planning methods has been shown to be associated with low likelihood of unintended pregnancies (Adhikari et al., 2009). In this study, women with knowledge of traditional (withdrawal and rhythm) methods of contraception were less likely to have unintended pregnancies compared to those who were not aware. Existing evidence that knowledge about contraceptive methods is a strong predictor of use (Frost, Lindberg, & Finer, 2012) could explain a possible use of these traditional methods among some groups of women in the municipality to prevent unintended pregnancies. Bivariate analysis in this study revealed that women who had ever used traditional methods had significantly lower odds of unintended pregnancy among them and may support this assertion.

This study revealed reporting of high unintended pregnancies among women in the Mfantseman Municipality and increasing unintended pregnancies with increasing age and lower educational status. Predictors of unintended

pregnancy found in this study included high parity, marital status (marriage under the traditional system and being unmarried), partners not living together and non-awareness of traditional (rhythm and withdrawal) methods of contraception. As part of family life education, family planning programmes need to consider the promotion of ordinance marriage and the advantages of partners living together. Best practices and opportunities associated with use of traditional family planning need to be explored and promoted among segments of the population that may not want to use modern family planning. Multi-sectoral collaboration, especially with the Gender and Education Ministries to promote female education and empowerment of women may need strengthening. The next Chapter discusses pregnant women's intention to adopt family planning following delivery and within the postpartum period.

CHAPTER FIVE
FACTORS INFLUENCING THE INTENTION OF WOMEN TO USE
POSTPARTUM FAMILY PLANNING

Introduction

The periods of pregnancy and immediately after delivery are considered opportune for counseling women on the use of modern FP methods. This is because this period is often associated with a woman's frequent encounter with the health system (Warren et al., 2010). Despite the fact that intentions data in general have been used to predict actual behaviours (Fishbein & Cappella, 2006), very few studies have been carried out on factors influencing intention to use family planning in general and postpartum family planning in particular. Influencing factors have generally been socio-demographic, socio-cultural and socio-economic (Adegbola & Okunowo, 2009; Agha, 2010; Kariuki, 2011; Di Giacomo et al, 2013).

Apart from socio-demographic characteristics of the respondents, this survey explored other factors such as knowledge and past use of various methods and acceptability of PFP to partners and close relations, This chapter details how women's intention to use PFP is influenced by these factors.

Knowledge of Family Planning Methods by Socio-demographic Characteristics

Knowledge of available family planning methods is important in influencing individuals' intentions to adopt and eventually use them. Women were asked about their awareness of available contraceptive methods in this study and presented (Table 11). The most known methods among the women were male condom (86.4%), injectables (80.5%), female condom (77.6%) and the pill (77.2%). The least known methods were the foam (20.7%), diaphragm (24.4%) and intrauterine device (IUD) (37.9%).

As revealed in Table 10, women who were aged 15-19 years, had no formal education, had never had children, were single, divorced or separated and were students, were less likely to know about family planning methods. On the other hand, women aged 25-29 years, had tertiary education, had at least a child, were married under the ordinance and were civil/public servants, generally knew about family planning methods.

Past Use of Family Planning Methods

Women's past experiences with family planning methods could influence their subsequent or future choices. In this study women were also asked about their past use of family planning methods and responses summarised in Table 11. Withdrawal was the method most used in the past by women (29.4%), followed by the male condom (26.9%), rhythm (23.7%) and injectables (18%). The IUD (1%), diaphragm (1%), foam (1.2%) and implants (1.6%) were the least used methods in the past.

Table 10: Knowledge of Family Planning Methods by Socio-Demographic Characteristics (%)

	PILL	IUD	INJ	IMPL	MCon	FCon	Diaph	FOM	Ryth	With Emeg	Total No. of women	
<i>Age</i>												
15-19	53.2	17.3	51.0	34.0	75.6	63.1	11.9	11.2	43.9	42.6	31.4	312
20-24	77.5	33.7	82.3	61.9	87.9	77.5	21.4	18.1	58.9	64.7	50.3	569
25-29	87.2	48.6	91.1	75.0	93.0	86.6	32.0	28.9	69.8	74.4	57.4	484
30-34	85.3	48.1	89.4	75.8	89.8	82.9	31.7	25.6	61.4	66.9	45.7	293
35-39	86.6	43.0	91.3	69.2	88.4	80.2	23.8	19.8	54.7	61.6	44.2	172
40+	83.9	50.0	91.1	67.9	87.5	80.4	32.1	16.1	50.0	64.3	35.7	56
<i>Education</i>												
None	67.0	27.2	74.8	59.0	78.4	65.8	18.7	14.8	43.0	49.8	37.1	412
Primary	69.9	33.1	76.5	55.9	80.7	69.9	19.6	16.6	48.7	55.7	38.2	429
Middle/JSS	82.0	37.8	83.0	64.1	91.2	82.8	23.3	20.5	63.4	66.3	48.2	843
SSS/SHS/VOC	89.8	60.8	88.0	73.5	93.4	93.4	40.4	28.9	81.9	84.9	69.9	166
Tertiary	96.8	50.0	93.6	91.9	96.8	96.8	69.4	71.0	95.2	91.9	87.1	64

Table 10 continued

Parity

0	66.6	29.60	64.8	47.9	80.4	72.1	21.6	18.7	55.3	56.8	42.1	673
1-2	82.5	43	88.2	71.1	90.4	82.1	26.2	24.0	63.9	68.9	53.5	772
3-4	83.0	45.0	91.2	71.4	89.5	78.2	26.9	19.6	55.5	62.6	45.0	353
5+	85.3	34	87.9	69.0	85.3	77.6	21.6	14.7	47.4	57.8	33.6	116
<i>Religion</i>												
Christian	77.4	38.0	80.9	63.3	86.3	77.3	24.5	20.7	58.1	62.5	46.7	1,783
Muslim	73.9	37.5	73.9	53.4	87.5	81.8	21.6	21.6	63.6	67.1	48.9	88
Traditionalist	90.0	40.0	100.0	100.0	100.0	100.0	40.0	20.0	60.0	70.0	30.0	10
Other	71.0	41.1	71.0	51.6	70.2	77.4	22.6	22.6	58.1	64.5	48.4	33
<i>Marital Status</i>												
Married (Ordinance)	91.1	56.4	87.7	72.9	92.0	90.3	36.9	38.6	67.4	72.9	61.4	236
Married (Traditional)	81.2	38.7	86.8	68.5	87.9	77.4	23.8	19.5	56.5	63.6	44.8	857
Engaged	81.6	46.8	84.8	68.4	92.2	86.2	33.0	24.1	69.9	71.6	56.4	282
Cohabitation	71.5	24.7	79.0	56.2	87.3	73.4	13.5	11.2	57.7	58.1	44.6	267
Divorced/Separated	37.5	12.5	37.5	12.5	100.0	87.5	12.5	12.5	37.5	50.0	12.5	8
Single	53.9	22.3	52.0	37.5	69.5	61.7	16.8	14.5	44.1	46.5	32.0	264

Table 10 continued

Occupation

Fishmonger	68.9	34.9	76.7	63.21	76.7	67.3	23.3	20.4	49.1	55.7	38.4	318
Farmer	85.1	44.8	82.1	64.18	82.1	74.6	29.9	20.9	49.3	49.3	34.3	67
Petty trader	81.5	36.5	85.8	66.16	90.0	80.3	22.8	19.6	58.6	63.5	50.0	913
Civil/Public Servant	97.6	81.0	97.6	91.67	98.8	98.8	70.2	67.9	92.9	91.7	84.5	84
Student	54.0	17.7	45.2	32.26	75.0	66.1	16.9	14.5	43.6	48.4	28.2	124
Other	74.4	40.7	70.1	55.9	78.2	70.8	15.2	11.7	59.6	62.5	47.3	406
<i>Area of residence</i>												
Saltpond	77.1	41.0	82.1	60.4	86.8	79.7	25.47	22.2	61.3	71.9	46.0	424
Biriwa	65.7	28.8	71.6	63.6	75.4	63.6	16.53	14.4	40.3	48.3	37.3	236
Anomabo	75.8	28.8	83.7	70.3	90.5	74.5	19.94	15.6	55.5	54.0	50.0	326
Mankessim	82.5	44.6	81.8	61.2	90.0	83.1	29.28	25.8	64.7	69.1	51.5	567
Other	71.2	41.0	75.1	59.9	75.4	78.1	17.7	13.7	57.4	59.6	43.5	361
Total	77.2	37.9	80.5	62.9	86.4	71.6	24.4	20.7	58.3	62.3	46.7	1,914

! N=1886—observed difference from 1,914 is due to missing values

Source: Field data (2012)

Table 11: Past Use of Family Planning Methods

Contraceptive method used in the past	Percentage	Number
Oral contraceptive Pills	16.1	308
Intrauterine device (IUD)	1.0	20
Injectables	18.0	344
Implants	1.6	30
Male Condom	26.9	516
Female Condom	1.9	36
Diaphragm	1.0	20
Foam	1.2	22
Rhythm	23.7	454
Withdrawal	29.4	564
Emergency contraceptives (EC)	9.2	176

NB: responses for each method were multiple; percentages are row percentages, Each row total is 1,914

Source: Field data (2012)

Intention to Adopt Postpartum Family Planning

The respondents were asked whether they intended to adopt family planning after delivery. Of those who responded to the question, 70 percent of them (1,326) said they intended to adopt postpartum family planning. Women who were aged 15-19 years, were single, had never had any children, had tertiary education and were civil/public servants expressed significantly the least intention to adopt postpartum family planning (Table 12).

Table 12: Intention to Use PFP by Socio-Demographic Characteristics

Background	Intention to adopt PFP (%)	Total No. of respondents n=1902
<i>Age**</i>		
15-19	59.4	310
20-24	72.0	564
25-29	71.6	482
30-34	74.6	291
35-39	72.1	172
40+	78.2	55
<i>Education**</i>		
None	70.1	408
Primary	74.4	426
Middle/JSS	70.9	839
SSS/SHS/Voc	57.6	165
Tertiary	51.6	63
<i>Parity***</i>		
0	58.3	667
1 -2	74.7	770
3 -4	76.9	350
5+	80.9	115

Table 12 continued

<i>Religion</i>		
Christian	70.1	1,771
Muslim	61.4	88
Traditionalist	80.0	10
Other	67.7	33
<i>Marital Status***</i>		
Married (Ordinance)	61.9	236
Married (Traditional)	75.5	853
Engaged	61.9	281
Cohabitation	77.4	266
Divorced/Separated	100.0	8
Single	55.7	258
<i>Occupation***</i>		
Fishmonger	67.2	311
Farmer	77.6	67
Petty trader	75.2	910
Civil/Public Servant	54.8	84
Student	57.7	123
Other	59.5	407

Table 12 continued

<i>Area of residence</i>		
Saltpond	74.4	422
Biriwa	67.5	231
Anomabo	80.5	323
Mankessim	63.3	567
Other	62.3	359
All Total (%)	69.7	100
All Total (N1)	1,326	1,902

*** $p < 0.001$ N1 =1,902 !N =1,874 (difference from 1902=missing), percentages are row percentages

Source: Field data (2012)

On the other hand, women who were aged forty years and above, had five or more children, had primary education and were divorced or separated, significantly expressed the most intention to adopt postpartum family planning (Table 12).

Preferred Postpartum Family Planning Methods Intended to be Used

The women who intended to use postpartum family planning were asked to rank the family planning methods they would prefer to use after delivering. They were to rank them as first, second or third most preferred methods. Those who were not sure of their choices were also given opportunity to state so. Their responses were presented in Table 13. Injectable was the most preferred, requested

by 41% of the women, followed by the pill (25.4%) and the male condom (13.7%). The least preferred methods were the IUD, Emergency contraceptives and sterilization. For these three methods, over 90% of women were not sure of usage.

Table 13: PFPF Methods Women Intended to Use

Intended PFPF method	Preferred choice			
	First (%)	Second (%)	Third (%)	Not sure (%)
Pill	17.3	25.4	13.4	43.9
IUD	1.1	4.0	2.2	92.7
Injectables	40.6	22.0	8.3	29.1
Implants	12.4	8.4	9.7	69.5
Male Condom	3.8	8.3	13.7	74.2
Rhythm	2.9	6.9	12.7	77.5
Sterilization	5.1	1.6	2.9	90.4
Lactational Amenorrhoea Method	13.9	8.5	8.4	69.2
Emergency Contraceptive	1.1	1.4	3.4	94.1

Percentages are row percentages; N=1326

Source: Field data (2012)

Knowledge of Family Planning Methods and Intention to Use PFP

Bivariate descriptive analyses of knowledge of family planning methods and intention to use PFP was carried out and presented in Table 14. Among the respondents, those who knew most about oral contraceptive pills (56.2%), injectables (59.1%), implants (46.3%) male condoms (62.3%) and female condoms (56.3%) were also the more likely to have intentions to adopt PFP ($p < 0.001$). However, those who had not heard of the diaphragm (53.9) were significantly more likely to have intentions to adopt PFP compared to those who had heard. Similarly, majority of the respondents (36.6%) did not know that exclusive breastfeeding is a means of contraception but had intentions to adopt PFP ($p < 0.05$) (Table 14).

To determine the strength of the associations and the factors that influenced intentions to use PFP, logistic regression models (Models I and II) on knowledge of contraceptives and intention to use PFP were fitted (Table 15). Model I (Bivariate analysis) revealed that respondents who had heard about the pill (OR 1.76, 95% CI 1.40-2.20), injectables (OR 2.20, 95% CI 1.73-2.79), implants (OR 1.60, 95% CI 1.30-1.95), male condoms (OR 1.97, 95% CI 1.50-2.59) and female condoms (OR 1.62, 95% CI 1.29-2.03) were about two times more likely than those who had not heard about any of those methods to have intentions to use PFP. Similarly, women who were aware that exclusive breastfeeding (OR 1.83, 95% CI 1.34-2.50) could be a method of contraception were nearly twice more likely to have an intention to use PFP than those who were not aware.

Table 14: Knowledge and Intention to Use PFP

		Intention to use PFP		
		Yes	No	Total
Awareness of method		(%)	(%)	Number
Oral contraceptive	Yes (%)	56.2	21.3	1474
pills***	No (%)	13.5	9.0	428
Intrauterine	Yes (%)	25.8	12.2	722
contraceptive device	No (%)	44.0	18.1	1180
Injectables***	Yes (%)	59.1	21.7	1537
	No (%)	10.6	8.6	365
Implants***	Yes (%)	46.3	16.8	1200
	No (%)	23.4	13.5	702
Male condom***	Yes (%)	62.3	24.5	1650
	No (%)	7.5	5.8	252
Female condom***	Yes (%)	56.2	21.8	1482
	No (%)	13.6	8.5	420
Diaphragm *	Yes (%)	15.8	8.6	464
	No (%)	53.9	21.7	1438
Foaming tablets	Yes (%)	13.6	7.2	395
	No (%)	56.2	23.1	1507

Table 14 continued

Rhythm method	Yes (%)	39.8	18.7	1113
	No (%)	29.9	11.6	789
Withdrawal method	Yes (%)	44.9	18.1	1199
	No (%)	24.8	12.1	703
Emergency contraception	Yes (%)	33.1	13.8	892
	No (%)	36.6	16.5	1010
Exclusive breastfeeding*	Yes (%)	29.8	10.8	772
	No (%)	39.9	19.5	1130
Total Number		1326	576	1902

Significance = * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Field data (2012)

On the other hand, those who had heard of the diaphragm (OR 0.74, 95% CI 0.59-0.92) and foaming tablets (OR 0.77, 95%CI 0.61-0.98) were less likely than those who had not heard of those methods to have intentions of using PFP.

Knowledge of the pill, injectables, implants, male and female condoms, diaphragm and exclusive breastfeeding and foaming tablets were significantly associated with intention to use PFP in Model I and were put in a multivariate model (Model II) to determine which of them had the most influence on intention to use PFP.

Table 15: Logistic Regression of Intention to Use PFP and Knowledge of FP

Independent variable:		Dependent variable: Intention to use PFP	
		Model I (Bivariate)	Model II (Multivariate)
Pills	Yes	1.76(1.40-2.20)***	1.16(0.70-1.91)
	No	1.0	1.0
IUD	Yes	0.87 (0.71-1.06)	NA
	No	1.0	
Injectables	Yes	2.20 (1.73-2.79)***	1.69 (1.21-2.36)**
	No	1.0	1.0
Implants	Yes	1.60 (1.30-1.95)***	1.64 (1.11-2.42)*
	No	1.0	1.0
Male condom	Yes	1.97 (1.50-2.59)***	1.18 (0.58-2.41)
	No	1.0	1.0
Female condom	Yes	1.62 (1.29-2.03)***	1.03 (0.60-1.75)
	No	1.0	1.0
Diaphragm	Yes	0.74 (0.59-0.92)***	0.59 (0.38-0.93)**
	No	1.0	1.0
Foaming	Yes	0.77 (0.61-0.98)*	0.84 (0.53-1.32)
Tablets	No	1.0	1.0

Table 15 continued

Rhythm	Yes	0.82 (0.67-1.01)	NA
method	No	1.0	
Withdrawal	Yes	1.21 (0.99-1.48)	NA
method	No	1.0	
Emergency	Yes	1.09(0.89-1.32)	NA
contraception	No	1.0	
Exclusive	Yes	1.83 (1.34-2.50)***	1.56(1.12-2.18)**
breastfeeding	No	1.0	1.0

Significance = *p<0.05, **p<0.01, ***p<0.001; Ref=No; NA=Not Applicable

Source: Field data (2012)

If a woman had Knowledge about injectables (AOR 1.69, 95%CI 1.21-2.36), implants (AOR 1.64, 95%CI 0.11-2.41), and exclusive breastfeeding (AOR 1.56, 95%CI 1.12-2.18), she was more likely to have an intention to use PPF than if she did not. On the other hand, if a woman had knowledge of the diaphragm (AOR 0.59, 95%CI 0.38-0.93) she was less likely to have an intention to use PPF.

Past Use of Family Planning Methods and Intention to Use PPF

Table 16 shows the descriptive bivariate analysis of past use of family planning methods and intention to use PPF. Among women who had used any contraceptive methods in the past, those who had used oral contraceptive pills (13.6%) and injectables (15.8%) in the past respectively were about 5 and 7 times

more than those who had not used those methods and were significantly more likely to have intentions to use PPF. Logistic regression models (Models I and II) were constructed to determine the strengths of associations and the factors that influenced intention to use PPF (Table 17).

In model I (bivariate analysis) women who had used the pill (OR 2.53, 95% CI 1.83-3.49), injectables (OR 3.83, 95%CI 2.70-5.43) and emergency contraceptive pills (ECPs) (OR 1.52, 95%CI 1.05-2.20) in the past had significantly higher odds of having intentions to use PPF than those who had never used those methods in the past. On the other hand, women with prior experience with the use of the IUDs (OR 0.39, 95%CI 0.16-0.96) had significantly lower odds than those who had never used them, to have intentions to use PPF.

All the significant factors from model I (past use of the pill, injectables, ECPs and IUDs) were put in a multivariate logistic regression model (Model II). Women who had used injectables (AOR 3.72, 95% CI 2.61-5.30) and oral contraceptive pills (AOR 2.22, 95%CI 1.59-3.11) in the past were more likely to have the intention to use PPF than those who had never used them in the past. In contrast, women who had used IUDs in the past (AOR 0.13, 95%CI 0.05-0.38) had significantly lower odd of having intentions to use PPF than those who had never used IUDs (Table 17)

Table 16: Past Use of Family Planning Methods and Intention to Use PFP

Past use of contraceptive method		Intention to use PFP		
		Yes (%)	No (%)	Total No.
Oral contraceptive pills***	Yes (%)	13.5	2.6	307
	No (%)	56.2	27.7	1595
Intrauterine contraceptive device*	Yes (%)	0.5	0.5	19
	No (%)	69.2	29.8	1883
Injectables***	Yes (%)	15.8	2.2	342
	No (%)	53.9	28.1	1560
Implants	Yes (%)	1.0	0.5	29
	No (%)	68.7	29.8	1873
Male condom	Yes (%)	18.8	8.2	513
	No (%)	50.9	22.1	1389
Female condom	Yes (%)	1.2	0.6	35
	No (%)	68.6	29.6	1867
Diaphragm	Yes (%)	0.6	0.4	19
	No (%)	69.1	29.9	1883
Foaming tablets	Yes (%)	0.7	0.4	21
	No (%)	69.0	29.9	1881
Rhythm (calendar) method	Yes (%)	16.1	7.7	453
	No (%)	53.6	22.6	1449

Table 16 continued

Withdrawal method	Yes (%)	21.4	8.1	562
	No (%)	48.3	22.1	1340
Emergency contraception	Yes (%)	7.1	2.1	175
	No (%)	62.6	28.2	1727
Total Number		1326	576	1902

Significance = *p<0.05, **p<0.01, ***p<0.001

Source: Field data (2012)

Table 17: Logistic Regression of Intention to Use PFP and Past Use of FP

		Dependent variable: Intention to use PFP	
Independent variables:			
Past use of Contraceptive methods		Model I	Model II
Oral contraceptive pills	Yes	2.53 (1.83-3.49)***	2.22 (1.59-3.11)***
	No	1.0	1.0
Intrauterine contraceptive device	Yes	0.39 (0.16-0.96)*	0.13 (0.05-0.38)**
	No	1.0	1.0
Injectables	Yes	3.83 (2.70-5.43)***	3.72 (2.61-5.30)***
	No	1.0	1.0
Implants	Yes	0.82 (0.38-1.78)	NA
	No	1.0	

Table 17 continued

Male condom	Yes	1.00 (0.81-1.25)	NA
	No	1.0	
Female condom	Yes	0.73 (0.37-1.46)	NA
	No	1.0	
Diaphragm	Yes	0.74 (0.29-1.71)	NA
	No	1.0	
Foaming tablets	Yes	0.70 (0.29-1.71)	NA
	No	1.0	
Rhythm (calendar) method	Yes	0.87 (0.70-1.10)	NA
	No	1.0	
Withdrawal method	Yes	1.20 (0.97-1.50)	NA
	No	1.0	
Emergency contraception	Yes	1.52 (1.05-2.20)*	1.26 (0.86-1.85)
	No	1.0	1.0

Significance = ***p<0.001, **p<0.01, *p<0.05, Ref=No

Source: Field data (2012)

Acceptability of Family Planning and Intention to Use Postpartum Family Planning

Sixty five percent of the women reported acceptability of family planning and had intention to use PFP (p<0.001). Higher proportions of them who had intention to use PFP reported partner's acceptability of family planning (50%)

and also reported that they would seek partner's permission before using family planning (59.7%) or will not use family planning without the awareness of their partners (37.4%). Although greater proportions of the women reported that their mothers (37%), mothers-in-law (48%), fathers-in-law, and their religious leaders (45%) did not accept family planning, they still expressed intentions to use postpartum family planning ($p < 0.001$) (Table 18).

To determine the acceptability factors that influenced intention to use PFP, logistic regression models (Models I and II) were constructed (Table 19). Model I (bivariate analysis) showed that acceptability of family planning by the woman herself (OR 8.55, 95% CI 6.29-11.63), her mother (OR 3.30, 95% CI 2.50-4.33), the partner (OR 7.78, 95% CI 5.81-10.40), mother-in-law (OR 3.89, 95% CI 2.84 – 5.33), father-in-law (OR 4.19, 95% CI 3.01-5.83) and religious leaders (OR 2.75, 95% CI 2.07 – 3.63) were associated with higher odds of having intention to use PFP. Furthermore, if a woman would seek partner's permission before using PFP (OR 2.23, 95% CI 1.75 – 2.85) or would be willing to use PFP without awareness of partner (OR 3.04, 95% CI 2.41-3.83) she has higher odds of having an intention to use PFP. When all these significant factors were introduced into Model II and further analysed (Multivariate analysis), woman's acceptability (AOR 3.21, 95% CI 1.64 – 6.26) and partner's acceptability (AOR 3.20, 95% CI 1.94 – 5.48) of family planning were the most significant predictors of intention to use PFP (Table 19).

The factors which emerged very significant from the multivariate analyses of knowledge of family planning, past use of family planning and acceptability of

Table 18: Acceptability of Family Planning and Intention to Use PFP

		Intention to use PFP		
		Yes	No	Total
Acceptability of family planning		(%)	(%)	Number
Woman's acceptability***	Yes (%)	65.4	19.6	1616
	No (%)	4.3	10.7	286
Partner's acceptability***	Yes (%)	50.0	10.1	1143
	No (%)	19.8	20.1	759
Acceptability by mother***	Yes (%)	32.9	9.2	800
	No (%)	36.9	21.1	1102
Acceptability by mother-in-law***	Yes (%)	22.2	5.8	533
	No (%)	47.5	24.5	1369
Acceptability by father-in-law***	Yes (%)	19.8	5.2	476
	No (%)	49.9	25.1	1426
Acceptability by religious leaders***	Yes (%)	24.9	8.1	627
	No (%)	44.9	22.2	1275
Partner's permission before using FP***	Yes (%)	59.7	22.0	1555
	No (%)	10.0	8.3	347
Will use FP without partner's awareness***	Yes (%)	32.3	6.7	741
	No (%)	37.4	23.6	1161
Total number		1326	576	1902

Significance = ***p<0.001 **p<0.01 p<0.05

Source: Field data (2012)

Table 19: Logistic Regression of Intention to Use PFP and Acceptability of Family Planning

Independent variables:		Dependent variable: Intention to use PFP	
		Model I (Bivariate)	Model II (Multivariate)
woman's acceptability	Yes	8.55 (6.29-11.63)***	3.21 (1.64-6.26)***
	No	1.0	1.0
Partner's acceptability	Yes	7.78 (5.81-10.40)***	3.2 (1.94 -5.48)***
	No	1.0	1.0
Partner's permission before using PFP	Yes	2.23 (1.75-2.85)***	1.60 (0.78-3.27)
	No	1.0	1.0
Willing to use without awareness of partner	Yes	3.04 (2.41-3.83)***	3.06 (0.71-13.27)
	No	1.0	1.0
Acceptability by mother	Yes	3.30 (2.50-4.33)***	0.56 (0.12-2.65)
	No	1.0	1.0
Acceptability by mother-in-law	Yes	3.89 (2.84-5.33)***	0.90 (0.43-1.87)
	No	1.0	1.0
Acceptability by father-in-law	Yes	4.19 (3.01-5.83)***	0.94 (0.54-1.61)
	No	1.0	1.0
Acceptability of by religious leaders	Yes	2.75 (2.07-3.63)***	1.37 (0.90-2.11)
	No	1.0	1.0

Significance = ***p<0.001, **p<0.01, *p<0.05), Ref = No

Source: Field data 2012

PPFP on intention to use PPFP were further analysed using a logistic regression model (Model III) controlling for socio-demographic and socio-economic factors (Table 20)

Following the analysis, the intention of pregnant women to use PPFP were influenced by the partner's acceptability of family planning (AOR 4.42, 95%CI 3.25-6.01), personal conviction of acceptability (AOR 4.69, 95%CI 3.29-6.69) and prior experience with using injectables (AOR 2.74, 95%CI 1.78-4.20) and pills (AOR 1.74, 95%CI 1.21-2.50). Women who had heard of the diaphragm (AOR 0.59, 95%CI 0.44-0.80) as a contraceptive method or had used IUDs in the past (AOR 0.22, 95%CI 0.06-0.76) were significantly less likely to want to use PPFP. Women who were cohabiting at the time of the survey exhibited higher odds of intending to use PPFP compared to those who were married by ordinance (AOR 1.96, 95% CI 1.13-3.39) (Table 20).

Summary

Seventy percent (70%) of women covered in this study expressed the intention to adopt PPFP. This is higher than reported intention among married family planning non-users in 2008 in Ghana of up to 53 percent (GSS & Macro, 2009). The contrast may be explained by the fact that the respondents in this study were pregnant women who may reasonably be expected to want to delay a subsequent pregnancy. Nevertheless, pregnant women need to be made targets for PPFP interventions.

Table 20: Logistic Regression of Intention to Use PFPF and Most Significant Knowledge, Past Use and Acceptability Variables

MODEL III	
Dependent variable: Intention to use PFPF	
Independent variables:	
Most significant variables	AOR (95%C.I)
<i>Age</i>	
Ref: 15-19	1.00
20-24	1.24(0.83 -1.85)
25-29	1.08(0.67-1.71)
30-34	0.93(0.52-1.65)
35-39	0.72(0.38-1.39)
40+	0.99(0.40-2.46)
<i>Parity</i>	
Ref: 0	1.00
1 -2	1.29(0.93-1.80)
3 -4	1.22(0.73-2.01)
5+	2.17(0.99-4.73)
<i>Education</i>	
Ref: None	1.00
Primary	1.18(0.81-1.71)
Middle/ JSS	0.90(0.63-1.28)
SSS/SHS/Vocational	0.67(0.39-1.16)
Tertiary	0.71(0.29-1.70)

Table 20 continued

<i>Occupation</i>		
Ref: Fishmonger		1.00
Farmer		1.40(0.66-2.98)
Petty trader		1.35(0.93-1.95)
Civil/Public Servant		0.78(0.34-1.80)
Student		0.97(0.54-1.74)
Other		0.54(0.30-0.96)*
<i>Marital status</i>		
Ref: Married –Ordinance		1.00
Married(Traditional)		1.23(0.78-1.93)
Engaged		0.91(0.56-1.50)
Cohabitation		1.96(1.13-3.39)*
Single		1.71(0.98-2.99)
<i>Knowledge of contraceptives</i>		
Injectables	Ref: No	1.00
	Yes	1.21(0.84-1.75)
Implants	Ref: No	1.00
	Yes	1.30(0.95-1.77)
Diaphragm	Ref: No	1.00
	Yes	0.59(0.44-0.80)**
Exclusive Breastfeeding	Ref: No	1.00
	Yes	1.15(0.78-1.68)

Table 20 continued

<i>Past use of contraceptives</i>		
Oral Contraceptive Pills	Ref: No	1.00
	Yes	1.74(1.21-2.50)**
IUD	Ref: No	1.00
	Yes	0.22(0.06-0.76)*
Injectable	Ref: No	1.00
	Yes	2.74(1.78-4.20)***
<i>Acceptability of FP</i>		
By woman	Ref: No	1.00
	Yes	4.69(3.29-6.69)***
By Partner	Ref: No	1.00
	Yes	4.42(3.25-6.01)***

Significance = ***p<0.001, **p<0.01, *p<0.05

Source: Field data (2012)

Although less than 30 percent of the women had used contraceptives in the past, 85 percent of them considered family planning acceptable and 65 percent had intentions to use postpartum family planning. This picture may point to a favourable basis for promotion of PFP. However, the existence of the gap between intention and actual use of family planning (Ross and Winfrey, 2001, DeRose et al, 2004; Callahan and Becker, 2014) needs to be born in mind. On this basis, it appears there is a disparity between stated intentions and PFP use in this study. The low past use of contraceptives (Table 12) despite high levels of

contraceptive knowledge (Table 11) and the fact that 24 percent of the women considered family planning acceptable but did not have any intention to adopt PFP (Table 18) affirm the disparity. Phase 2 of this study was influenced by these concerns and would bring out the gaps if any between FP intentions and actual uptake.

Women in this study reported withdrawal method as the most used in the past, followed by the male condom, rhythm and the injectable. The fact that withdrawal and rhythm together were the most used methods in the past may be explained by the existence of some perceived benefits offered by their use, some perceived side effects of modern contraceptives, entrenched traditional and socio-cultural influences on the people and poor penetration of family planning education on modern methods in the Municipal area (Annual report, Mfantseman Municipal Health Directorate, 2010). The finding that the injectable was the preferred postpartum contraceptive method among the women who intended to use PFP may have been influenced significantly by past use of injectables (Tables 14 and 20). This is consistent with a recent review of the uptake of various FP methods in Sub-Saharan Africa and the 2008 Ghana Demographic and Health Survey (Ross & Winfrey, 2001; GSS & Macro, 2009). The preference for injectables may also be explained by fact that some women are able to conceal their family planning status when they use them (Biddlecom & Fapohunda, 1998; Tensou, Hailemariam & Reniers, 2008.) Factors that make women in Ghana prefer injectables would most likely provide indications of the interventions that would be required to increase the uptake of PFP in general.

The finding that pregnant cohabiting women showed significantly higher odds of intention to use PPF than women who were married by ordinance, could be explained by the fact that their cohabiting status does not guarantee them security compared to that offered by ordinance marriage. This is in contrast with the finding by Kariuki (2011), in which being married was a significant predictor of intention to use postpartum contraceptives. There is also the other argument that cohabiting women may not have intention to use FP so that a pregnancy could be a reason for marriage (Cuff & Francis, 1978).

The study identified women's acceptability of family planning (personal conviction) as an important factor influencing pregnant women's intention to use PPF. Further evidence from the study, however, suggests that personal conviction is insufficient to ensure actual uptake of PPF by the women. This is because, the women in the study made the point about their need for partner approval before they could use a method of PPF. This points to the role played by male partners in FP decision-making processes among women (Bawah, 2002; Gebreselassie & Mishra, 2007; Crissman, Adanu, & Harlow, 2012).

Improving spousal communication could be considered an integral component of interventions to increase male involvement in family planning (Hartmann, Gilles, Shattuck, Kerner, & Guest, 2012). For instance, studies in Uganda and South Africa have shown that a simple intervention such as written letter of invitation to a male partner can lead to significant increase in male attendance at antenatal clinics and opportunities for couple counseling (Rujumba

et al., 2012; Bhalla et al., 2012). The next chapter discusses women's translation of their intention to adopt PFP into actual use and the associated factors.

CHAPTER SIX

POSTPARTUM CONTRACEPTIVE USE: TRANSLATING INTENTION INTO BEHAVIOUR

Introduction

Empirical evidence over the past three decades has led to the recognition that specific behaviours can be predicted with considerable accuracy by assessing intentions to engage in the behaviours under consideration (Fishbein, 2008). According to Piotrow et al.,(1997), individuals and groups progress from knowledge to sustained behaviour change and advocacy.

Some other empirical evidence suggests that intentions do not always lead to behaviour as postulated by the Theory of Planned Behaviour (Gollwitzer, 1999). Despite the strong intention-behaviour relationship observed in some longitudinal studies (Callahan & Becker, 2014), the relationship is weak for some experimental studies, in some studies of intentions measured further away in time from behaviours, risky behaviours performed within a social context and behaviours influenced by habits (Webb & Sheeran, 2006).

This chapter discusses the extent to which prenatal intentions of pregnant women were translated into actual behavior (contraceptive use) in the postpartum period, the timing of postpartum contraceptive use, the preferred methods and determinants of contraceptive use.

Translation of Prenatal Intentions into Actual PPFU Use

Seventy percent of the 1,914 women in Phase 1 expressed intention to use PPFU. These women were followed up in Phase 2. Of the 1,004 women who were eventually followed up in Phase 2, 75 percent expressed prenatal intention to use PPFU. Among the women in Phase 1, those who expressed prenatal intentions to use PPFU were mostly 40 years or more, had primary school education, had five or more children, were traditionalist or Christian, were cohabiting, divorced or separated, were farmers and resident in Anomabo. Apart from being mostly resident in Biriwa, and having 3-4 children, the Phase 2 women who expressed prenatal intentions to adopt PPFU were similar to those in Phase 1 (Table 21, Columns 2 and 3).

Fifty seven percent from Phase 1 who expressed intention to use FP also expressed intention to use in Phase 2. Over 80 percent were among those 30 years and above, a third among those 20-24 years. Furthermore, 85 percent had tertiary education and a quarter with no education. They were also mostly Muslim (98%), single (73%) and with parity of three or more (98%).

Of the women in Phase 2 who said they would use FP after delivering, 56.5 percent reported using PPFU (Table 21). These women were more likely to be thirty years or more (over 64%), attained middle school/JSS education (63.2%), be Muslim (60.4%), married under the ordinance system (80.2%), be civil/public servants and from Anomabo (76.5%). Although a lower percentage was recorded for those who reported using PPFU among Phase 1 women who expressed

intention to use FP (32.1%), their characteristics were generally similar to those using PPFp from Phase 2.

As shown in Table 22, 75 percent of the 1,003 respondents in Phase 2 expressed prenatal intention to use PPFp. Of these, 42 percent reported using PPFp whilst the remaining 33 percent had not used it. Furthermore, 25 percent of the women in Phase 2 expressed no prenatal intention to use family planning after delivering but 8 percent reported using it, whilst 17% reported not using FP. These findings were significant ($\chi^2 = 45.7$; $P < 0.001$) implying that the prenatal intentions of some of the women were inconsistent with their postpartum behaviours. This observation notwithstanding, the odds of using PPFp given that a woman had a prenatal intention to do so, was nearly three times (2.78) that of not using PPFp given that a woman did not have a prenatal intention to do so (Table 22).

The characteristics of the women in Phase 2 were further analysed based on their prenatal FP intentions and PPFp outcomes. A third (33%) of the women had prenatal family planning intentions but had not used PPFp after delivering. Higher proportions were between 25 and 29 years (38.4%), had attained up to primary education (44%) and were engaged, divorced or separated. These were likely to be farmers (70%), have one to two children and be neither Christian, Muslim nor Traditionalists (Table 23). Very few women (8%) had no intention to use PPFp when they were pregnant but went on to use FP after delivering. These were likely to be in the 35-39 year group, be Muslim, have attained Middle school/JSS education, and be single and to have had 3-4 children.

Table 21: Prenatal Intention and Actual PFFP Use

Background	Phase 1	Phase 2	Proportion	Use of	Use of	Use of
	respondents who intended to use PFFP (a)	women who intended to use PFFP (b)	of Phase 1 who expressed intention in Phase 2 (b/a)	PFFP (Irrespective of intention status)	PFFP (from intention expressed in Phase 1)	PFFP (from intention expressed in Phase 2)
	No. (%)	No. (%)	%	No.	No.	%
Age						
15-19	184 (59.4)	74(82.2)	40.2	48	41	22.2
20-24	406 (72.0)	133(69.3)	32.7	75	66	16.3
25-29	345 (71.6)	204 (72.6)	59.1	121	96	27.8
30-34	217 (74.6)	203 (75.6)	93.5	147	130	59.9
35-39	124 (72.1)	100 (75.8)	80.6	87	66	53.2
40+	43 (78.2)	38 (95.0)	88.4	27	26	60.5
						68.4

Education

None	286 (70.1)	68 (86.5)	23.8	36	33	11.5	48.5
Primary	317(74.4)	185 (86.5)	58.4	102	92	29.0	49.7
Middle/JSS	595(70.9)	399(73.5)	67.1	306	252	42.4	63.2
SSS/SHS/Voc	95(57.6)	72 (60.5)	75.8	44	34	35.8	47.2
Tertiary	33(51.6)	28 (63.6)	84.8	17	14	42.4	50.0
<i>Parity</i>							
0	389 (58.3)	-	-	-	-	-	-
1 -2	575 (74.7)	398 (72.5)	69.2	205	175	30.4	44.0
3 -4	269 (76.9)	264 (79.8)	98.1	193	150	55.8	56.8
5+	93(80.9)	90 (75.6)	96.8	107	100	107.5	111.0
<i>Religion</i>							
Christian	1,242(70.1)	680 (75.1)	54.8	459	386	31.1	56.8
Muslim	54 (61.4)	53 (69.7)	98.1	39	32	59.3	60.4
Traditionalist	8 (80.0)	2 (50.0)	25.0	1	1	12.5	50.0
Other	22 (67.7)	17 (100.0)	77.2	6	6	27.3	35.3

Marital Status

Married(Ordinance)	146 (61.9)	101 (39.9)	69.2	99	81	55.5	80.2
Married(Traditional)	644 (75.5)	367 (84.5)	57.0	218	181	28.1	49.3
Engaged	174 (61.9)	103(42.9)	59.2	94	75	43.1	72.8
Cohabitation	206 (77.4)	68 (93.2)	33.0	46	44	21.4	64.7
Divorced/Sep	8 (100.0)	5 (100)	62.5	1	1	12.5	20.0
Single	148 (55.7)	108(71.1)	73.0	47	43	29.1	39.8

Occupation

Fishmonger	209(67.2)	53 (76.8)	25.4	36	28	13.4	52.8
Farmer	52(77.6)	30 (90.9)	57.7	7	7	13.5	23.3
Petty trader	685(75.2)	431(83.7)	62.9	307	266	38.8	61.7
Civil/Public Servant	46 (54.8)	43 (38.7)	93.5	40	31	67.4	72.1
Student	71(57.7)	20 (62.5)	28.2	18	14	19.7	70.0
Other	263 (59.5)	175 (72.0)	66.5	97	79	30.0	45.1

Area of residence

Saltpond	314 (74.4)	221 (69.9)	70.4	157	124	39.5	56.1
Biriwa	156 (67.5)	121 (89.6)	77.6	60	56	35.9	46.3
Anomabo	260 (80.5)	153 (85.5)	58.9	130	117	45.0	76.5
Mankessim	359 (63.3)	181(69.9)	50.4	107	84	23.4	46.4
Other	237 (62.3)	76 (66.7)	32.1	51	44	18.6	57.9
Total	1,326 (69.7)	752 (75.0)	56.7	505	425	32.1	56.5

Overall Total 1,902 * 1,003!

*1914-1902=Missing values; ! 1004-1003=Missing value; Percentages in columns a and b are row percentages, NB: Total for Age not equal to 1326 because of missing values.

Source: Field data (2012 & 2014)

Table 22: Association of Prenatal Intention and PPFU Use

		Actual use of PPFU			Odds	95%CI
					Ratio	
		Yes (%)	No (%)	Total	2.78	(2.07-3.74)***
Intention to use PPFU	Yes	42.4	32.6	752		
	No	8.0	17.0	251		
Total		505	498	1,003		

***p<0.001, Pearson Chi Square= 45.7 at p<0.001

Source: Field data (2014)

Seventeen percent of the women had no intention to use PPFU whilst pregnant and still had not used it. These were mostly younger (20-24 years), had attained tertiary education and were married under the traditional system. They were also likely to belong to the traditional religion and had had 1-2 children (Table 23).

Table 23: Prenatal FP Intentions and PFPF Outcomes of Women

	Had intention and used PFPF	Had intention and did not use PFPF	Had no intention but used PFPF	Had no intention and did not use PFPF	Total
<i>Age</i>	$\chi^2 = 63.4^{***}$				
15-19	45.6	36.7	7.7	10.0	90
20-24	34.4	34.9	4.7	26.0	271
25-29	34.2	38.4	8.9	18.5	281
30-34	48.5	27.2	6.3	17.9	210
35-39	50.0	25.8	15.9	8.3	111
40+	65.0	30.0	2.5	2.5	40
<i>Education</i>	$\chi^2 = 58.2^{***}$				
none	39.8	42.2	3.6	14.5	133
Primary	43.0	43.5	4.7	8.9	214
Middle/JSS	46.4	27.1	9.9	16.6	543
SSS/SHS/Voc.	28.6	31.9	8.4	31.1	83
Tertiary	31.8	31.8	6.8	29.6	30
<i>Religion</i>	$\chi^2 = 14.5!$				
Christian	42.6	32.5	8.1	16.9	934
Muslim	42.1	27.6	9.2	21.1	54
Traditionalist	25.0	25.0	0.0	50.0	4
Other	35.3	64.7	0.0	0.0	11

Table 23 continued

<i>Occupation</i>	$\chi^2 = 69.4^{***}$				
Fishmonger	40.6	36.2	11.6	11.6	136
Farmer	21.2	69.7	0.0	9.1	33
Petty trader	51.7	25.1	8.0	15.3	515
Civil/Public servant	27.9	43.2	8.1	20.7	44
Student	43.8	18.8	12.5	25.0	32
Other	32.5	39.5	7.4	20.6	243
<i>Parity</i>	$\chi^2 = 171.4^{***}$				
0	-	-	-	-	-
1--2	31.9	36.8	5.3	26.1	553
3--4	45.3	34.4	13.0	7.3	331
5+	84.0	6.7	5.9	3.4	119
<i>Marital status</i>	$\chi^2 = 57.8$				
Married(Ordinance)	52.1	20.7	8.5	18.8	132
Married (Traditional)	41.7	30.4	8.5	19.4	434
Engaged	31.3	45.4	7.9	15.4	140
Cohabitation	60.3	32.9	2.7	4.1	173
Divorced/Sep	20.0	80.0	0.0	0.0	5
Single	34.2	36.8	10.5	18.4	119

Table 23 continued

<i>Residence</i>	$\chi^2 = 86.7^{***}$				
Saltpond	39.2	30.7	10.4	19.6	296
Biwira	41.5	48.2	3.0	7.4	135
Anomabo	65.4	20.1	7.3	7.3	199
Mankessim	32.4	37.5	8.9	21.2	259
Other	38.6	28.1	6.1	27.2	114
Total (%)	42.4	32.6	8.0	17.1	100
Total (Number)	425	327	80	171	1,003

***P<0.001, !P>0.05; Percentages are row percentages

Source: Field data (2014)

Timing and Preferred Postpartum Contraceptive Methods

The mean time of adoption was 3.5±2.7months after delivery. Among the women who had used PFP, sixty-six percent had used a method within the first three months after birth, with the frequency of use decreasing towards the end of the extended postpartum period and beyond (Table 24).

The most used PFP methods were the male condoms (33.7%), followed by the injectables (30.3%) and the pills (20.6%) as reported in Table 25. This was largely consistent with their prenatal PFP preference where the most preferred methods were injectables, pills and Lactational amenorrhoea method (LAM).

Table 24: Timing of PFP Use Following Delivery

Time of PFP use (Months)	Frequency	Percent
0-3	276	65.4
4-6	96	22.8
7-9	35	8.3
10-12	12	2.8
>12	3	0.7
Total*	422	100

*missing values (505-422)

Source: Field data (2014)

Table 25: Postpartum FP Methods Used by Women Following Birth

Methods used	Frequency	Percent
Pills	109	20.6
Injectables	160	30.3
Implants	32	6.1
Male condom	179	33.7
Female sterilization	14	2.7
LAM	11	2.1
Periodic abstinence	13	2.4
Withdrawal	11	2.1
Total*	529	100

*Deviation from total who used PFP methods due to some respondents using a combination of some methods

Source: Field data (2014)

Suitability of method to client (83%) was the main driving force behind choices of particular PFP methods by the women (Table 26).

Table 26: Reasons for Method Choices

Reasons for choice of method	Frequency	Percent
It is suitable for me	435	82.8
It has fewer side effects	19	3.6
My partner endorsed it	25	4.8
provider chose it for me	46	8.8
Total*	525	100

*Deviation from total who used PFP due to multiple responses

Source: Field data (2014)

Predictors of Actual Postpartum Family Planning Use

Women's uptake of postpartum family planning may be influenced by facility of delivery, pregnancy outcomes, postpartum contraceptive behaviours (breastfeeding, amenorrhoea and sexual abstinence), fertility preferences, postpartum spousal discussion, advocacy about family planning, PFP intention and background characteristics. Information about these variables were ascertained and analysed using logistic regression models to determine which of them strongly predicted women's postpartum family planning uptake. Three multiple logistic regression models were constructed using PFP use as the dependent variable in all cases. Model 1 used PFP intention and background characteristics as

independent variables, whilst Model 2 used PPFPP intention, facility of delivery, pregnancy outcomes, postpartum contraceptive behaviours (breastfeeding, amenorrhoea and sexual abstinence), postpartum spousal discussion and advocacy about family planning as independent variables. The most significant factors that emerged ($p < 0.05$) from models 1 and 2 were selected and used as independent variables in Model 3 to determine the predictors of PPFPP.

In Model 1, prenatal (postpartum family planning) intention was a strong predictor of postpartum family planning use. A pregnant woman with an intention to use PPFPP, was 3.34 times more likely to use family planning in the postpartum period compared to one who did not have an intention to [AOR¹ 3.34 95% C.I.(2.09-5.35)]. Education, occupation, parity and preferred number of children also influenced PPFPP use: Women with tertiary education were 5 times more likely than those without any formal education to use PPFPP [AOR¹ 5.39, 95% C.I (1.20-24.25)]. For occupation, farmers were less likely [AOR¹ 0.04, 95% C.I (0.004-0.28)] whilst petty traders were more likely [AOR¹ 2.31, 95% C.I (1.01-5.25)] than fishmongers respectively to use PPFPP. Women with two children or more had higher odds of using PPFPP compared to those who had two children. The odds was about 13-times higher for grand-multiparous (5+children) women [AOR¹ 53.48, 95% C.I (20.48-139.64)] compared to those with 3-4 children [AOR¹ 4.18, 95% C.I (2.45-7.11)]. Also with preferred number of children, women who preferred five children or more were 13 times more likely to adopt PPFPP than those who preferred two or less children (Table 27)

Table 27: Logistic Regression of Socio-Demographic Characteristics, Postpartum Behaviours and Postpartum Contraceptive Use

Independent variables	Dependent variable: Postpartum contraceptive use		
	MODEL 1	MODEL 2	MODEL 3
	OR(95%CI)	OR (95%CI)	OR(95%CI)
<i>PPFP intention</i>			
Ref: No	1.00	1.00	1.00
Yes	3.34(2.09-5.35)***	2.85(2.06-3.96)	2.98(1.86-4.76)**
<i>Age (years)</i>		NA	-
Ref: 15-19	1.00		
20-24	1.09(0.31-3.81)		
25-29	1.06(0.30-3.73)		
30-34	0.83(0.23-3.05)		
35-39	1.67(0.41-6.78)		
40+	1.08(0.26-4.55)		

Table 27 continued

<i>Education</i>		NA	-
Ref: None	1.00		
Primary	1.61(0.65-4.01)		1.74(0.72-4.25)
Middle/JSS	1.85(0.79-4.31)		2.11(0.93-4.79)
SSS/SHS/Vocation	1.97(0.72-5.39)		2.28(0.85-6.07)
Tertiary	5.39(1.20-24.25)*		5.17(1.24-21.50)*
<i>Religion</i>		NA	
Ref: Christian	1.00		
Muslim	0.77(0.38-1.57)		
Traditionalist	-		
Other	0.26(0.03-2.11)		

Table 27 continued

<i>Occupation</i>		NA	-
Ref: Fishmonger	1.00		
Farmer	0.04(0.004-0.28)***		0.05(0.01-0.41)***
Petty trader	2.31(1.01-5.25)		2.28(1.01-5.18)*
Civil/Public servant	1.11(0.35-3.49)		1.24(0.42-3.72)
Student	4.33(0.96-19.51)		3.30(0.77-14.09)
Other	1.77(0.74-4.21)		2.01(0.85-4.79)
<i>Residence</i>		NA	
Ref: Saltpond	1.00		-
Biriwa	1.04(0.45-2.39)		
Anomabo	1.54(0.80-2.97)		
Mankessim	0.71(0.42-1.18)		

Table 27 continued

<i>Marital status</i>		NA	-
Ref: Married (Ordinance)	1.00		
Married (Traditional)	1.19(0.68-2.09)		
Engaged	0.85(0.43-1.68)		
Co-habitation	0.91(0.39-2.15)		
Divorced/Separated	-		
Single	0.38(0.09-1.61)		
<i>Parity</i>		NA	
Ref:0-2	1.00		1.00
3—4	4.18(2.45-7.11)***		4.26(2.67-6.80)***
5+	53.48(20.48-139.64)***		52.25(22.08123.64)***

Table 27 continued

		NA	
<i>Fertility preference</i>			
Ref:2	1.00		1.00
3	3.74(1.30-10.75)**		7.70(3.15-18.81)***
4	19.09(6.84-53.30)***		49.32(18.92-128.60)***
5+	54.28(15.61-188.79)***		126.25(38.15-417.86)***
<i>Breastfeeding</i>			
Ref:Yes	1.00		-
No		1.02(0.69-1.51)	
<i>Resumption of sex</i>			
Ref:Yes	1.00		
No		0.65(0.39-1.10)	

Table 27 continued

<i>Return of menses</i>		
Ref: Yes	1.00	
No	0.99(0.59-1.69)	
<i>Pregnancy outcome</i>		
Ref: Live	1.00	
Stillbirth	-	
Miscarriage	1.16(0.38-3.57)	
<i>Spousal discussion</i>		
Ref: Yes	1.00	1.00
No	0.46(0.32-0.66)***	0.76(0.45-1.28)
<i>Sort PFFP information</i>		
Ref: Yes	1.00	
No	1.44(1.01-2.07)*	0.91(0.54-1.55)

Table 27 continued

Advocate about PFP

Ref: Yes	1.00	
No	0.55(0.38 - 0.81)***	0.38(0.22-0.65)***
<i>Facility of delivery</i>		
Ref: Home	1.00	
Public Health Facility	0.97(0.43-2.19)	
Private Health Facility	-	
Maternity Home	-	

***p<0.001, ** p<0.01, *p<0.05

Source: Field data (2014)

Model 2 indicates that women who had prenatal PFP intentions were 2.85 times more likely to use PFP compared to those who did not have [AOR² 2.85, 95% C.I (2.06-3.96)]. The reduction of the odds ratio from 3.34 in Model 1 to 2.85 in Model 2 was due to the presence of behavioural variables (breastfeeding, sexual abstinence, spousal discussion advocacy for family planning and information seeking on FP) which had strong negative influence on intention than background characteristics in Model 1. This also indicates that intentions alone may not predict PFP use and that other factors are necessary in women's FP decisions. Women who had had spousal discussions, sort information or advocated about PFP respectively, had significant relationship with PFP use. Those who did not have any spousal discussion [AOR² 0.46, 95% C.I (0.32-0.66)] or advocate PFP to other women [AOR² 0.55, 95% C.I (0.38 - 0.81)] had lower odds of using PFP compared to those who had. Interestingly, women who had not sort information about PFP showed higher odds of using PFP [AOR² 1.44, 95% C.I (1.01-2.07)]. Resumption of sex, breastfeeding, postpartum amenorrhoea, delivery outcome and place of delivery did not have any significant relationship with PFP use (Table 27).

Model 3 deals with significant factors in models 1 and 2. The results indicate that women who had prenatal PFP intentions still had significantly higher odds of using PFP [AOR³ 2.98, 95% C.I (1.86-4.76)]. Women with tertiary education were 5.17 times more likely to use PFP compared to those without any formal education [AOR³ 5.17, 95% C.I (1.24-21.50)]. Also, farmers were less likely [AOR³ 0.05, 95% C.I (0.01-0.41)] whilst petty traders were more likely [AOR³ 2.28, 95% C.I (1.01-5.18)] to use PFP compared to fishmongers.

Women who did not advocate PFPF to other women were less likely to use PFPF [AOR³ 0.38, 95% C.I (0.22-0.65)]. Parity and preferred number of children also showed significant relationships with PFPF use (Table 27).

Table 28: Reasons for Use and Non-Use of PFPF

Reasons for use of PFPF	Frequency	Percent
Partner approval	133	33.2
Self-approval	265	66.1
Other	3	0.7
Total	401	100.0
Reasons for not using PFPF		
Got pregnant too soon	70	11.9
Partner resistance	56	9.5
Wanting to get pregnant as soon as possible	88	14.9
Child died soon after birth	19	3.2
Lack of interest in FP	171	29.1
Indecision	117	19.9
Other	68	11.5
Total	589	100.0

Source: Field data (2014)

In the prenatal period, the strongest determinants of women's intention to use PPF were self-approval, partner approval and past use of injectables. The main reasons for use of PPF were not very different from these. Two out of every three women gave self-approval as the main reason for using PPF. Lack of interest and indecision were the two main reasons given for not using PPF (Table 28).

Summary

This study revealed that if women had prenatal intention to use family planning within the extended postpartum period, they were more likely to translate intention into action. In addition, if they preferred certain methods, during the prenatal period, they were more likely to use those methods in the postpartum period. These findings are consistent with prevailing theories of health behaviour which consider an individual's intention to perform a behaviour as one of the most important precursors to actually carrying out the behaviour (Ajzen & Fishbein, 1980; Ajzen, 1985 & 1991; Piotrow et al., 1997; Fishbein, 2000) and also consistent with findings of Callahan and Becker (2012) in their study on contraceptive intentions and use in Bangladesh. It was also revealed that inconsistencies existed between stated intentions and subsequent use of contraceptives. Some women said they will not, but eventually did, whilst some who said they will, never did. The lesson is that intention alone may not be enough to predict behaviours. There is the need to identify women with intention and follow and encourage them to do so during the postnatal period. Behavioural

change communication needs to be targeted at women whose stated intentions are inconsistent with subsequent behaviour.

In this study, reasons given by women for not using PFFP included not interested in family planning, too early after delivery to decide on family planning, wanted to get pregnant as soon as possible, got pregnant too soon, partner disapproved of family planning and the loss of their child (Table 28) and reflect the dynamism of contraceptive use intention. For those who used PFFP, some influencing factors that were found in this study were women's self-approval and motivation, partner approval, higher educational status of women (tertiary level), high parity (5+ children), motivation to advocate for family planning and preference for large families. Self-approval and motivation by women is emerging as a window of opportunity that postpartum family planning programmes need to tap into. It indicated that there are some women who do not need consent from their partners to use family planning in the country. This notwithstanding, spousal engagement in family planning will help reinforce the self-motivation to improve contraceptive uptake.

CHAPTER SEVEN
SEX COMPOSITION OF CHILDREN EVER BORN AND
INTENDEDNESS FOR POSTPARTUM FAMILY PLANNING AND
POSTPARTUM CONTRACEPTIVE USE AND FERTILITY
BEHAVIOURS

Introduction

This chapter presents and discusses two topical postpartum issues:

- (1) The implications of sex composition and the intention to use and use of postpartum family planning within the context of sex preference; and
- (2) Postpartum behaviours of breastfeeding and sexual abstinence in relation to postpartum contraceptive behaviour and how critical this information is in identifying women who are susceptible to unintended pregnancy

Sex composition of children has been observed to influence use of family planning within patriarchal societies (Calhoun et al., 2013). In the southern sector of the country where the matrilineal Akans account for nearly half of the population (Assimeng, 1981; Oppong, 1981; Nukunya, 2003; Ghana Statistical Service, 2013), sex composition could similarly influence use of family planning. Fuse (2010) has observed that in Ghana sex preference is predominantly for balance (47%), followed by daughter preference (21%) and then son preference (19%). This study carries the debate a step further, by examining sex composition and its influence on classification of a pregnancy as intended or not and the

intention to use and use of postpartum family planning among predominantly matrilineal women in the Mfantseman Municipality.

Among the matrilineal Akans, there are statements to the effect, you are doomed if you do not have a sister, implying that will be the end of the lineage. Although matrilineal, it has elements of patriarchy. For instance, in most cases the heads of matrilineal clans are males. Under the matrilineal system, relations consist of uterine siblings (Awusabo-Asare, 1990) and that although, a woman, her husband and their children are distinguished as a linked group (nuclear and conjugal), their functioning as a social group is less clearly defined. As a rule, the conjugal family is not the most effective social unit (Bleek & others, 1987) because a number of activities are organized around the lineage as well as at the conjugal level (Bleek et al., 1987; Caldwell & Caldwell, 1987). For instance, issues such as marriage and inheritance are organized with the view of the woman contributing to the continuity of the matrilineal clan (Oppong, 1981; Lockwood, 1995); hence, a woman who gives birth to ten children, was expected to give a ram to the husband, for assisting her to add ten children to the matrilineal clan. Among the patrilineal Ga-Adangbe, the ram is from the man to the woman for increasing the patrilineal clan by ten children.

Women are defined as insusceptible to pregnancy following a birth if they are not at risk of conception because they are amenorrhoeic or abstaining from sex. The period of insusceptibility, which is influenced by sexual abstinence and breastfeeding, lengthens the time until the next birth. Use of contraception within this period offers extra protection against the risk of pregnancy (Gebreselassie et

al., 2008). The length and intensity of breastfeeding and the length of amenorrhea and sexual abstinence vary among women and within societies. In this respect postpartum behaviours need to be understood in relation to the contraception behaviours of women especially in a setting such as the Mfantseman Municipal area.

In Ghana, the duration of breastfeeding can vary from 6 weeks to over one year and abstinence for up to two years. It is observed that in developed countries some women do not breastfeed at all, and for those who breastfeed, duration of breastfeeding is short. In contrast, among traditional societies in developing countries, duration of breastfeeding is longer; sometimes lasting till the next pregnancy occurs (Bongaart, 1978). Haggerty and Rutstein (1999), observed that in traditional societies, median duration of postpartum amenorrhea for mothers who did not breastfeed their children was 3 months whilst that of those who exclusively breastfeed their children was 14 months. In Egypt, Darwish and Sahn (1991) found that 31 percent of breastfeeding mothers were still amenorrheic at 6 months Postpartum.

Sex Composition of Children

The association between sex composition and reproductive health behaviours and outcomes such as FP use and pregnancy intendedness has been the commonly used approach to studying son preference (Calhoun et al., 2013). Sex composition was defined by each woman's number of living children and the sex of the children. Based on these considerations, sex composition was

conceptualized into the following: daughters only, sons only, more daughters than sons, more sons than daughters and Equal number of daughters and sons. The understanding of fertility motivations are influenced by the value of children in demographic research. According to Williamson (1976), this value of children scheme is important when considering issues about sex preferences. Williamson outlines conditions that influence preference for sons, equal numbers of sons and daughters, a predominance of daughters and a lack of sex preference. A strong son preference is characterised by economic, social and psychological conditions (Gray & Evans, 2004) . Parents will have a strong son preference if, economically, sons are more productive than daughters. This includes providing for parents in old age, bringing a dowry to the family once married, or if boys have more opportunities for advancement. The social conditions for son preference include: a system of patrilineal families and patrilocal residences; where continuity of the family line or name is important; where there is inter-group conflict; where social or religious customs require sons; and, in rural communities. The psychological reasons given for boy preference are to provide companionship for fathers, to provide status, security, and influence (Gray & Evans, 2004).

The conditions influencing girl preference are also economic, social and psychological (Andersson & Woldemicael, 2001). In economic terms, daughters are preferred if women are considered more productive than men, if girls bring a bride price, or if daughters support parents in old age. Socially, a matrilineal family system supports daughter preference, whereas psychologically, daughters are preferred if they are more rewarding companions or if there is social

competition between fathers and sons (Gray & Evans, 2004). Preference for sex balance is also associated with the assumption that boys and girls will have different traits, strengths, leisure activities, and interests (Williamson, 1976).

As traditional gender-role attitudes shift to expectations of shared roles there is a weakened effect of sex of existing children because boys and girls are substitutable. Evidence exists that as societies modernize, sex preference declines (Bongaarts, 2001; Pollard & Morgan, 2002), thus, making mixed sex composition preferable. A preference for both a son and a daughter suggests that boys and girls are viewed as providing different benefits to parents (Gray & Evans, 2004).

Results of this study showed that 35 percent of the women were pregnant for the first time. Thirty five percent (35%) of the pregnant women did not have any child. Of those who had at least one child (consisting of 861 males and 792 females and sex ratio of 109), the average number of children per woman was 2.0 ± 2 . A third (31.2%) of these respondents had only sons, whilst a quarter (24.5%) had only daughters. Just over a tenth had children of both sexes but more daughters than sons (11.6%) and more sons than daughters (11.3%) respectively. A fifth (21.4%) of them had equal number of sons and daughters (Table 29).

Sex Composition, Pregnancy Intendedness and Intention to Use PFP

Bivariate descriptive analysis of sex composition and unintended pregnancy, PFP intention and PFP use were carried out as presented in Table 29. Women with only sons had the lowest levels of unintended pregnancy (58%) and PFP intention and use (33.3%). Unintended pregnancy was common among

women with more sons than daughters (82.1%) whilst intention to adopt PFPF was common among those with more daughters than sons (83.3%). For PFPF use, women with equal numbers of males and females had the highest prevalence (56.5%) (Table 29).

Table 29: Family Sex Composition, Pregnancy Intendedness and PFPF Intentions

Demographic Characteristics	Sample Size (N)	Percent of total sample size (%)	Overall Pregnancy intendedness (Unintended) (%)**	PFPF Intention (Yes) (%)*	PFPF use (Yes) (%)!
<i>Sex Composition</i>					
Only daughters	254	24.5	64.2	77.6	45.1
Only sons	323	31.2	57.9	74.6	33.3
More daughters than sons	120	11.6	76.7	83.3	33.9
More sons than daughters	117	11.3	82.1	76.9	48.4
Equal number of sons and daughters	222	21.4	72.5	76.6	56.5
TOTAL	1,036#	100	67.47	77.0	44.9

.**p<0.001 for pregnancy Intendedness and *p>0.05 for PFPF intention.
 #Differences observed between these and original total of 1,914 are due to missing values which arose due to poor and incomplete responses !815 respondents out of 1004 in Phase 2 provided responses for computation of sex composition.
 Percentages in columns 4, 5 and 6 are row percentages

Source: Field data (2014)

To examine the influence of sex composition on reproductive health outcomes and behaviours (unintended pregnancy and PFPF intention and use) three logistic regression models were fitted: Model A (sex composition and pregnancy intendedness); Model B (sex composition and PFPF intention and Model C (sex composition and PFPF use) (Table 30)

There was no significant relationship between sex composition of children and intention to adopt PFPF, but with unintended pregnancy and PFPF use. Women with only sons had lower odds of classifying their pregnancy as unintended (OR_a 0.52, 95%CI 0.36-0.75) and higher odds of using PFPF (OR_b 2.60, 95%CI 1.07-6.33) compared to those with equal number of sons and daughters. Also, women with more daughters than sons were 2.5 times more likely to use PFPF than those with equal number of sons and daughters (OR_c 2.53, 95%CI 1.75 – 3.65).

Concept of Breastfeeding and Sexual Abstinence as Elements for Spacing

In the second Phase of the survey, the women were asked whether they had breastfed their babies after birth and the duration; and also whether they had resumed sex and for how long after birth they had abstained from sex following the last birth. The responses are summarized in Tables 31 and 32. Seventy-eight percent of the follow up women reported that they had breastfed their babies within the first year after their last birth, whilst 88 percent had reported resuming sex within the first year since their last birth.

Table 30: Sex Composition and Women's Reproductive Health Outcomes

	Model A: Sex composition and unintended pregnancy	Model B: Sex composition and PFPF intention	Model C: Sex composition and PFPF use
<i>Sex Composition</i>	OR _a (95%CI)	OR _b (95%CI)	OR _c (95%CI)
Equal number of sons and daughters (REF)	1.00	1.00	1.00
Only daughters	0.68(0.46 -1.00)	1.05(0.69 -1.62)	1.58(0.86-2.91)
Only sons	0.52(0.36 - 0.75)***	0.90(0.60 -1.34)	2.60(1.07 - 6.33)*
More daughters than sons	1.24 (0.74 - 2.09)	1.53(0.86 -2.71)	2.53(1.75-3.65)***
More sons than daughters	1.73 (0.99 -3.02)	1.02(0.60 -1.73)	1.39(0.96 - 2.00)

Significance = ***p<0.001 **p<0.01 *p<0.05

Source: Field data (2014)

The lowest proportion of breastfeeding was recorded among women forty years and above (56.7%) and those married under the ordinance system (59.2%) whilst the highest was among women aged 20-24 years (85.4%) and those cohabiting (85%).

Although breastfeeding amongst the women was generally high by education, parity, religion, facility of delivery and intention to adopt PFFP categories, they were highest among women with tertiary education (89%), fishmongers, (94.2%); those who delivered in private facilities and maternity homes (100%) and those who had no intentions to adopt PFFP (88.1%). Breastfeeding was lowest among women with primary education (70.6%), petty traders (70.1%), those who delivered in public health facilities (76.2%) and those who intended to adopt PFFP (Table 31).

Over 80 percent of the women by age groups had resumed sex at the time of the survey. There were no significant differences in the observations made ($\chi^2 = 4.7, p < 0.50$). As expected, the lowest proportion of women who had resumed sexual relationships were among those separated or divorced (20%), whilst the highest proportions were observed among those who were cohabiting (99%) ($\chi^2 = 90.4, p < 0.001$). The proportion of women who had resumed sexual relationships was lowest among farmers (52%) and women who delivered in private facilities (2.4%) (Table 31).

Table 31: Breastfeeding and Sexual Abstinence by Background Characteristics

	Breastfed within a	Resumption of sex	Total Number
	year after last birth	within a year since	
		last birth	
	Yes	Yes	
	% (Number)	%(Number)	
<i>Age (Years)</i>	$\chi^2 = 19.2, p < 0.001$	$\chi^2 = 4.7, p < 0.50$	
15-19	84.9(28)	90.9 (30)	33
20-24	85.4(164)	86.5 (166)	192
25-29	83.6(235)	90.4 (254)	281
30-34	72.8(195)	86.2 (231)	268
35-39	78.8(104)	88.6 (117)	132
40+	56.7(55)	83.5 (81)	97
<i>Marital Status</i>	$\chi^2 = 55.2, p < 0.001$	$\chi^2 = 90.4, p < 0.001$	
Married (Ordinance)	59.2 (126)	94.8 (202)	213
Married (Traditional)	82.5 (358)	91.2 (396)	434
Engaged	83.3(200)	73.3 (176)	240
Cohabitation	84.9 (52)	98.6 (72)	73
Divorced/Separated	80.0 (4)	20.0 (1)	5
Single	81.6 (31)	84.2 (32)	38

Table 31 continued

<i>Education</i>	$\chi^2 = 21.6, p < 0.001$	$\chi^2 = 18.4, p = 0.001$	
None	88.0 (73)	73.5 (61)	83
Primary	70.6 (151)	86.5 (185)	214
Middle/JSS	76.2 (414)	89.8 (488)	543
SSS/SHS/Voc	87.4 (104)	89.1 (106)	119
Tertiary	88.6 (39)	88.6 (39)	44
<i>Parity</i>	$\chi^2 = 199.0; p < 0.001$	$\chi^2 = 25.0, p < 0.001$	
0	100.0 (4)	100.0 (4)	4
1-2	87.7 (435)	89.3 (442)	495
3-4	84.0 (278)	81.0 (268)	331
5+	87.6 (65)	95.4 (165)	173
<i>Religion</i>	$\chi^2 = 2.4, p < 0.50$	$\chi^2 = 20.9, p < 0.001$	
Christian	77.5 (702)	87.9 (796)	906
Muslim	84.2 (64)	92.1 (70)	76
Traditionalist	75.0 (3)	100 (4)	4
Other	70.6 (12)	52.9 (9)	17
<i>Occupation</i>	$\chi^2 = 50.9, p < 0.001$	$\chi^2 = 49.9, p < 0.001$	
Fishmonger	94.2 (65)	78.3 (54)	69
Farmer	87.9 (29)	51.5 (17)	33
Petty trader	70.1 (361)	90.3 (465)	515
Civil/Public Servant	75.7 (84)	89.2 (99)	111
Student	75.0 (24)	84.4 (27)	32
Other	89.7 (218)	89.3 (217)	243

Table 31 continued

<i>Facility of delivery</i>	$\chi^2 = 19.2, p < 0.001$	$\chi^2 = 318.5, p < 0.001$	
Home	93.9 (31)	63.4 (21)	33
Public hospital/	76.2 (705)	92.3 (854)	925
Private hospital	100 (42)	2.4 (1)	42
Maternity home	100 (3)	100 (3)	3
<i>Intends to adopt FP</i>	$\chi^2 = 20.1, p < 0.001$	$\chi^2 = 2.42, p < 0.12$	
Yes	74.5 (560)	86.7 (652)	752
No	88.1 (221)	90.4 (227)	251
All Total	77.9 (781)	87.6 (879)	1,003

Percentages are row percentages

Source: Field data (2014)

Duration of Breastfeeding, Postpartum Amenorrhoea and Sexual Abstinence

Table 32 depicts the duration of breastfeeding, sexual abstinence and amenorrhoea in the postpartum period by background characteristics.

Duration of Breastfeeding

The overall median duration of breastfeeding among the women who breastfed was 6.6 months, with no substantial variation by mother's age. Youngest women (15-19 years) had the longest median duration of breastfeeding (7.2 months), whilst the shortest of 6.2 months was found among those 25-29 years.

Table 32: Median Duration (Months) of Breastfeeding, Sexual Abstinence and Postpartum Amenorrhoea

	Breastfeeding	Sexual abstinence	Amenorrhoea
Overall Median duration	6.6	4.4	7.8
<i>Age</i>			
15-19	7.2	6.8	7.1
20-24	6.5	4.7	7.6
25-29	6.2	4.1	7.8
30-34	6.7	4.5	7.7
35-39	6.6	4.1	8.5
40+	7.0	4.5	8.4
<i>Marital status</i>			
Married (Ordinance)	5.5	4.4	6.8
Married (Traditional)	6.8	4.5	7.6
Engaged, yet to marry	7.5	4.3	9.0
Co-habitation	6.1	3.0	8.5
Divorced/Separated	2.3	12.0	2.8
Single	6.0	7.3	7.4
<i>Education</i>			
None	7.5	4.2	9.0
Primary	7.7	4.8	8.0
Middle/JSS	6.1	4.3	7.6
SSS/SHS/Vocation/Tertiary	6.5	4.4	8.0

Table 32 continued

<i>Religion</i>			
Christian	6.5	4.5	7.9
Muslim	6.2	4.3	6.7
Traditionalist	4.7	2.3	6.5
Other	9.5	3.5	9.9
<i>Parity</i>			
1-2	6.3	4.5	7.6
3-4	7.4	4.2	8.7
5+	5.7	5.0	6.7
<i>Occupation</i>			
Fishmonger	7.6	4.6	9.2
Farmer	10.2	5.1	11.1
Petty trader	6.4	4.2	7.4
Civil/Public servant	6.5	4.7	7.3
Student	6.5	6.0	7.9
Other	6.2	4.3	8.1
<i>Facility of delivery</i>			
Home	7.0	4.6	8.2
Public hospital/	6.2	4.4	7.6
Private hospital	13.8	4.0	12.9
Maternity home	6.0	3.0	12.0

Table 32 continued

<i>Family planning intention</i>			
Yes	6.8	4.5	7.8
No	5.9	4.3	7.9

Source: Field data (2014)

Differences existed by marital arrangements. The shortest median duration of breastfeeding (2.3months) was observed among women who were divorced or separated, whilst the longest was among those who were engaged but yet to marry (7.5months). The difference in median duration of breastfeeding among women who were married by ordinance and those married traditionally was 1.3 months (5.5 versus 6.8 months respectively)

There is a general trend towards declining median duration of breastfeeding as educational level increased. The women who had no formal education and those with primary education breastfed for at least a month longer than those with higher levels of education (Table 32). Traditionalists and grand-multiparous women (5+) breastfed for shorter durations (4.7 and 5.6 months) among the major religions and parity groups respectively,

Women who delivered at private health facilities breastfed for at least 5 months longer than those who delivered at public facilities and maternity homes. Furthermore, women who had prenatal intentions to use family planning breastfed nearly a month longer than those who did not have any prenatal intentions

Duration of Postpartum Amenorrhoea

The overall median duration of amenorrhoea among the women was 7.8 months. Although no major differences were observed among age groups, there was an increasing trend towards increasing median duration of amenorrhoea as age increased. Among the different marital arrangements, women who were divorced or separated had the shortest duration of amenorrhoea (2.8 months). Those who were engaged and yet to marry had the longest duration of amenorrhoea (9 months). As educational level increased, median duration of amenorrhoea tended to decrease. Those with no education had duration of amenorrhoea at least a month longer than those with some education.

Traditionalists and grand-multiparous women had the shortest durations (6.7 months) of amenorrhoea amongst the major religious and parity groups. Women who delivered at private facilities had durations of amenorrhoea at least 5 months longer than those who delivered in public health facilities. No major differences in durations of amenorrhoea were observed among women who had or had no prenatal intention to use family planning.

Duration of Postpartum Sexual Abstinence

The overall median duration of sexual abstinence was 4.4 months amongst the women. As age increased, the median duration of sexual abstinence generally decreased. Women aged less than 20 years had at least 2-month duration of sexual abstinence longer than those aged 20 years and above. The women who were

divorced / separated or single had relatively longer durations of sexual abstinence (12 – and 7.3 - months) respectively than those with other marital arrangements.

Traditionalists had the shortest median duration of sexual abstinence. The duration was about 2 months shorter than those of Christians and muslims. Grand-multiparous women had the longest duration of sexual abstinence amongst the different parity groups. There were no major differences in durations of sexual abstinence by educational status, facility of delivery and prenatal family planning intentions.

Postpartum Contraceptive Use Before and After Susceptibility

Women are considered insusceptible if they are not exposed to the risk of pregnancy because they are either amenorrheic or abstaining from sexual intercourse after a birth. The duration of postpartum insusceptibility is the longer of the two (Gebreselassie et al., 2008). Table 33 shows the median time of insusceptibility, time of postpartum contraceptive use and number of women who used contraceptives before and after susceptibility.

Postpartum women who used contraceptives during the period of insusceptibility to pregnancy are considered to be those who reported using a method while they were either amenorrheic or abstaining at the time of the survey. On the other hand, those who used contraception after they became susceptible to pregnancy are those who reported using a method while they were neither amenorrheic nor abstaining at the time of the interview (Gebreselassie et al., 2008). As shown in Table 33, women who used contraceptive methods in the

postpartum period from 0-9 months did so before they became susceptible to pregnancy. These women constituted the majority (96.5%). Very few (3.5%) of the women used contraceptives after they had become susceptible to pregnancy. These women used contraceptives at least a month into their period of susceptibility.

Summary

The reported sex composition of children ever born among the women was skewed towards males. Sex ratio of children ever born for the group was 109. In the study, women with only sons were significantly less likely to be carrying unintended pregnancies at the time of the survey. The fact that these same group of women were found to be the more likely to use PFFP may explain the reported low unintended pregnancy among them. This group of women may have satisfied an underlying preference for sons and may not want any more children. This is in contrast to findings made by Calhoun and colleagues in which families with only sons were significantly less likely to want no more children and used FP less (Calhoun et al., 2013).

Despite underlying son preference observed in the study, such women may not have any overall preference for male children (Bhatia, 1984). Therefore, any additional pregnancy may be intended, to satisfy the sex composition of their children. This is because both girls and boys are valued in a system which is matrilineal but has patriarchal elements ((Rajaretnam & Deshpande, 1994; Jain, 1999; Edmeades et al., 2012; Calhoun et al., 2013; Edmeades et al., 2012).

In this study, women with more daughters than sons reported high levels of unintended pregnancy, expressed the highest intention to use PPF (Table 29) and were more likely to use PPF. It is possible that these women may have satisfied the sex composition of their children and therefore any additional pregnancy may not be wanted. Calhoun and colleagues also found that women with more daughters than sons were less likely to have no more children and use FP less (Calhoun et al., 2013). Women with more sons than daughters also reported high levels of unintended pregnancy because they probably had satisfied the sex composition of their children. However, this group of women showed no significant association with PPF use. Family planning programmes need to be mindful of these women for education and counseling.

Sex composition of children is not significantly associated with intention to use contraceptives postpartum and therefore does not influence it. This study has revealed that in the Mfantseman Municipality, despite the persistence of more sons than daughters ever born, the preference is for sex balance in a predominantly matrilineal inheritance system. Furthermore, sex composition of children was significantly associated with pregnancy intendedness and PPF use but not with postpartum family planning intention. The next chapter discusses postpartum behaviours (breastfeeding, sexual abstinence and amenorrhoea) and their relationship with postpartum contraceptive use.

Background, Socio-cultural and environmental factors influence significantly a woman's decision to breastfeed (Brand, Kothari, & Stark, 2011). Contrary to findings of other studies which showed that breastfeeding was common among older women 30 years and over (Renfrew et al., 2012), this study

found that the proportion of women who breastfed was highest among younger women 20 -24 years and lowest among those forty years and over. The youthful population in the Mfantseman Municipal may partly explain the picture; however, further studies need to be carried out to identify the reasons for this observation.

Marital status also affects breastfeeding rates, initiation and duration (Brand et al., 2011). In this study, breastfeeding rates were higher among cohabiting than women married under the ordinance system. This contrasts other studies where married women had higher rates of breastfeeding compared to unmarried women (Chin, Myers, & Magnus, 2008; Thulier & Mercer, 2009). Factors within ordinance marriages that influence breastfeeding in this setting are not clear and need to be investigated especially because of available evidence that if a woman views breastfeeding positively, and has support from her partner, she will be more likely to breastfeed (Persad & Mensinger, 2008).

Health-care workers, especially nurses and doctors play important and integral roles during the immediate postpartum period in helping mothers through individualized, interactional techniques to initiate and sustain breastfeeding (Taveras et al., 2003; (Swanson & Power, 2005; Persad & Mensinger, 2008; McInnes & Chambers, 2008). The finding in this study that women who delivered in private hospitals and maternity homes have higher rates of breastfeeding than those who delivered in public health facilities may be explained by the fact that health care workers in private hospitals and maternity homes in the Mfantseman Municipal have adequate time to counsel and educate women at antenatal and immediate postpartum periods because of relatively less patient loads compared to

the public health facilities which handle relatively high patient loads. This however needs to be confirmed by further inquiry. This finding is in contrast with those of other studies in Ghana and Nigeria which have found the performance of breastfeeding among mothers delivering in public facilities to be better than those who delivered in private health facilities (Aidam, Perez-Escamilla, Lartey, & Aidam, 2005; Ukegbu, Ukegbu, Onyeonoro, & Ubajaka, 2011). Higher education has been shown to influence positively health outcomes in several studies. The finding in this study that higher education favours high rates of breastfeeding is consistent with other studies (Chin et al., 2008; Chalmers et al., 2009)

When women fully or nearly fully breastfeed and remain amenorrheic then it is effective as a postpartum contraceptive method and offers over 98% protection against pregnancy in the first six months postpartum (Trusell, 2011). When the period of sexual abstinence exceeds the period of amenorrhoea, it offers additional protection against pregnancy. The median duration of amenorrhoea (7.8 months) in this study exceeds that of breastfeeding (6.6 months) by 1.2 months; indicating that on the average, women in the Mfantseman Municipal exclusively breastfed, remained amenorrheic and hence unsusceptible to pregnancy for at least the six months period recommended by WHO for exclusive breastfeeding. This far exceeds the median duration of exclusive breastfeeding of 3-months in Ghana (GSS & Macro, 2009). This notwithstanding, women who are divorced/ separated need to be targeted for education on breastfeeding because their duration of breastfeeding and amenorrhoea were the shortest (2.3 months) thus putting them at risk of unintended pregnancies.

Exposure to the risk of pregnancy in the postpartum period can be influenced by sexual abstinence. Postpartum sexual abstinence tends to have additional contraceptive benefits if the duration of abstinence exceeds that of postpartum amenorrhea (Gebreselassie et al., 2012). The median duration of postpartum sexual abstinence of 4.4 months although longer than in other cultural settings (3.4 months in Kenya, 2.0 months in Indonesia, 2.1 months in the Dominican Republic, and 2.9 months in Peru) (Gebreselassie et al., 2012), is shorter than observed in Ghana (7.5 months) (GSS & Macro, 2009) and shorter than the periods of insusceptibility. This relatively short duration of sexual abstinence in the Mfantseman Municipal, is inadequate to prevent unintended pregnancies among women who: never use contraceptives; use contraceptives late; have shorter periods of amenorrhoea; and exclusively breastfeed or who never breastfeed at all.

Among women who used contraceptives postpartum, over 95% of them did so when they were insusceptible to pregnancy. This indication of early uptake of contraceptives at a time when women are not at risk of pregnancy makes it even more imperative for integration of family planning services and childhood immunization services.

family planning in the postpartum period into actual use. Data from the study is based on a prospective panel study carried out in two Phases and involved interviewing women during the antenatal period and up to two years after delivery. As part of the process, several theories of behaviour change were reviewed, among them, the steps-to-behaviour change model, Bongaarts framework for analyzing determinants of fertility, theory of planned behaviour and the postpartum use of contraceptives & postpartum behaviours framework. This chapter highlights the main findings, conclusions, policy implications, policy recommendations and contributions to knowledge.

Key Findings of the Study

Phases 1 and 2 consisted of women of similar background characteristics. In both Phases, the women were mainly below 30 years, Christian, married under the traditional system, were petty traders, had mostly attained middle school/JSS education and had mostly up to two children. Seventy percent of the women reported that the pregnancies they were carrying were unintended, with 39 percent being mistimed and 31 percent unwanted. Unintended and unwanted pregnancies were higher among those less than 20 years and 40 years or more whilst mistimed pregnancy was higher among those aged 20-24 years. Unintended and unwanted pregnancies among women with no formal education were 2.5 and 10 times those among women with tertiary education respectively. Unintended pregnancy was high among all religious groups, but relatively higher among the traditionalists and relatively lower among Muslims and Catholics. Single or never married women

had the highest unintended and unwanted pregnancies whilst those married under the ordinance system had the lowest. Unintended pregnancies were higher among students, those in the informal sector, rural dwellers and those with higher parity (5+) than civil/public servants, semi-urban dwellers and those with lower parity. Predictors of unintended pregnancy included higher parity, other forms of marital arrangements (apart from ordinance marriage), not living with partners, and non-awareness of traditional methods of contraception.

The most known methods of contraception were the male condoms, injectables, female condoms and the pill; whilst the least known were the foam, diaphragm and intrauterine device (IUD). Women aged 15-19 years, who had no formal education, had no children, were single, divorced, separated or students, were less likely to know about family planning methods compared to women aged 25-29 years, who had tertiary education, had at least a child, were married under the ordinance system and were civil/public servants. The withdrawal method was the most used whilst IUD was the least used in the past.

Seventy percent of the pregnant women expressed intention to use PPF. Women who were aged 15-19 years, were single, had never had any children, had tertiary education and were civil/public servants were less likely to express intention to use postpartum family planning compared to women who were aged forty years and above, had five or more children, had primary education and were divorced/separated who were more likely to express intention to adopt postpartum family planning. For modern family planning methods that women intended to use postpartum, injectables were the most preferred, followed by the pill and male

condom. Determinants of women's intention to use PPF included the perception of partner's acceptability of FP (AOR 4.42, 95%CI 3.25-6.01), personal conviction of acceptability (AOR 4.69, 95%CI 3.29-6.69), prior experience with using injectables (AOR 2.74, 95%CI 1.78-4.20) and pills (AOR 1.74, 95%CI 1.21-2.50), awareness of the diaphragm (AOR 0.59, 95%CI 0.44-0.80) as a contraceptive method or prior use of IUDs (AOR 0.22, 95%CI 0.06-0.76). Women who were cohabiting at the time of the survey exhibited higher odds of intending to use PPF compared to those who were married under the ordinance system (AOR 1.96, 95% CI 1.13-3.39).

Of the 70 percent of women in Phase 1 who expressed intention to use family planning, over half (50.4%) had used PPF at the time of the second Phase. This consisted of 42 percent of women who expressed prenatal intentions to use PPF and 8 percent of those who expressed no prenatal intention to use PPF. Thirty-three percent of women expressed prenatal intention to use PPF but did not whilst 13 percent expressed intention not to and did not. Despite the observed inconsistencies between prenatal intentions and actual PPF use, the odds of a woman using PPF given that she had a prenatal intention was about three times the odds of not using PPF ($p < 0.001$). The women who had used PPF at the time of the survey were more likely to be 35- 39 years (66%), attained mostly middle/JSS education (56%), had five or more children (88%), were Muslims (51%) and Christians (51%), were mostly cohabiting (63%), were petty traders(60%) and were likely to be from Anomabo (73%). Among the women who had used PPF, the mean time of PPF method use was 3.5 ± 2.7 months after

delivery, with male condoms, injectables and pills being the most methods used. Suitability of method to client (83%) was the main driving force behind choices of PFP methods by the women.

Prenatal intention [AOR 2.98, 95% C.I (1.86-4.76)], tertiary education [AOR 5.17, 95% C.I (1.24-21.50)], being a farmer [AOR 0.05, 95% C.I (0.01-0.41)] or petty trader [AOR 2.28, 95% C.I (1.01-5.18)] and Non- advocate of PFP [AOR 0.38, 95% C.I (0.22-0.65)] predicted PFP use. Parity and preferred number of children also showed significant relationships with PFP use. Self-approval and partner approval were the main reasons given for use of PFP. For women who had not used PFP, the main reasons for non-use were lack of interest in FP, indecision, wanting to get pregnant as soon as possible and getting pregnant too soon.

Sex composition of children ever born by the women was analyzed for its possible influence on wantedness of pregnancy intention to use and actual use of PFP. Thirty five percent of the pregnant women did not have any child. Of those who had at least one child, a third of them had only sons, whilst a quarter had only daughters. A little over a tenth had children of both sexes but more daughters than sons (11.6%) and more sons than daughters (11.3%) respectively. A fifth of the women also had equal number of sons and daughters. There was significant relationship between sex composition and unintended pregnancy and PFP use, but not with intention to adopt PFP. Women with only sons were less likely to have unintended pregnancy (OR 0.52, 95%CI 0.36-0.75) and more likely to use PFP (OR 2.60, 95%CI 1.07-6.33) than those with equal number of sons and

daughters. Also, women with more daughters than sons were 2.5 times more likely to use PFP than those with equal number of sons and daughters (OR 2.53, 95%CI 1.75 – 3.65).

Duration of breastfeeding among women who breastfed was 6.6 months, whilst, amenorrhoea was 1.2 months longer. Women who were divorced or separated had the shortest duration of breastfeeding (2.3 months) and amenorrhoea (2.8 months). The duration of postpartum sexual abstinence among the women was 4.4 months. This was longer than in other cultural settings but shorter than observed in Ghana (7.5 months). Among women who used contraceptives postpartum, over 95% of them did so when they were unsusceptible to pregnancy.

Conclusions

The level of reported unintended pregnancy was high (70%) and was influenced by higher parity, marriage (other than ordinance marriage), women not living with their partners, and non-awareness of traditional methods of contraception. Women who were aged forty years and above, had five or more children, had had primary education and were divorced or separated were more likely to express intention to adopt postpartum family planning. The positive predictors of women's intention to use postpartum family planning were the perception of partner's acceptability of FP (not background characteristics), personal conviction of acceptability, and prior experience with using injectables and pills. Negative predictors of intention to use postpartum family planning include past experience with use of intrauterine device (IUD) and awareness of the

diaphragm. Approval of PPF (by the woman and Partner) remains one of the strongest drivers of women's use of postpartum family planning in the municipality.

There was a relationship between women's intention to use postpartum family planning and their subsequent use in the extended postpartum period. Women with prenatal intentions to use postpartum family planning were three times as likely to do so as those who did not express such intention. Determinants of PPF use included intention to use PPF, higher education (tertiary), high parity (5+), preference for five children or more and being non-advocate for FP.

Sex composition of children born had no influence on intention to use PPF but influenced pregnancy intendedness and PPF use. Average timing of PPF use was 3.5 ± 2.7 months and among women who used family planning in the postpartum period, nearly all of them (95%) did so when they were unsusceptible to pregnancy. This is an additional protection against unintended pregnancy apart from that offered by the relatively long periods of exclusive breastfeeding and lactational amenorrhoea observed among women in the municipality.

It can be concluded from the key findings that women's prenatal intentions to use family planning in the postpartum period, reasonably predict their actual use and that this is more likely to occur if family planning is acceptable and approved by the woman and supported by the partner. In addition, the likelihood of postpartum family planning use is influenced by socio-cultural considerations such as the sex composition of children ever born in a predominantly matrilineal inheritance system.

Evaluation of Conceptual Framework

The social structure and fertility framework developed by Davies and Blake (1956) and the steps to behavior change model were adopted for the study to examine the intention to use and use of contraceptives postpartum among pregnant women in the Mfantseman Municipality. The first framework is made up of the indirect and intermediate or proximate determinants of fertility. The second, the steps to behaviour change model, developed by Piotrow and colleagues in 1997 is made up of behaviour change constructs of knowledge, approval, intention, practice and advocacy.

In this study, the proximate determinants that were explored as a means to influence fertility were contraception and infecundity and voluntary abstinence. For infecundity, issues explored were breastfeeding and lactational amenorrhoea and intercourse factor explored was voluntary postpartum sexual abstinence.

Indirect factors influence fertility through the proximate determinants. The indirect factors explored in this study were mainly individual characteristics such as the demographic and socio-economic. These individual determinants provided the basis for exploring the background characteristics of the women and their sexual partners (where available) in relation to age, parity, area of residence, ethnicity, religion, highest completed level of education and occupation. It was found in the study that women's background characteristics influenced their knowledge, intention and use of family planning.

The results from the study can be situated in the steps to behaviour change framework (Table 34). The framework has knowledge, Approval, Intention to use

and Use of family planning (Practice) and Advocacy for family planning as its main constructs.

Table 34: Study Findings Related to Steps to Behavior Change Constructs

Construct	Description	Study findings
Knowledge	Individuals recall family planning messages, understand what family planning means and can name family planning method(s) and/or source of supply.	The most known methods among the women were male condom (86.4%), injectables (80.5%), female condom (77.6%) and the pill (77.2%). The least known methods were the foam (20.7%), diaphragm (24.4%) and intrauterine device (IUD) (37.9%). Knowledge of implants, injectables and LAM predicted intention to use PPF, whilst knowledge of the diaphragm was associated with lack of intention to use PPF
Approval	Individuals approve of family planning and respond favourably to family planning messages. They further discuss family planning with personal networks (family, friends, community and any significant others) and have the perception that they approve of family planning.	Personal conviction about and approval of family planning, perceived partners acceptability and approval of family planning and spousal discussion about family planning influenced intention and actual use of FP
Intention	Individuals recognize that use of family planning can produce positive outcomes and can meet personal needs; therefore, they intend to consult a provider and also intend to practice family planning at some point.	70% of respondents expressed intention in Phase 1 to use PPF. Intention predicted use of FP. If an individual expressed prenatal intention to use FP, she was 3 times more likely to use PPF. Most of the women had prenatal intention to use the pill, injectable and male condoms

Table 34 continued

Practice	Individuals go to provider of information/supplies/services to seek information, choose methods and begin family planning use. Some individuals who may have started family planning use at some point in time continue usage.	Less than 30% of respondents had used FP in the past. Past use of injectables & pills were associated with intention to use PPF, whilst past use of IUD was associated with no intention to use FP. 50.4% of respondents had used PPF. In the postpartum period, 43% of women who had prenatal intention had used PPF, 33% who had prenatal intention had not used, 8% who had no prenatal intention had used, 17% who had no intention had not used. The most used methods were pill, injectables and male condoms.
Advocacy	Individuals experience positive outcomes of family planning and acknowledge personal benefits; they advocates practice to others and support programmes in the community.	Only 32% of the women had spoken about FP to their friend or relative; individuals who had spoken about FP to somebody were 2.6 times more likely to use PPF

Source: Field data (2012 - 2014)

According to Piotrow et al (1997), individuals and groups progress from knowledge to sustained behaviour change and advocacy. These individuals may be at different stages at any point in time and constitute distinct audiences for programmatic targeting in FP. The results showed that postpartum contraception, which was the main focus of the study influences fertility through the Steps to Behaviour Change Model. Knowledge about contraception and exclusive

breastfeeding are important to making informed decisions about contraception. The women in this study generally knew about contraceptives. They knew mostly the male condom, injectables, female condom and the pill and knew the least about the foam, diaphragm and IUD. With this knowledge, individuals, couples and significant others are able to approve and accept (or otherwise) to use or support the use of family planning. This study found women's personal conviction about family planning and their approval, supported by those of their partners to influence their intention to use PFP. Individuals having recognized the positive outcomes of family planning may intend to consult a family planning provider or practice family planning at some point as was expressed by 70 percent of respondents in Phase 1 of this study. Practice of family planning may be influenced directly or indirectly by knowledge, approval or intention. Some individuals may have used family planning in the past and may have experienced positive or negative outcomes.

These experiences may also influence current use of family planning. Knowledge of implants, injectables and LAM positively predicted intention to use PFP whilst knowledge of the diaphragm was negatively associated with intention to use PFP. Past use of injectables and pills were positively associated with intention to use PFP. Most of the women in this study had prenatal intention to use the pill, injectables and male condoms and actually used same methods the most in the postpartum period.

To practice family planning, individuals go to a provider of information, supplies or services to seek information, choose a suitable method and begin use.

Those who had used family planning in the past may also choose to continue based on past experience. Of all the women in Phase 2, over half (50.4%) had actually used family planning. Forty-three percent of them had prenatal intention to use and had used, 33 percent had prenatal intention to use and had not used, 8 percent had no prenatal intention and had used, whilst 17 percent had no intention to use and had still not used PFP. This implies that 60 percent of those who had prenatal intentions to use or not to use PFP carried out behaviours consistent with their intentions, whilst 40 percent carried out behaviours contrary to their intentions. When individuals have had positive experiences with use of family planning, they are motivated to advocate and recommend contraception to others. Although, few of the women (32%) had spoken about family planning to their friend or relative, individuals who had done so were three times as likely to use PFP. The results test and practicalize the Steps to Behaviour Change model in its entirety from knowledge, through approval, intention, practice and advocacy.

Contribution to Knowledge

First, given that the results of this study can be situated in the Steps to Behaviour Change model makes it possible to examine practically the pathway through which contraceptive use influences fertility. This will benefit family planning education by helping to design appropriate messages that target individuals at different stages at any point in time;

Second, the study used a prospective design that enabled the statistical measure of the strength of intention as a predictor of actual family planning use.

This study adds to the scanty body of knowledge in family planning research that are able to predict actual or future FP use;

Third, although unintended pregnancies are high in Ghana and have been topical over the years, not many studies have been done to search for predictors. So far only one study (Omane-Adjepong et al., 2012) has detailed the determinants of unintended pregnancy in Ghana. This study is the second to detail the determinants of unintended pregnancies in Ghana. Some new predictors included living arrangements with partner, marriage by ordinance and awareness of traditional, non-pharmacological contraceptive methods;

Fourth, family sex composition in the context of son preference has been studied extensively in South and South-East Asia. Not many of such studies have been carried out in Africa and in Ghana, especially in recent times, to ascertain the influence of sex composition on reproductive health outcomes and behaviours such as pregnancy intendedness, intention to use and actual use of PFP. Previous studies have also been carried out in more patriarchal settings. This study explored a new dimension to such studies by studying sex composition within a matrilineal inheritance system. Findings revealed that that sex composition had influence on pregnancy intendedness and PFP use, but not on intention to use PFP in a predominantly matrilineal inheritance system; and

Finally, determinants of intention to use and actual use of family planning in several studies have been generally socioeconomic and demographic. This study has examined the influence of self-approval and acceptability of family planning in adoption of family planning. This study revealed a strong influence of these

factors in the Mfantseman Municipality and opens a window of opportunity to family planning managers to encourage and empower women to improve their decision making with regards to contraceptive choices.

Policy Implications

This study revealed that a woman's prenatal intention to adopt family planning is a strong predictor of use of family planning in the extended postpartum period. If a woman had a prenatal intention to adopt family planning in the postpartum period, she is nearly three times likely to do so despite the existence of other influences. This evidence has the opportunity to improve prenatal targeting and improve postpartum family planning uptake. For example, implementation of the family planning programme need to put in place strategies to follow up those who express intention and assist them to carry them through and also have strategies for those who may not express any intention to do so.

The fact that women mostly used postpartum family planning at the time that they were not susceptible to pregnancy offers additional protection against unintended pregnancy, in addition to the positive postpartum behaviours of prolonged durations of exclusive breastfeeding and lactational amenorrhoea. Strategies need to be strengthened to promote LAM and target women to use PPF when they are least susceptible to pregnancy.

Recommendations

Based on the findings and conclusions drawn from this study, the following recommendations have been put forward:

1. Considering the low attention given to PPF in the current national family planning programme in general and in the MNCH policies, guidelines and service protocols in particular, it is recommended that the Family Health Division of the Ghana Health Service advocates strengthening integration of PPF into the existing MCH/FP programmes.
2. Designing postpartum family planning programmes and interventions to reach women at one or more specific contact points within the health system is important to improving family planning uptake. These contact points include antenatal care, labour and delivery, pre-discharge, postnatal care, immunization and child health care clinics. During antenatal visits pregnant women should be targeted for discussion about their postpartum reproductive intentions relating to spacing or limiting and use of PPF. This is based on the knowledge from this study that intentions reasonably predict subsequent behaviours. Other interventions that can be instituted include provision of PPF and exclusive breastfeeding information and counselling at the facility and community levels. Such counselling by health workers should target couples and address their reproductive desires. Furthermore, information, education and communication materials on PPF should be made available to women, partners and other significant family members.

3. During labour, delivery and pre-discharge, there is the need for health workers to ensure that women who choose a postpartum method receive high-quality PFP services prior to discharge. Counseling on exclusive breastfeeding and lactational amenorrhoea are offered and women encouraged starting breastfeeding immediately before discharge. Furthermore, during immunization and child welfare period community health nurses need to mobilize mothers for immunization days, assist with and participate in PFP group education sessions, and follow up mothers in the household for PFP.
4. The Ghana Health Service's Family Planning Programmes may need to consider promotion of traditional, non-pharmacological methods alongside the modern methods, especially in rural settings, to improve overall contraceptive prevalence rates. For clients who do not want to adopt modern contraceptives despite all reassurances, the option of traditional methods should be offered them. This implies that health workers may need to be trained adequately to provide such services. Commitment from the Ghana Health Service Family Planning Programme would be required if this is to succeed.

Areas for Further Research

This study has revealed useful information about postpartum family planning; and since it is the only comprehensive study so far on PFP in Ghana, it

would be useful to commission a national study on PFP in order to capture context-specific issues that will help enrich a PFP programme.

A more detailed study would be required to elucidate the reasons why women who delivered in private health facilities and maternity homes had high rates of breastfeeding than those who delivered at public health facilities. To obtain a more comprehensive picture about sex preference in the country, a study on family sex composition within a patrilineal system in Ghana needs to be undertaken since socio-cultural contexts differ across the country.

An investigation of the factors that make women in Ghana prefer injectables would most likely provide indications of the interventions that would be required to increase the uptake of PFP in general. The possibility that injectables make it possible for women to use FP discretely needs to be considered.

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APPENDICES

1: Ethical Clearance

GHANA HEALTH SERVICE ETHICAL REVIEW COMMITTEE

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

*My Ref: GHS-ERC: 3
Your Ref: No*



Research & Development Division
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December 23, 2011

Dr. Joseph Awuku-Ayemre/Dr. Frank Balden
Centre for Health Research and Implementation Support (CHRIS-GHANA)
P. O. Box KH 584, Korle Bu
Accra

ETHICAL CLEARANCE - ID NO: GHS-ERC: 14/09/11

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

"Intended contraceptive use among pregnant women presenting at health facilities in the Mfantseman district of the Central Region of Ghana"

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


Please note that any modification of the project must be submitted to the ERC for review and approval before its implementation.

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

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

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

SIGNED


PROFESSOR FRED DINKA
(GHS-ERC CHAIRMAN)

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

2: Phase 1 Questionnaire

QUESTIONNAIRE PHASE 1

Intended contraceptive use among pregnant women presenting at health facilities in the Mfantseman Municipal of the Central Region of Ghana

FACILITY CODE: I__I INTERVIEWER INITIAL: I__I__I CODE OF
RESPONDENT: I__I__I__I

INTRODUCTION

The Centre for Health Research and Implementation Support (CHRIS-Ghana) in conjunction with the Municipal Health Directorate and Saltpond Government Hospital are conducting a study in the intention of pregnant women to use contraceptive methods after delivery in the Mfantseman municipality. The objective is to assess the intentions of women who deliver to adopt modern family planning methods. The findings of the study will help the Ghana Health Service and other health agencies to design post-delivery family planning services in the Mfantseman Municipality and other parts of Ghana. The study is not a part of routine health services.

You were interviewed a few months ago when you were pregnant. . We are inviting you to participate in this follow up study because you agreed to do so during the first study.

PROCEDURES

A trained research staff will use a questionnaire to ask questions related your use of various family planning methods after delivery. He/she will ask you questions

related to your behaviours after delivery related to family planning use, breastfeeding and sexual abstinence. You will also be asked questions on health related issues that are known to influence the use of family planning by women who have just delivered.

As you respond to the questions that staff will ask, he/she will fill the questionnaire. The interview will take about 20mins to complete.

As part of the study, you may be invited to participate in a group discussion with other women. Such discussion will be audio taped for the sole purpose of enabling transcription. They will be destroyed as soon as transcription is completed.

RISK AND BENEFITS

By taking time off your schedule to answer the questions, we will be causing you inconvenience; we will however minimize this by going strictly according to the questionnaire guide and completing on time to enable you go about your duties.

Some of the questions may require information that may be quite personal. Should you feel uncomfortable with such questions, you may opt not to answer them.

At the end of the questions, you will be offered the opportunity to ask questions that you may have on family planning. The staff will answer as much as he/she is trained to do so. No money or other reward will be given to you as result of your participation in the study.

CONFIDENTIALITY

All the information that you provide to complete the questionnaire will be considered strictly confidential. It will be available to only persons directly connected with the study. The forms on which the information will be collected will be kept under lock and key/ no information (e.g. name or hospital ID) that identifies and matches you with the responses on the form will be collected.

VOLUNTARINESS AND WITHDRAWAL

Your participation in the study is completely voluntary and you reserve the right not to participate, or even when you have started, to stop answering the question. This is your right and the decision you take will not be disclosed to anyone. It will also not affect the care that will be offered you at this facility now or future.

WHO TO CONTACT

This study has been approved by the Ethics committee of Ghana Health Services. If you wish to ask questions, or need further explanations later, you may contact Dr. Frank Baiden (0244591181) of the Ghana Health Service, Dr. Sebastian Eliason (0200975567) of the School of Medical Sciences in Cape Coast, Dr. Derek Bonsu of the Saltpond Government Hospital or Madam Yvonne Graham-Hayfron of the Municipal Health Directorate. You may also contact the administrator of the ethical review committee of the Ghana Health Service on Tel 0302681109

Part 2: CONSENT DECLARATION

“I have read the information given above, or the information above has been read and explained to me in a language I understand. I have been given a chance to ask questions concerning this study and the questions have been answered to my satisfaction. I now voluntarily agree to participate in this study knowing that I have the right to withdraw at any time without affecting future health care services”

Name of respondent/participant: -----

Participant’s signature
print

Participant’s left thumb

----- OR -----

Date: ----/----/-----

Name of witness ----- Signature-----Date: ----

Name of Investigator----- Signature-----Date: ----

Respondents unable to read or write need witnesses. Respondents who are able should sign and date personally

Part 2: CONSENT DECLARATION

“I have read the information given above, or the information above has been read and explained to me in a language I understand. I have been given a chance to ask questions concerning this study and the questions have been answered to my satisfaction. I now voluntarily agree to participate in this study knowing that I have the right to withdraw at any time without affecting future health care services”

Name of respondent/participant: -----

Participant’s signature
print

Participant’s left thumb

----- OR -----

Date: ----/----/-----

Name of witness ----- Signature-----Date: ----

Name of Investigator----- Signature-----Date: ----

Respondents unable to read or write need witnesses. Respondents who are able should sign and date personally

Intended contraceptive use among pregnant women presenting at health facilities in the Mfantseman district of the Central Region of Ghana

FACILITY CODE: INTERVIEWER INITIAL: CODE OF RESPONDENT:

A. RESPONDENT INFORMATION: ANC REGISTRATION NO: _____			
PLEASE CHECK: Has this pregnant women being interviewed in the survey already?			
If YES, STOP INTERVIEW HERE			<input type="checkbox"/> Yes <input type="checkbox"/> No
1	Age		<input type="text"/> AGE
2	Highest completed educational level	1. None 2.Primary 3.Middle/JSS 4.SSS/SHS/Vocational 5. Tertiary/Polytechnic	<input type="text"/> EDU
3	Ethnic group	1-Fanti 2-Efutu 3-Awutu, 4-Other Akan 5-Ewe, 6-Hausa, 7. Other(specify: _____)	<input type="text"/> ETHI
4	Religion	1. Christian, 2. Muslim, 3.Traditionalist, 4.Other (_____)	<input type="text"/> RELI
5	Occupation	1. Fishmonger 2. Farmer 3.Petty trader 4.Civil/Public servant, 5.Student 6.Other(_____)	<input type="text"/> OCU
6	Number of children		<input type="text"/> CHIL
7	Area of residence	1. Saltpond, 2.Biriwa, 3.Anomabo 5. Mankessim	<input type="text"/> RESI
8	Marital status	1-Married through church/mosque wedding, 2-Married only by traditional rites 3-Engaged, yet to be married 4-Co-habitation (living together) 5-Divorced/Separated/Widowed 6-Single 7-Other: _____	<input type="text"/> MAS

B. CURRENT PARTNER (Responsible for current pregnancy) INFORMATION			
1	Age of partner?		<input type="text"/> PAGE
2	Highest completed educational level	1. None 2.Primary 3.Middle/JSS 4.SSS/SHS/Vocational 5. Tertiary/Polytechnic	<input type="text"/> PEDU
3	Ethnic group	1-Fanti 2-Efutu 3-Awutu, 4-Other Akan 5-Ewe, 6-Hausa, 7. Other(specify: _____)	<input type="text"/> PETHI
4	Religion	1. Christian, 2. Muslim, 3.Traditionalist, 4.Other (_____)	<input type="text"/> PRELI
5	Occupation	1. Fishmonger 2. Farmer 3.Petty trader 4.Civil/Public servant, 5.Student 6.Other(_____)	<input type="text"/> POCU
6	Previously married before present relationship?	1. Yes, 2.No, 3 May be/Don't know	<input type="text"/> PMAR
7	Partner has any children beside those with you?	1. Yes, 2.No, 3 May be /Don't know	<input type="text"/> PCHD

C. RELATIONSHIP ISSUES			
1	Years of marriage or relationship with present partner		<input type="text"/> YRM
2	Does your partner stay in the same house as you?	1. Yes, 2.No	<input type="text"/> LIV
3	Does your husband/partner have another wife/spouse beside yourself?	1. Yes, 2.No	<input type="text"/> OWI

Intended contraceptive use among pregnant women presenting at health facilities in the Mfantseman district of the Central Region of Ghana

FACILITY CODE: INTERVIEWER INITIAL: CODE OF RESPONDENT:

E. REPRODUCTIVE HISTORY & CURRENT PREGNANCY			
1	How many times have you been pregnant?		PREG
2	Have any of your pregnancies ended in miscarriage or abortion?	1. Yes 2.No 99.Not applicable	ABOT
	2a. If YES, how many times?	99 if no 1 applicable	ABOY
3	How many children have you delivered?		CDEV
4	How old is your last child?	99 if not applicable	OLDC
5	Have any of your children passed away?	1. Yes 2.No 99.Not applicable	PASS
6	With regards to your current pregnant, we you expecting to get pregnant when you noticed you were pregnant?	1. Yes, 2.No	EXPT
7	How would describe the current pregnancy?	1. Wanted and at the right time, 2. Wanted but not at the time it came 3. Not wanted and unexpected	DESB

F. KNOWLEDGE & USE OF VARIOUS FAMILY PLANNING METHODS				
		AWARENESS	EVER USE	
1	PILL (Women can take a pill every day to avoid becoming pregnant)	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	PILL1 PILL2
2	IUD Women can have a loop or coil placed inside them by a doctor or nurse	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	IUD1 IUD2
3	INJECTABLES Women can have an injection by a health provider that stops them from becoming pregnant for one or more months	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	INJ1 INJ2
4	IMPLANTS Women can have several small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years.	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	IMP1 IMP2
5	CONDOM Men can put a rubber sheath on their penis before sexual intercourse.	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	CON1 CON2
6	FEMALE CONDOM Women can place a sheath in their vagina before sexual intercourse.	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	CON1 CON2
7	DIAPHRAGM Women can place a thin flexible disk in their vagina before sexual intercourse	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	DIA1 DIA2
8	FOAM OR JELLY Women can place a suppository, jelly, cream in their vagina before sexual intercourse.	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	FOM1 FOM2
9	RHYTHM (CALENDAR) METHOD Every month that a woman is sexually active she can avoid pregnancy by not having sexual intercourse on the days of the month she is most likely to get pregnant.	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	RHY1 RHY2
10	WITHDRAWAL Men can be careful and pull out before climax.	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	WITH1 WITH2
11	EMERGENCY CONTRACEPTION As an emergency measure after unprotected sexual intercourse, women can take special pills at any time within five days to prevent pregnancy	1. Yes 2.No <input type="text"/> <input type="text"/>	1. Yes 2.No <input type="text"/> <input type="text"/>	EME1 EME2

DATE OF INTERVIEW: | | |

Version: 16.10.2011

Page 3 of 5

FACILITY CODE: INTERVIEWER INITIAL: CODE OF RESPONDENT:

I. KNOWLEDGE OF LACTATIONAL AMENORRHOEA			
<i>(Lactational amenorrhoea is the use of exclusive breastfeeding to delay return to fertility after delivery)</i>			
1	Can a woman use exclusive breastfeeding to prevent pregnant after delivery?	1-Yes 2-No 3-Don't know	EXC
2	Can a woman get pregnant when her menses have not returned after delivery?	1-Yes 2-No 3-Don't know	MES
3	Can a woman get pregnant within six months of delivering?	1-Yes 2-No 3-Don't know	DEV3
4	Can a woman get pregnant within three months of delivery?	1-Yes 2-No 3-Don't know	DEV4
J. ACCEPTABILITY OF POST-PARTUM FAMILY PLANNING			
1	Do you think it is acceptable for a woman to use family planning to avoid pregnancy after delivery?	1-Yes 2-No	FPA
K. PAST EXPERIENCE WITH POST-DELIVERY FAMILY PLANNING			
1	Which of these methods have you used to avoid getting pregnant too soon after delivery? (Mark ✓ for method used) <i>(Multiple answers allowed to indicate various approaches used in the past)</i>	Not applicable (no previous child)	NAP
		Done nothing to avoid pregnancy	NOT
		Avoiding sex after delivery	AVD
		Having partner use condom	PAT
		Exclusive breastfeeding	EXB
		Rhythm method	RYM
2	In the past, were you always successful in preventing pregnancy soon after delivery?	1-Yes 2-No 3-Not of no previous child	SON
L. POST-PARTUM FAMILY PLANNING INTENTIONS			
1	After this pregnancy, how long do you wish to wait before getting pregnant again?	1. One year, 2. Two years, 3. Three years 4 - Four years 5. No more children 6. Other _____	WAG
2	How do you plan (main way) to avoid getting pregnant too soon after delivery? <i>(Read out the options)</i>	1. Avoiding sex 2. Insisting on condom use 3. Having sex only during safe period 4. Adopting a family planning method 5. Other, specify: _____	AFT
3	If you wished to do family planning after delivery, which three methods would you prefer <i>(Rank as 1, 2, & 3, where 1 is best choice and 3 is least preferred)</i>	1. Exclusive breastfeeding	BRS
		2. Condom	MOC
		3. Rhythm	MHT
		4. Pill (morning-morning)	LLP
		5. Injectables (every one to three months)	JEC
		6. IUD	DUI
		7. Implant (long term)	TNA
		8. Sterilization (permanent)	STE
		9. Emergency contraception	EMG

Intended contraceptive use among pregnant women presenting at health facilities in the Mantseman district of the Central Region of Ghana

FACILITY CODE: INTERVIEWER INITIAL: CODE OF RESPONDENT:

M. POST-DELIVERY FOLLOW-UP				
1	We wish to be able to follow-up with you to know if your post-delivery family planning intentions were actualized. Would you agree that we contact you?	1. Yes	2.No	WAG
	1a. If Yes, to Q1, can you describe where we can locate you? Telephone contact: _____ [TELC] DETAILED DESCRIPTION			

Intended contraceptive use among pregnant women presenting at health facilities in the Mfantseman district of the Central Region of Ghana

FACILITY CODE: INTERVIEWER INITIAL: CODE OF RESPONDENT:

N. DETAILS			
1	Date of Birth (dd/mm/yyyy)	___/___/___	DOB
2	Religious denomination	01. Catholic 02. Anglican 03. Methodist 04. Presbyterian 05. Pentecostal/Charismatic 06. Other Christian 07. Muslim 08. Traditional/Spiritualist 09. No religion 10. Other:	RED
3	In your entire life, how many children (alive or dead) have you given birth to? (Put "00" if none and skip to Q.5)	___	MCH
	3a How many are males (sons)	___	SEA
	3b How many are females (daughters)	___	GUD
4	Have you ever given birth to a child who was born alive but later died? (If No, skip to 5)	1. Yes 2. No	ALI
	4a How many were males (sons)	___	SON
	4b How many were females (daughters)	___	DAU
5	Name of the suburb where you live	_____	SUB
6	Place of residence of partner (spouse)	1-Not applicable. We live together in same house. 2-Doesnot live in same house but in same town 3-Lives outside of town but in Central Region 4-Lives outside of central region but with in Ghana 5-Lives outside of Ghana	MAS
7	How many other wives/spouses does your husband/partner have?	Put "00" if none	ENO
8	In order of seniority, what is your rank among your partner's wives	1st-Not applicable. As I said am the only wife 2 nd wife, 3 rd wife, 4 th wife	SEN

3: Phase 2 Questionnaire

QUESTIONNAIRE PHASE 2

Intended contraceptive use among pregnant women presenting at health facilities in the Mfantseman district of the Central Region of Ghana

FACILITY CODE: I__I INTERVIEWER INITIAL: I__I__I CODE OF
RESPONDENT: I__I__I__I

INTRODUCTION

The Centre for Health Research and Implementation Support (CHRIS-Ghana) in conjunction with the Municipal Health Directorate and Saltpond Government Hospital are conducting a study in the intention of pregnant women to use contraceptive methods after delivery in the Mfantseman municipality. The objective is to assess the intentions of women who deliver to adopt modern family planning methods. The findings of the study will help the Ghana Health Service and other health agencies to design post-delivery family planning services in the Mfantseman Municipality and other parts of Ghana. The study is not a part of routine health services.

You were interviewed a few months ago when you were pregnant. . We are inviting you to participate in this follow up study because you agreed to do so during the first study.

PROCEDURES

A trained research staff will use a questionnaire to ask questions related your use of various family planning methods after delivery. He/she will ask you questions related to your behaviours after delivery related to family planning use, breastfeeding and sexual abstinence. You will also be asked questions on health related issues that are known to influence the use of family planning by women who have just delivered.

As you respond to the questions that staff will ask, he/she will fill the questionnaire. The interview will take about 20mins to complete.

As part of the study, you may be invited to participate in a group discussion with other women. Such discussion will be audio taped for the sole purpose of enabling transcription. They will be destroyed as soon as transcription is completed.

RISK AND BENEFITS

By taking time off your schedule to answer the questions, we will be causing you inconvenience; we will however minimize this by going strictly according to the questionnaire guide and completing on time to enable you go about your duties.

Some of the questions may require information that may be quite personal. Should you feel uncomfortable with such questions, you may opt not to answer them.

At the end of the questions, you will be offered the opportunity to ask questions that you may have on family planning. The staff will answer as much as he/she is

trained to do so. No money or other reward will be given to you as result of your participation in the study.

CONFIDENTIALITY

All the information that you provide to complete the questionnaire will be considered strictly confidential. It will be available to only persons directly connected with the study. The forms on which the information will be collected will be kept under lock and key/ no information (e.g. name or hospital ID) that identifies and matches you with the responses on the form will be collected.

VOLUNTARINESS AND WITHDRAWAL

Your participation in the study is completely voluntary and you reserve the right not to participate, or even when you have started, to stop answering the question. This is your right and the decision you take will not be disclosed to anyone. It will also not affect the care that will be offered you at this facility now or future.

WHO TO CONTACT

This study has been approved by the Ethics committee of Ghana Health Services. If you wish to ask questions, or need further explanations later, you may contact Dr. Frank Baiden (0244591181) of the Ghana Health Service, Dr. Sebastian Eliason (0200975567) of the School of Medical Sciences in Cape Coast, Dr. Derek Bonsu of the Saltpond Government Hospital or Madam Yvonne Graham-Hayfron of the Municipal Health Directorate. You may also contact the administrator of the ethical review committee of the Ghana Health Service on Tel 0302681109

Part 2: CONSENT DECLARATION

“I have read the information given above, or the information above has been read and explained to me in a language I understand. I have been given a chance to ask questions concerning this study and the questions have been answered to my satisfaction. I now voluntarily agree to participate in this study knowing that I have the right to withdraw at any time without affecting future health care services”

Name of respondent/participant: -----

Participant's signature
print

Participant's left thumb

----- OR -----

Date: ---/---/---

Name of witness ----- Signature-----Date: ----

Name of Investigator-----Signature-----Date: ----

Respondents unable to read or write need witnesses. Respondents who are able should sign and date personally.

RESPONDENT INFORMATION CONFIRMATION

ANC REGISTRATION NO: _____

PLEASE CHECK: Has this women been interviewed in the survey already?
 Yes
 No
 If YES, STOP INTERVIEW HERE

1	Age Date of Birth		I I I	AG E
2	Highest completed educational level	1. None 2.Primary 3.Middle/JSS 4.SSS/SHS/Vocational 5. Tertiary	— —	ED U
3	Ethnic group	1-Fanti 2-Efutu 3-Awutu, 4-Other Akan 5-Ewe, 6-Hausa, 7. Other(specify: _____ _____)	— —	ETH I
4	Religion	1. Christian, 2.Muslim, 3.Traditionalist, 4.Other (_____)	— —	REL I
5	Occupation	1. Fishmonger 2. Farmer 3.Petty trader 4.Civil/Public servant, 5.Student 6.Other(_____)	— —	OC U
6	Number of children ever	Males [] Females []	I I	CHI L

	born/Parity of the last birth		I	
7	Area of residence	1. Saltpond, 2.Biriwa, 3.Anomabo 4. Mankessim	—	RES
8	Preferred No. of children	Males [] females[]	—	I
9	Marital status	Single (Never married) 2-Married , 3-Co-habitation (living together) 4-Divorced/Separated 5. Widowed _____) _____)	— —	PNO C MA S

POSTPARTUM OUTCOMES				
1	What was the outcome of your last pregnancy?	1. Live term baby, 2.live pre-term baby 3. Stillbirth 4.miscarriage	I _ I _ I	OU TC
2	In what facility did you deliver?	Home 2.public hospital/clinic 3. Private hospital/clinic 4. Maternity home		FA C

		5. Other.....		
3	Sex of Child if outcome was a live birth	1. Male, 2. Female, 3. Ambiguous	— —	SE XC
4	What was mode of delivery?	SVD, 2. Assisted vaginal delivery, 3. Caesarean section		M OD E
5	Any delivery complications?	1, Yes, 2. No		CO MP
6	Date of delivery		I_ I_ I	LO NG
7	If outcome was live, is child still alive?	1. Yes, 2.No,	— —	CH LI V
8	If death, date of death			DE AT

C. POSTPARTUM BEHAVIOURS

1	Has your period returned since your last birth?	1. Yes 2.NO		AMEN
2	For how many		I _ I _ I	AMED

	months after birth did you not have your period			
3	Did you ever breastfeed after delivery	1. Yes 2.NO	—	BFED
4	If yes, for how many months did you breastfeed		<u> </u> <u> </u> <u> </u>	BFLG
5	Have you resumed sexual relationship since your last birth?	1. Yes 2.NO	—	SEXR
6	If yes, when did you start?		<u> </u> <u> </u> <u> </u>	SXLG
6	Who initiated the a first sex?	Partner, Myself		SEXI
7	Have you sort information about contraception since delivery?	1. Yes 2.NO		INFO
8	If yes, from where?	Heath worker/service 2. Media -TV, radio, newspapers 3. Friends		INFOS

9 a	Have you had any discussion about family planning with your partner since delivery	1. Yes 2.NO		DISC
9 b	If yes, what was discussed?			DISC1
9 c	Who initiated the discussion?	Partner, Myself		DISC2
9 d	What was the outcome of the discussion/			DISC3

POST PARTUM CONTRACEPTIVE USE STATUS

1 a	Have you adopted a contraceptive method?	1. Yes 2.NO	I _ I - _ I	ADOPT
1 b	If yes, how many months after your		I _ I -	LADPT

	last birth did you adopt contraceptive method		I	
2	If yes, Was there any discussion with your partner before decision was taken?	1. Yes 2.NO		DISCP
3	Which of the following influenced your decision?	1.partner, 2.mother in law, 3.church, 4. self approval, 5. other(DECI
4	If you have not adopted any method, Why have you not done so?	I got pregnant immediately Partner was against the idea I want to get pregnant as soon as possible My child did not survive I am not interested in FP It is too early to decide after delivery Other (Specify)	- - -	PREG
5	If you have not adopted any method,	1. Yes 2.NO		DOPT

	do you plan to adopt one soon or in the future?		
6	If you have adopted a method which of the following methods did you adopt	1. Pills, 2.injectable, 3. Implants, 4. IUD, 5. Diaphragm, 6. Female Condom, 7. Male Condom, 8. Female sterilization, 9. Male sterilization, 10. LAM, 11.. Periodic abstinence, 12. Withdrawal, 13. Other traditional	CMET - - -
7	Why did you adopt that method?	it is suitable for me 2. It has fewer sideeffects 3. My partner endorsed it 4. My provider chose it for me 5. Other(specify)	YAD
8	Have you spoken about the benefits of family planning to anybody?	1. Yes 2.NO	ADVOC

9. Please give your views on family planning after delivery.

4:Published Articles



RESEARCH

Open Access

Factors influencing the intention of women in rural Ghana to adopt postpartum family planning

Sebastian Eliason¹, Frank Baiden^{2*}, Gloria Quansah-Asare³, Yvonne Graham-Hayfron⁴, Derek Bonsu⁵, James Phillips⁶ and Kofi Awusabo-Asare⁷

Abstract

Background: Uptake of postpartum family planning (PPFP) remains low in sub-Saharan Africa and very little is known about how pregnant women arrive at their decisions to adopt PPFP. This information is needed to guide the development of interventions to promote PPFP.

Methods: We conducted a survey among pregnant women attending antenatal clinics in a rural district in Ghana. We used univariate and multivariate logistic regression analysis to explore how knowledge of various family planning (FP) methods, past experience with their use and the acceptability of PPFP to male partners and close relations influenced the intention of pregnant women to adopt PPFP.

Results: We interviewed 1914 pregnant women in four health facilities. About 84% considered PPFP acceptable, and 70% intended to adopt a method. The most preferred methods were injectables (31.5%), exclusive breastfeeding (16.7%), and oral contraceptive pills (14.8%). Women whose first choice of PPFP method were injectables were more likely to be women who had had past experience with its use (O.R. = 2.07, 95% C.I. 1.50-2.87). Acceptability of PPFP by the pregnant woman (O.R. = 3.21, 1.64-6.26), perception of partner acceptability (O.R. = 3.20, 1.94-5.48), having had prior experience with the use of injectables (O.R. = 3.72, 2.61-5.30) were the strongest predictors of the intention to adopt PPFP. Conversely women who knew about the diaphragm (O.R. = 0.59, 0.38-0.93) and those who had past experience with IUD use (O.R. = 0.13, 0.05-0.38) were less likely to want to adopt PPFP.

Conclusions: Acceptability of PPFP to the pregnant woman, male partner approval, and past experience with the use of injectables are important factors in the PPFP decisions of women in this population. Antenatal and early postnatal care need to be adapted to take these factors into consideration.

Keywords: Postpartum, Family planning, Contraception, Male, Ghana, Sub-Saharan Africa

Background

The United Nation's Millennium Development Goal (MDG) 5 aims at reducing maternal mortality by three quarters, between 1990 and 2015. An important intervention towards achieving this target is the promotion of modern family planning (FP) among women in sub-Saharan Africa (SSA) [1,2]. Uptake of modern FP methods remains low in SSA and this is associated with a high incidence of unwanted pregnancies, unsafe abortions, unplanned deliveries and maternal mortalities [1,3].

The periods of pregnancy and immediately after delivery are considered opportune for counseling women on

the adoption of modern FP methods. This is because this period is often associated with a woman's frequent encounter with the health system [4]. These encounters provide avenue to promote optimal spacing of births through postpartum family planning (PPFP) [5]. It has been estimated that PPFP can prevent about 30% and 10% of maternal and child mortalities, respectively [6]. Data from Demographic and Health Surveys (DHS) in 27 countries suggest that less than 35% of women who wish to avoid pregnancy during the postpartum period use any form of modern contraception [7,8]. Very little is known about how pregnant women in SSA arrive at their PPFP decisions. This information is nevertheless critical to the design of strategies to increase the uptake of PPFP [4,9].

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Ghana

In Ghana, unintended childbearing is estimated at about 0.7 births per woman [10]. The major goals of the 1994 Ghana National Population Policy are to reduce the total fertility rate from 5.0 to 3.0, and to increase the contraceptive prevalence rate from 15 to 50 percent between year 2000 and year 2020 respectively [11,12]. According to the 2008 Ghana Demographic and Health Survey [13], fertility rate, contraceptive prevalence rate (CPR) and unmet need in Ghana are 4.0, 17% and 35% respectively, with considerable rural-urban disparities. Women in rural areas have an average of two children more than those in urban areas (4.9 versus 3.1) and use modern FP less than their urban counterparts (15% versus 19%). The level of unmet need for FP methods shows similar trends (rural 38% and urban 32%). The 2011 Multiple Indicator Cluster Survey suggests improvement in the CPR from 17% to 23% and reduction in the level of unmet need from 35% to 26.4%. At current rates, however, the targets set in Ghana's population policy are unlikely to be met by 2020. The postpartum period remain neglected in FP research in Ghana, and very few studies have focused on the FP needs of women during this period of "window of opportunity" [4,9].

We conducted a survey among pregnant women attending antenatal clinics in rural health facilities in the Central Region of Ghana to identify the factors that influence their intention to adopt PPF. We report here on how the intention to adopt PPF is influenced by knowledge of various FP methods, past use of these methods, and the perceived acceptability of PPF to male partners and close relations.

Methods

Study sites

The study was conducted in four health facilities in the Mfantseman District. This district is about 110 km west of Accra and lies along the Atlantic coastline. The district extends 13 kilometers inland, and is essentially rural, except for two towns, Saltpond, and Mankessim, which are semi-rural. The district was selected for this study because of recent reports of increasing incidence of unsafe abortions, high teen pregnancies (13.6% of all pregnancies in 2010) and low uptake of modern FP [14]. It was also based on the familiarity of the research team with the district.

All pregnant women attending antenatal clinic at the Saltpond Government Hospital (semi-rural), Mankessim Health Centre (both semi-rural) and the Biriwa and Anomabo Health Centers (both rural) between January 2012 and April 2012 were targeted and interviewed as they arrived at the facility on routine antenatal visits. The health facilities were purposefully selected in order to provide a mix of semi-rural and rural settings.

We used a five-page questionnaire that explored questions related to the intention to adopt PPF and the circumstances under which the current pregnancy occurred. Women who indicated that the pregnancy was unexpected, unwanted or both were considered to have had an unplanned pregnancy. Other areas covered in the questionnaire included knowledge and use of various FP methods, their acceptability of PPF, as well as acceptability to male partners and other close relations (mother, mother-in-law, father-in-law and religious leader). The questionnaire consisted almost entirely of closed-ended questions and was pre-tested in health facilities in the district that were not selected to participate in the study. They were administered by trained research assistants who were familiar with the culture and traditions of the women attending the clinics. The minimum qualification of interviewers was polytechnic or university diploma. The questionnaires were administered in the language that respondents were comfortable to speak in.

Ethical consideration

Ethical and administrative approvals were obtained from the Ethics Review Committee of the Ghana Health Service (GHS) and the Municipal Health Directorate (MHD). Written informed consent was obtained from each participant.

The data were double-entered using EPI-DATA. The inputs were verified and cleaned to achieve a clean data set. This set was exported into STATA (version 11) for analysis. Descriptive and univariate analyses using logistic regression were performed to explore the influence of knowledge and past use of FP on the intention to adopt PPF. The effects of perceived PPF acceptability to male partners and close relations were similarly explored. Factors found in univariate analysis to be significantly associated (P -value < 0.05) with the main outcome of interest (intention to adopt PPF) were included in a multivariate model. Pregnant women were considered to have the intention to adopt PPF if they indicated they will adopt a modern FP method to delay pregnancy after they deliver.

Sample size

A total of 1900 pregnant women were targeted to be interviewed on the assumption that 50% of them will have the intention to adopt PPF. With 80% power, it was possible to estimate the proportion of women willing to adopt PPF within a margin of error of 3%. The district recorded about 4000 deliveries in 2009.

Results

Background of respondents

A total of 1914 pregnant women with an average age of 25.6 years (standard deviation 6.5) were interviewed.

The majority were Christians who belonged to the *Fanti* ethnic group. About a fifth had had no formal education and the dominant occupations were petty trading and fish mongering (Table 1).

About a third (35.2%) of pregnant women did not have a child. Of those who had at least one child, the average number of children was 2 (standard deviation-2). The majority of women (70%) indicated that the pregnancy they were carrying was unexpected or unwanted or both at the time it occurred. About 70% of pregnant women expressed the intention to adopt PPF. For women who preferred to have more children, the average desired time before a next pregnancy was 4.6 years (standard deviation 1.5 years). The most preferred PPF methods were injectables (31.5%), exclusive breastfeeding (16.7%),

and oral contraceptive pills (14.8%). Women whose first choice of PPF method were injectables were more likely to be women who had had past experience with its use (O.R = 2.07, 95% C.I. 1.50-2.87). Past use was however less predictive in the case of the pill (1.19, 0.81-1.75). It actually appeared to be inhibitory in the case of exclusive breastfeeding (0.81, 0.42-1.57).

Effect of knowledge of various FP methods

The two most widely known FP methods were the male condom (86.4%) and injectables (80.5%) while the least known were the foaming tablets (20.7%) and the diaphragm (24.4%). Respondents who had heard about the pill (1.76, 1.40-2.20), injectables (2.20, 1.73-2.79), implants (1.60, 1.30-1.95), male (1.97, 1.50-2.59) and female

Table 1 Sociodemographic background of respondents

Variable	Intention to adopt PPF method		
	Yes (%) ^a	No	
Age	≥20 years	1136 (72.6)	429
	<20 years	190 (56.7)	145
Respondent-partner age difference	Partner more than 5 years older	440 (68.9)	199
	Partner 1-5 years older	798 (69.7)	347
	Partner younger than respondent	72 (77.4)	21
Highest completed educational level	Senior high school and above	127 (56.0)	100
	Junior high school	595 (70.9)	244
	Primary	317 (74.4)	109
	None	286 (70.1)	122
Ethnic group	<i>Fanti</i>	1217 (70.4)	513
	Other	108 (63.5)	62
Religion	Christian	1242 (70.1)	83
	Other	529 (29.9)	46
Christian denomination	Pentecostal and others	649 (73.3)	236
	Protestant	324 (67.9)	153
	Catholic	131 (65.4)	68
Occupation	Fishmonger and petty trader	1087 (73.2)	399
	Government and other office workers	71 (57.7)	52
	Student	46 (54.8)	38
	Other	68 (65.4)	36
Number of children	≥Three	362 (77.9)	103
	Two	237 (76.0)	75
	One	338 (73.8)	120
	None	389 (58.3)	278
Area of residence	Rural	652 (71.6)	259
	Semi-Rural	673 (68.1)	316
	Married	790 (72.5)	299
Marital status	Engaged or cohabiting	380 (69.5)	167
	Single, divorced, separated or widowed	152 (58.7)	107

^aRow percentages.

condom (1.62, 1.29-2.03) were more likely to want to adopt PFP. Participants who were aware that exclusive breastfeeding (1.83, 1.34-2.50) could be a method of PFP. On the hand, those who had heard of the diaphragm (0.74, 0.59-0.92) and foaming tablets (0.77, 0.61-0.98) were unlikely to have the intention of adopting PFP. In multivariate analysis, knowledge of the use of implants (O.R. = 1.64, 0.11-2.41) and exclusive breastfeeding (O.R. = 1.56, 1.12-2.18) were associated with a intention to adopt PFP while knowledge of the diaphragm (O.R. = 0.59, 0.38-0.93) was associated with the lack of intention to adopt PFP (Table 2).

Past use of various methods

The most widely used FP methods were the withdrawal (29.5%) and male condom (26.9%) while the least used were the diaphragm (1.0%) and foaming tablets (1.2%). Respondents who had used the pill (O.R = 2.53, 95% C.I. 1.83-3.49), injectables (3.83, 2.70-5.43) and emergency contraceptive pills (1.52, 1.05-2.20) in the past were

more likely to want to adopt PFP. On the hand, those with prior experience with the use of the IUD (0.39, 0.16-0.96) were unlikely to want to adopt PFP. In multivariate analysis, women who had used injectables (O.R. = 3.72, 2.61-5.30) and pill (O.R. = 2.22, 1.59-3.11) were more likely to have the intention to adopt PFP while those who had prior experience with IUD use (O.R. = 0.13, 0.05-0.38) were significantly less likely to have the intention of adopting PFP (Table 3).

Acceptability of PFP to partners and close relations

The majority (84%) of pregnant women considered it acceptable for women (self-approval) to use modern FP methods in PFP and 70.0% had the intention to adopt a method. Although self-approval was strongly associated (8.55, 6.29-11.63) with the intention to adopt a method, 64% of women who considered the PFP acceptable did not have the intention to adopt it. Further analysis show the more educated a pregnant woman was, the more likely she was to consider PFP acceptability and yet not intend to adopt it (P-value for trend <0.01). Pregnant

Table 2 Effect of knowledge of family planning on Intention to adopt PFP

Method		Intention to adopt PFP method		Univariate O.R. (95% C.I.)†	Multivariate O.R. (95% C.I.)†
		Yes	No		
Oral contraceptive pills	Yes	1069	405	1.76 (1.40-2.20)	1.16 (0.70-1.91)
	No	257	171		
Intrauterine contraceptive device	Yes	490	232	0.87 (0.71-1.06)	1.00
	No	836	344		
Injectables	Yes	1124	413	2.20 (1.73-2.79)	1.37 (0.79-2.41)
	No	202	163		
Implants	Yes	881	319	1.60 (1.30-1.95)	1.64 (1.11-2.42)
	No	445	257		
Male condom	Yes	1184	466	1.97 (1.50-2.59)	1.18 (0.58-2.41)
	No	142	110		
Female condom	Yes	1068	414	1.62 (1.29-2.03)	1.03 (0.60-1.75)
	No	258	162		
Diaphragm	Yes	300	164	0.74 (0.59-0.92)	0.59 (0.38-0.93)
	No	1025	412		
Foaming tablets	Yes	258	137	0.77 (0.61-0.98)	0.84 (0.53-1.32)
	No	1067	258		
Rhythm (calendar) method	Yes	757	356	0.82 (0.67-1.01)	N/A
	No	568	220		
Withdrawal method	Yes	854	345	1.21 (0.99-1.48)	N/A
	No	471	231		
Emergency contraception	Yes	630	262	1.09 (0.89-1.32)	N/A
	No	695	314		
Exclusive breastfeeding	Yes	567	205	1.83 (1.34-2.50)	1.56 (1.12-2.18)
	No	136	90		

condom (1.62, 1.29-2.03) were more likely to want to adopt PFP. Participants who were aware that exclusive breastfeeding (1.83, 1.34-2.50) could be a method of contraception were also more likely to want to adopt PFP. On the hand, those who had heard of the diaphragm (0.74, 0.59-0.92) and foaming tablets (0.77, 0.61-0.98) were unlikely to have the intention of adopting PFP. In multivariate analysis, knowledge of the use of implants (O.R. = 1.64, 0.11-2.41) and exclusive breastfeeding (O.R. = 1.56, 1.12-2.18) were associated with a intention to adopt PFP while knowledge of the diaphragm (O.R. = 0.59, 0.38-0.93) was associated with the lack of intention to adopt PFP (Table 2).

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Emergency contraception	Yes	630	262	1.09 (0.89-1.32)	N/A
	No	695	314		
Exclusive breastfeeding	Yes	567	205	1.83 (1.34-2.50)	1.56 (1.12-2.18)
	No	136	90		

Table 3 Effect previous use of family planning on intention to adopt PFPF

Method		Intention to adopt PFPF method		Univariate O.R. (95% C.I.)†	Multivariate O.R. (95% C.I.)†
		Yes	No		
Oral contraceptive pills	Yes	257	<0.01	2.53 (1.83-3.49)	2.22 (1.59-3.11)
	No	1069			
Intrauterine contraceptive device	Yes	9	0.03	1.0	1.00
	No	1317		0.39 (0.16-0.96)	0.13 (0.05-0.38)
Injectables	Yes	301	<0.01	1.0	1.00
	No	1025		3.83 (2.70-5.43)	3.72 (2.61-5.30)
Implants	Yes	19	0.62	1.0	1.00
	No	1307		0.82 (0.38-1.78)	NA
Male condom	Yes	358	0.97	1.00 (0.81-1.25)	NA
	No	968		1.00	NA
Female condom	Yes	22	0.37	0.73 (0.37-1.46)	NA
	No	1304		1.00	NA
Diaphragm	Yes	12	0.53	0.74 (0.29-1.71)	NA
	No	1313		1.00	NA
Foaming tablets	Yes	13	0.43	0.70 (0.29-1.71)	NA
	No	1312		1.00	NA
Rhythm (calendar) method	Yes	306	0.25	0.87 (0.70-1.10)	N/A
	No	1019		1.0	N/A
Withdrawal method	Yes	407	0.09	1.20 (0.97-1.50)	N/A
	No	918		1.0	N/A
Emergency contraception	Yes	135	0.02	1.52 (1.05-2.20)	1.26 (0.86-1.85)
	No	1190		1.0	1.00
Exclusive breastfeeding	Yes	19	0.08	1.54 (0.27-1.08)	NA
	No	1307	561	1.00	

women with higher education (beyond secondary school) were nearly four times (3.87, 2.57- 5.84) as likely to make this consideration as women who had had no formal education. This seemingly discordant consideration was neither associated with the age of a pregnant woman nor with the number of children she had.

The majority (76.2%) of pregnant women perceived that their partners will consider their adoption of PFPF acceptable. A higher proportion (82.0%) indicated that they will require the permission of their partners before they actually adopted a method. Among women who perceived that PFPF will be acceptable to the partners, 82.3% thought they will still need their permission before they could adopt a method. Also most (90.5%) women who indicated they personally approved of PFPF still considered that they will need the approval of their partners before they could adopt it. In univariate analysis, the intention to adopt PFPF was strongly associated with the perceived acceptability of PFPF by partners and close relations (P-value < 0.01 in all cases). After adjustments in multivariate analysis however, only self-approval of

PFPF (3.21, 1.64-6.26) and perceived acceptability by male partner (3.2, 1.94-5.48) were significantly associated with the intention to adopt PFPF (Table 4).

Discussion

Although fewer than 30% of women in this study had ever used a modern FP method, 84% considered PFPF acceptable and 70% expressed the intention to adopt a method. This seemingly favorable basis for the promotion of PFPF needs however to be appreciated with caution. This is because of the existence of the well-documented wide gap between FP intentions and actual uptake among women in SSA [8,15]. In this study, findings have been made that suggests that what is likely to happen among the cohort of women interviewed would not be substantially different from what has been found among non-pregnant women interviewed in the GHDS and others studies in SSA; namely a low level of uptake despite a high level of expressed intention to use. The wide disparity between pregnant women's level of knowledge of various modern FP methods, and their use of

Table 4 Effect of acceptability of PPF and related factors on intention to adopt PPF

Acceptability of PPF to respondent and relations	Pregnant woman	Yes	Intention to adopt PPF method		Univariate O.R. (95% C.I.)†	Multivariate O.R. (95% C.I.)‡
			Yes	No		
		Yes	1244	372	8.55 (6.29-11.63)	3.21 (1.64-6.26)
		No	79	202		
	Partner	Yes	950	193	1.00	3.2 (1.94-5.48)
		No	138	218	1.00	
	Mother	Yes	625	175	3.30 (2.50-4.33)	1.60 (0.78-3.27)
		No	192	177	1.00	
	Mother-in-law	Yes	423	110	3.89 (2.84-5.33)	3.06 (0.71-13.27)
		No	168	170	1.00	
	Father-in-law	Yes	377	99	4.19 (3.01-5.83)	0.56 (0.12-2.65)
		No	151	166	1.00	
	Religious leader	Yes	473	154	2.75 (2.07-3.63)	0.90 (0.43-1.87)
		No	198	177	1.00	
Religious partner's permission before adopting PPF		Yes	1136	187	2.23 (1.75-2.85)	0.94 (0.54-1.61)
		No	419	154	1.00	
Willing to use postpartum without making partner aware		Yes	614	127	3.04 (2.41-3.83)	1.37 (0.90-2.11)
		No	709	446	1.00	

these methods in the past (Tables 2 & 3) is evidence in this regard. Furthermore the fact that even among the 85.2% of women who considered PPF to be acceptable practice, 64% did not have the intention to adopt a method is pointer to the fact that the declared intention to adopt PPF is predicated on a number of conflicting factors. An important limitation of this study therefore is the lack of follow-up of the pregnant women to establish how their PPF intentions were met, and to compare the characteristics of those who take up PPF methods and those who do not.

Personal conviction versus role of male partners

The study identified personal conviction as important in getting pregnant women to have the intention to adopt PPF. This finding makes a case for continuing the education of pregnant women on the benefits of PPF, and the advantages of spacing deliveries. Further evidence from the study however suggests that personal conviction is insufficient to ensure actual uptake of PPF by the interviewed women. This is because, by even greater measure, the women in this study made the point about their need for partner approval before they could adopt a method of PPF. Similar studies in SSA have pointed to the critical role played by male partners in the FP decision-making processes of women [16-18]. The finding in this study is further indication of how deep-seated the influence of male partners is on the decision of women in SSA to adopt FP. The evidence suggests that the personal conviction of women is likely to be superseded by the influence of partner approval.

What is however an irony is that in various surveys among men in SSA, it has been shown that except in except in polygamous societies, male partner acceptability of FP is not particularly different from that of women [19]. It has been shown that men are as desirous as their female partners to limit the number of children they father. It would appear therefore that women have an inaccurate perception of their male partners about FP. This has been hypothesized to be the result of inadequate spousal communication about FP [20]. Although the findings of the analysis of DHS data in Ghana and Chad [15,21] cast doubt on the likely effectiveness of spousal communication in causing an increase in the uptake of contraceptive methods, other studies [18], including recent intervention studies have provided convincing evidence about the effectiveness of using spousal communication to cause an increase in the uptake of FP. A trial in Malawi demonstrated that spousal communication on FP led to men actually facilitating contraceptive use by their partner [22]. Spousal communication is now considered to be an integral component of successful interventions to increase male involvement in FP in SSA [23]. The challenge that remains however is how to reach out to male partners and facilitate informed FP spousal discussions. Studies in Uganda and South Africa have shown that a simple intervention such as written letter of invitation to a male partner can lead to significant increase in male attendance at antenatal clinics and opportunities for couple counseling [24,25]. Consistent with the need to have a more aggressive approach to ensuring active male participation in PPF, there is the urgent need to identify additional

approaches that will contribute to assuring women of spousal support of their intentions to adopt PPFp.

Past use of modern family planning

In this study, we found that the intention to adopt PPFp and the selection of injectables as the method of choice were both significantly influenced by past use of the method. The apparent appreciation of injectables is corroborated by the findings of the 2008 Ghana DHS and a recent review of the uptake of various FP methods in SSA [13,26]. An investigation of the factors that make women in Ghana prefer injectables would most likely provide indications of the interventions that would be required to increase the uptake of PPFp in general. The possibility that injectables make it possible for women to use FP discretely needs to be considered.

In the 2008 Ghana DHS, the proportion of married non-users of FP who indicated the intention to use FP ranged from 43.7% to 53.0% [13]. This range is much lower than the 70% found in this study and this could be due to the fact that all the respondents in this study were pregnant women who would reasonably be expected to have a greater desire to delay repeat pregnancy. Notwithstanding the limitation of using intentions to gauge likely uptake, this finding supports the need for pregnant women to be particularly targeted in the promotion of FP in this population.

Implications for the health system in Ghana

The model for delivering antenatal (including community-based) services in Ghana has seen very little innovation and responsive to the evidence on the need for male participation. The focus has remained on women despite clear evidence that the continued limited impact of the family planning program in Ghana is due largely to the continued neglect of men as equal target [27]. Using a cross-sectional design this study has demonstrated that male partner approval is central to getting pregnant women to adopt PPFp. To facilitate this, a mandatory session of couple counseling should be actively explored by health workers as part of the routine antenatal care of each pregnant woman. It should be made a part of standard ANC protocol and health workers required to ensure adherence during facility and community-based care.

Making the correct choice of PPFp method and receiving the appropriate counseling on it is critical to retaining confidence in the use of the injectables in PPFp. The use of injectables in Ghana is associated a number of health-related myths and misconceptions that need to be addressed [28]. A common misconception is that injectables reduce breast milk and should not be used postpartum until menstruation resumes. To the extent that the injectable is emerging as a most highly favored method of FP, including PPFp, there is the need

for injectable-specific, targeted training for health workers involved in PPFp counseling. Non-pregnant women who opt to either start or discontinue injectables in routine family planning clinics should be explicitly informed that the method can be safely used in PPFp.

Conclusion

Male partner approval, past experience with the use of injectables and personal approval of PPFp are the major determinants of the intention of pregnant women in this population to adopt PPFp. Procedures adopted at antenatal and postnatal clinics should be adapted to take these factors into consideration.

Competing interests

The authors declare no conflict of interest.

Authors' contributions

FB was responsible for the conceptualization of the study. SE, FB, YGH, DB were responsible for its design, implementation and production of the initial draft of the manuscript. SE and FB were responsible for finalizing the manuscript after critical review by GQA, JP and KAA. All authors read and approved the final manuscript.

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RESEARCH ARTICLE

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Determinants of unintended pregnancies in rural Ghana

Sebastian Eliason^{1*}, Frank Baiden², Barbara A Yankey³ and Kofi Awusabo-Asare⁴

Abstract

Background: Unintended pregnancies may carry serious consequences for women and their families, including the possibility of unsafe abortion, delayed prenatal care, poor maternal mental health and poor child health outcomes. Although between 1993 and 2008, unintended births decreased from 42% to 37% in Ghana, the rate of decline is low, whilst levels are still very high. This raises the need to understand factors associated with unintended pregnancies, especially among women in rural settings where the rates and risks are highest to help improve maternal health.

Method: We collected data from 1,914 pregnant women attending antenatal clinic between January 2012 and April 2012 in four health facilities in the Mfantseman Municipal of the Central Region of Ghana. We used bivariate and multivariate logistic regression analyses to explore how socio-demographic characteristics, past reproductive health experiences, partner characteristics and relations, awareness and past experience with contraceptives, influenced the status of women's current pregnancy (whether intended or unintended).

Results: The mean age of the 1,914 respondents in this study was 25.6 ± 6.5 years. Seventy percent (70%) said the pregnancies they were carrying were unintended. The odds of carrying unintended pregnancy among women with five or more children were higher than those with one to two children [AOR 6.06, 95% CI (3.24-11.38) versus AOR 1.48, 95% CI (1.14-1.93)]. Women with other marital arrangements showed significantly higher odds of carrying unintended pregnancy compared to those married by ordinance (Muslim or Christian wedding). Women not living with their partners exhibited increased odds of having unintended pregnancies compared to women who lived with their partners (AOR 1.72, 95% CI: 1.28 - 2.30). Awareness of traditional methods of family planning (withdrawal and rhythm) was associated with lower odds of having unintended pregnancy compared to non-awareness (AOR 0.66, 95% CI (0.49-0.89)).

Conclusions: In this study, important risk factors associated with unintended pregnancies were: parity, living arrangements with partner, marriage by ordinance and awareness of traditional, non-pharmacological contraceptive methods. Family planning interventions targeting different groups of women, especially during the postpartum period, would be essential to reduce rates of unintended pregnancies and promote positive health outcomes.

Keywords: Unintended pregnancy, Family planning, Parity, Contraceptive methods

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Background

Unintended pregnancies refer to pregnancies that are not wanted or those that are mistimed at the time of conception [1]. Out of the 208 million pregnancies estimated worldwide, in 2008, 41% were unintended [2]. Rates of unintended pregnancies though declining world-wide are still high. Rates of unintended pregnancies declined by 20% from 71 to 57 per 1000 from 1995 to 2008 among women aged 15 to 44 years in Low- and Middle-Income Countries (LMICs) [3]. In 2008, 75 million women in LMICs reported that their pregnancies were unintended [4] with 23% of these pregnancies occurring in Sub-Saharan Africa [5]. Guttmacher Institute and the United Nations Population Fund (UNFPA) estimated the level of unintended pregnancies in 2008 at 49 per 1000 pregnancies in Asia, 72 per 1000 in Latin America and the Caribbean and for women aged 15 – 44 years in Africa, 86 per 1000; that of Africa was rated as the highest [6] and stated that in Ghana, 37 percent of all births are unintended [7].

Unintended pregnancies may carry serious consequences for women and their families, including possible unsafe abortion, delayed prenatal care, poor maternal mental health, reduced mother/child relationship quality, poor developmental outcomes for children, physical abuse and violence against women, increased risk of low birth weight of babies as well as increased maternal morbidity and mortality [2,8,9]. Available data suggests that induced abortion and related complications are the most common outcomes of unintended pregnancies [10]. It is estimated that in Ghana, induced abortions account for about 12% of maternal deaths, third after hemorrhage (22%) and unclassified causes (14%) [10]; furthermore, the proportion of unintended births also showed a decreasing trend: From 1993 to 2008, unintended births decreased from 42% to 37% [11]. In spite of this decrease, the rate continues to be high and is estimated to be about 0.7 per woman [12,13].

The high rate of unintended pregnancies in Sub-Saharan Africa, including Ghana, attests to poor access to reproductive health care especially family planning, inadequate reproductive health rights and low empowerment of women. Partly due to these prevailing situation, Ghana and most Sub-Saharan African countries are not likely to attain Millennium Development Goals (MDGs) 3, 4 and 5. Targeted interventions, especially during the postpartum period when an unintended pregnancy can be of great risk to mother and baby [14] would be essential, if the rates of unintended pregnancies are to be reduced, to promote positive health outcomes. To achieve this objective, factors that are associated with unintended pregnancies need to be investigated and understood. Studies conducted in the United States, Asia, Middle East and Latin America have revealed several demographic and socio-economic factors

as predictors of unintended pregnancies; among them are contraceptive failure, lack of access to contraception, religious beliefs and poor knowledge on contraception, fertility and pregnancy, a history of previous unintended pregnancy, insufficient reproductive health education, desire for at least two children, parity of five, lack of communication or support within the relationship, husband's reluctance to limit family size, and sexual violence [15-18].

In Ghana, where the situation is critical, very few studies have been undertaken on unintended pregnancies. For instance, one study [12] only detailed analysis of the predictors of unintended pregnancies. Some are listed as age, marital status, abode, educational status, profession, gravidity and parity, poverty or inadequate resources for raising a child, stigma against unmarried mothers, a cultural preference for sons, completion of family size, disagreement between spouses about family size, poor access to family planning services, and poor understanding of risks associated with unintended pregnancy [3,12]. The objective of this study is to contribute to the search for predictors of unintended pregnancies in Ghana through a survey among pregnant women attending antenatal clinics in rural and semi-urban health facilities in the Mfantseman Municipal of the Central Region.

Methods

This study was part of a bigger study on the factors influencing the intention of women in rural Ghana to adopt post-partum family planning (PPFP). The method has been described in an earlier publication [19]. The study was conducted at four health facilities in the Mfantseman Municipal of the Central Region. The area was selected in the Central Region because of consistent reports of adverse maternal health/family planning (FP) outcomes: It reported the highest level of teenage pregnancy (13.6% of all pregnancies in 2010), high incidence of induced abortions and low level of unmet need [11,20].

For this study, all pregnant Ghanaian women living in the municipal and attending antenatal clinic at the Saltpond Government Hospital, Mankessim Health Centre (located in semi-urban settings - i.e.-demographically urban with population of about 42,000, economically agro-based with values, attitudes, tastes and behaviours characteristic of both urban and rural settings) and the Biriwa and Anomabo Health Centers (both rural) between January 2012 and April 2012 were targeted for interview within the premises of the health facilities, using a five-page questionnaire. Questions related to socio-demographic background, socio-demographic characteristics of male partners, issues pertaining to the nature of relationships between the respondents and the male partners, respondents' reproductive history including status of current pregnancy (whether wanted, unwanted or mistimed), awareness and ever use of various Family

Planning (FP) methods and the intention to use FP after delivery.

A total of 1900 pregnant women were targeted to be interviewed on the assumption that 50% of them will have the intention to adopt PFP. With 80% power, it was possible to estimate the proportion of women willing to adopt PFP within a margin of error of 3%. The municipal recorded about 4000 deliveries in 2009.

Cleaned data were exported into STATA/IC (version 11.2) for analyses. Descriptive and bivariate logistic regression analyses were conducted under the various sub-themes of the questionnaire. Two models were used in the bivariate logistic regression analyses. In Model I, tests of association were conducted between eighteen (18) independent variables and the outcome variable (unintended pregnancy). Fifteen (15) of the independent variables were found to be significantly associated ($P < 0.05$) with the outcome variable; however, since $P < 0.05$ is not appropriately robust to determine which associations were real and which were by chance, given so many tests, a second model (Model II) was introduced.

In Model II, the significance level threshold was set higher to 0.003 by conducting a Bonferroni correction. Factors found to be significantly associated with the main outcome of interest, were included in a multivariate logistic regression model (Model III), to identify significant independent predictors of unintended pregnancy. Tests of covariance were conducted among all the significant variables and those found to show covariance were dropped from model III.

The outcome variable (unintended pregnancy) was defined as any pregnancy that was not wanted at all at the time it occurred or in the future, or mistimed i.e. wanted at a later time but not at the time it occurred. An intended pregnancy was defined as any pregnancy that was wanted at the time it occurred or wanted at an earlier time but occurred later.

Ethical approval was obtained from the Ethics Review Committee of the Ghana Health Service (GHS). Institutional approval was also obtained from the Municipal Health Directorate (MHD) and the heads of the facilities where the survey was conducted. Written informed consent was obtained from each participant before the administration of questionnaires.

Results

Background characteristics of respondents and their relation to overall pregnancy status

A total of 1,914 pregnant women were interviewed. The mean age of these women was 25.6 ± 6.5 years, with the majority (29.7%) aged between 20–24 years. Majority (70%) indicated that the pregnancies they were carrying were unintended (mistimed 39%, unwanted 31%). There were more unintended pregnancies reported among

younger (90%) than older women (80%), ($P < 0.001$). There was a trend towards reduced unintended pregnancies with increasing level of education. Prevalence of unintended pregnancies was high among all religious groups with the highest being among the traditionalists (82%). Prevalence of intended pregnancies was relatively higher amongst the Muslims (43%) and Catholics (36%), ($P < 0.001$). Expectant mothers with five or more children had high prevalence (61%) of unwanted pregnancies compared to those with up to four children. Of the 256 respondents who were single, only a tenth of the pregnancies were intended, in contrast to those who were married. A third of those who were married traditionally, engaged or cohabiting had intended pregnancies. The prevalence of unintended pregnancies among students ($n = 124$) was noticeably high (90%) compared to those who were employed in the formal sector as civil/public servants (32% of the 84 respondents). Of those in the informal sector (petty traders, fishmongers and farmers), three out of every four pregnancies were unintended. Intended pregnancies amongst those living in the two semi-urban settlements (Mankessim and Saltpond) were higher than those in the rural areas (Biriwa and Anomabo) (35% versus 20%), ($P < 0.001$) (Table 1).

Bivariate logistic regression analyses of unintended pregnancies on independent variables

Unintended pregnancy (outcome variable) was regressed on each of the identified independent variables (Table 2, Model I). Only those independent variables that were found to be significantly correlated ($P < 0.05$) with the outcome were subjected to Bonferroni's correction (Table 2, Model II). Women aged 20 years and above, had significantly lower odds of having unintended pregnancy (OR 0.83, 95% CI 0.77-0.89). Some factors that were found to be significantly associated with increased odds of unintended pregnancies are: not being married by ordinance (Muslim or Christian wedding) (OR 1.41, 95% CI 1.30-1.52); partner not living in the same house as the woman (OR 2.15, 95% CI 1.70 -2.72) and high parity (OR 1.20, 95% CI 1.12-1.29).

Respondents who were aware of modern and traditional family planning methods, and had ever used traditional methods showed significantly lower odds of carrying unintended pregnancy (OR 0.40, 95% CI(0.25-0.62); OR 0.50, 95% CI(0.40-0.64); OR 0.68, 95% CI(0.55-0.82) respectively]. Education was not found to be a significant factor influencing unintended pregnancies in this study.

Multivariate logistic regression analyses

Controlling for all factors listed in Model III, increasing parity was significantly associated with increasing odds of unintended pregnancy. The odds of carrying unintended pregnancy among women with five or more children were

Table 1 Background characteristics by pregnancy status

Demographic characteristics	Sample size	Percent of total sample size (%)	Overall pregnancy status (%)			
			Intended	Mistimed	Unwanted	Unintended*
Age**						
15-19	340	17.8	9.2	32.3	58.5	90.8
20-24	569	29.7	31.7	45.0	23.4	68.3
25-29	483	25.3	37.7	42.0	20.3	62.3
30-34	291	15.3	38.1	35.1	26.8	61.9
35-39	172	9.0	28.5	36.1	35.5	71.5
40+	56	2.9	19.6	25.0	55.4	80.4
TOTAL	1914	100.0	29.6	39.1	31.4	70.4
Education level**						
None	414	21.6	23.0	39.0	38.0	77.0
Primary	429	22.4	24.8	39.3	36.0	75.2
Middle/JSS	843	44.1	30.0	40.4	29.6	70.0
SSS/SHS/VOC	166	8.7	41.2	36.4	22.4	58.8
Tertiary	62	3.2	69.4	27.4	3.2	30.7
TOTAL	1,914	100.0	29.6	39.1	31.3	70.4
Religion**						
Christlan	1,783	93.2	29.3	39.0	31.7	70.7
Muslim	88	4.6	39.8	36.4	23.9	60.2
Traditionalist	10	0.5	20.0	60.0	20.0	80.0
Other	33	1.7	22.6	41.9	35.5	77.4
TOTAL	1,914	100.0	29.6	39.1	31.3	70.4
Gravidity**						
1 -2	1,025	53.8	31.8	36.7	31.5	68.2
3 -4	531	27.9	30.5	46.9	22.6	69.5
5+	348	18.3	21.6	34.2	44.3	78.5
TOTAL	1,904^	100.0	29.6	39.1	31.4	70.4
Parity**						
0	673	35.2	30.9	31.1	38.0	69.1
1 -2	772	40.3	34.1	46.3	19.6	65.9
3 -4	353	18.4	23.1	42.2	34.8	76.9
5+	116	6.1	11.2	27.6	61.2	88.8
TOTAL	1,914	100.0	29.6	39.1	31.4	70.4
Marital Status**						
Married by Ordinance (Church/mosque)	236	12.4	49.6	32.6	17.8	50.4
Married (Traditional)	857	44.8	29.3	42.1	28.6	70.7
Engaged	282	14.7	38.1	40.2	21.7	61.9
Cohabitation	267	14.0	24.2	45.3	30.6	75.9
Divorced/Sep/Widowed	8	0.4	0.0	62.5	37.5	100.0
Single	256	13.4	9.6	26.7	63.8	90.4
Other	6	0.3	0.0	20.0	80.0	100.0
TOTAL	1,912^	100.0	29.6	39.1	31.3	70.4

Table 1 Background characteristics by pregnancy status (Continued)

Occupation**							
Fishmonger	318	16.6	21.5	38.6	39.9	78.5	
Farmer	67	3.5	19.4	43.3	37.3	80.6	
Petty trader	913	47.8	28.1	42.3	29.6	71.9	
Civil/Public Servant	84	4.4	67.9	23.8	8.3	32.1	
Student	124	6.5	9.8	30.9	59.4	90.2	
Other	406	21.2	39.0	37.0	24.0	61.0	
TOTAL	1,912 [^]	100.0	29.6	39.1	31.3	70.4	
Area of residence**							
Saltpond	422	22.2	36.3	38.9	24.9	63.7	
Biriwa	231	12.1	21.2	35.9	42.9	78.8	
Anomabo	324	17.0	20.1	41.1	38.9	79.9	
Mankessim	567	29.8	34.0	36.5	29.5	66.0	
Other	358	18.8	28.8	43.6	27.7	71.2	
TOTAL	1,902 [^]	100.0	29.6	39.1	31.3	70.4	
Religious Denomination**							
Catholic	199	11.2	35.68	32.16	32.16	64.3	
Protestant/Charis/pent	1,361	76.9	30.05	39.75	30.2	70.0	
Muslim	81	4.6	43.21	39.51	17.28	56.8	
Traditionalist	74	4.2	17.57	48.65	33.78	82.4	
No/other religion	54	3.1	22.22	46.3	31.48	77.8	
TOTAL	1,769 [^]	100.0	30.53	39.46	30.02	69.5	

*Unintended (mistimed + unwanted), (Pearson Chi2 Statistic - **p < 0.001), [^]observed differences in total sample sizes (1914) are due to missing values.

higher than those with one to two children [AOR 6.06, 95% CI (3.24-11.38) versus AOR 1.48, 95% CI (1.14-1.93)]. Women with other marital arrangements showed significantly higher odds of carrying unintended pregnancy compared to those married by ordinance (Muslim or Christian wedding). Single women showed the highest odds of carrying unintended pregnancy [AOR 7.32, 95% CI (4.21-12.75)]. Women not living with their partners exhibited increased odds of having unintended pregnancies compared to women who lived with their partners (AOR 1.72, 95% CI: 1.28 - 2.30). Awareness of traditional methods of family planning (withdrawal and rhythm) was associated with lower odds of having unintended pregnancy compared to non-awareness (AOR 0.66, 95% CI (0.49-0.89) (Table 2 Model III).

Discussion

Factors which were identified to be significantly associated with the tendency to consider the pregnancy which women were carrying at the time of the survey to be unintended, included parity, marital arrangement, living arrangement with partner and awareness of traditional methods of contraception.

High parity was significantly associated with unintended pregnancy. The expectation was that the level of

unintended pregnancy would be lower with increasing parity. The result indicating high odds of unintended pregnancies with increasing parity among women is an observation which would need further investigation despite similar findings from other studies. [12,21,22]. The relatively low exposure of rural women in Ghana to modern family planning [10] could partly explain this finding. Another possibility is that, couples looking for a particular gender may end up having more children than intended; there is evidence that parents wanting to balance the sex of their children will continue to give birth if all the children are of the same sex and especially if parents have a desire for a son. Chaudhuri, S, demonstrated from a study in India that the desire for sons, or not having any son, was associated with an increase in parity progression [23]. This finding supports prior research in South East Asia [24-27].

Studies have persistently demonstrated higher odds of unintended pregnancy among partners with other marital arrangements compared to married couples [28-31]. Lachance-Grzela & Genevieve Bouchard, explain that the advantage of married couples generally having favourable and healthier pregnancies than unmarried couples occurs only when the pregnancies are intended [28]. The finding that, women who reported other forms of marital

Table 2 Binary logistic regression analyses: models I&II (bivariate analyses) and model III (multivariate analyses)

Variables	Model I		Model II	Model III	
	OR (95% CI)	Unadjusted P-value	Bonferroni adjusted P-value	Adjusted Odds Ratio (AOR)	P-value
Age (Ref: 15–19)					
20-24	0.83 (0.77-0.89)	<0.001	<0.001	NA	NA
25-29					
30-34					
35-39					
40+					
Educ status (Ref: none)					
Primary	0.98 (0.92-1.03)	0.45	NA	NA	NA
Middle/JSS					
SSS/SHS/Vocational					
Tertiary					
Ethnicity (Ref: fante)					
Others	1.00 (0.98-1.02)	0.89	NA	NA	NA
Religion (Ref: christian)					
Muslim	1.04 (0.99-1.09)	0.15	NA	NA	NA
Traditionalist					
Others					
Parity (Ref: 0)					
1 – 2	1.20 (1.12-1.29)	<0.001		1.48 (1.14-1.93)	0.004
3 – 4				2.64 (1.88-3.71)	<0.001
5+			<0.001	6.06 (3.24-11.38)	<0.001
Marital status (Ref: by ordinance)					
Traditional rites	1.41 (1.30-1.52)	<0.001	<0.001	1.81 (1.33-2.45)	<0.001
Engaged, yet to be married				1.58 (1.10-2.28)	0.014
Cohabitation				2.91 (1.96-4.31)	<0.001
Single				7.32 (4.21-12.75)	<0.001
Partner age (Ref: 15–19)					
20-29	0.97 (0.95-0.98)	<0.001	<0.001	NA	NA
30-39					
40+					
Partner religion (Ref: christian)					
Muslim	1.25 (1.06-1.47)	0.009	0.135	NA	NA
Traditionalist					
Others					
Partner has Chn. from other women (Ref: yes)					
No	1.33 (1.08-1.64)	0.008	0.120	NA	NA
Years of marriage/relationship (Ref: <1Yr.)					
1-4 yrs	1.02 (1.00-1.05)	0.019	0.285	NA	NA
Partner lives in same house as woman (Ref: yes)					
No	2.15 (1.70-2.72)	<0.001	<0.001	1.72 (1.28-2.30)	<0.001
Partner has other spouses (Ref: yes)					
No	1.47 (1.06-2.23)	0.019	0.285	NA	NA

Table 2 Binary logistic regression analyses: models I&II (bivariate analyses) and model III (multivariate analyses)
 (Continued)

Gravidity (Ref: 1-2)					
3-4	1.08 (1.12-1.14)	0.004	0.060	NA	NA
5+					
Previous abortions/miscarriages (Ref: yes)					
No	1.00 (1.00-1.0045)	0.043	0.645	NA	NA
first pregnancy					
Awareness of modern FP (Ref: no)					
Yes	0.40 (0.25-0.62)	<0.001	<0.001	0.70 (0.42-1.17)	0.173
Awareness of traditional FP (Ref: no)					
Yes	0.50 (0.40-0.64)	<0.001	<0.001	0.66 (0.49-0.89)	0.007
Ever use of modern FP (Ref: no)					
Yes	0.78 (0.64-0.95)	0.014	0.210	NA	NA
Ever use of traditional FP (Ref: no)					
Yes	0.68 (0.55-0.82)	<0.001	<0.001	0.95 (0.75-1.21)	0.672

arrangements had higher odds of unintended pregnancies compared to those married under the ordinance, presents an issue for further investigation within the Ghanaian context. It is possible that forms of marital arrangements could have implications for stability of marriage and therefore the possibility of planning pregnancies. The high odds of unintended pregnancies among single or unmarried women are not unexpected. This is especially so when pregnancy is considered to be a prelude to marriage or for solidifying a relationship [29]. Fear of infertility in future marital unions is a major driver behind this in some communities.

Two non-pharmacological contraceptive methods proved beneficial in preventing unintended pregnancies in this study. Women who were aware of withdrawal and rhythm as protective measures against unintended pregnancy, were less likely to have unintended pregnancies compared to those who were not aware. The socio-cultural context within the rural setting, myths and fear of side effects of modern contraceptives possibly influenced this finding.

As observed by Ikamari and colleagues [21] also, formal education was not significantly associated with pregnancy intendedness, contrary to expectation on this correlate. There was however, a trend towards reduced unintended pregnancy with increasing level of education (Table 1), which is consistent with other studies [12,32]. It could be an emerging issue which would need further investigation within the Ghanaian context.

Conclusions

This study has highlighted several factors associated with unintended pregnancy: parity, marital arrangement, living arrangement with partner and awareness of traditional, non-pharmacological contraceptive methods.

These results indicate that various categories of women would need to be targeted differently for family planning messages and services. For instance, the National Centre for Civic Education (NCCE), Ghana Health Service, religious bodies and Non-Governmental Organizations need to intensify the campaign on the importance of couples to opt for marriage by ordinance, since it has several advantages over other forms of marital arrangement. This study revealed that if partners lived together, the probability of unintended pregnancies may reduce. Marriage by ordinance may further strengthen this relationship and help to reduce unintended pregnancies. Campaigns on sex balancing aimed at encouraging parents to accept the sex of the children they have could be carried out, in order to limit the tendency to higher parity progression. This could be fairly easy given the fact that there are no obvious sex preferences in Ghana.

Family planning programmes may need to consider promotion of traditional, non-pharmacological methods alongside the modern methods, especially in rural settings, to improve overall contraceptive prevalence rates. For clients who do not want to adopt modern contraceptives despite all reassurances, the option of traditional methods should be offered them. This implies that health workers may need to be trained adequately to provide such services. Commitment from the Ghana Health Service Family Planning Programme would be required if this is to succeed.

Unintended pregnancy may be of greatest risk to mother and baby during the postpartum period. Family planning interventions, especially targeting this period, would be essential if the rates of unintended pregnancies are to be reduced, to promote positive health outcomes. In connection with this, pregnant women attending

antenatal clinic (ANC) need to be targeted for family planning counseling before they deliver. Couple counseling should be actively explored by health workers as part of the routine antenatal care of each pregnant woman. It should be made a part of standard ANC protocol and health workers required to ensure adherence during facility and community based care.

Study limitations

The threat of selection bias existed, but was highly mitigated, by ensuring that, the data collectors explained the study objectives and their implications very well to the respondents, before asking for consent. The time for the study was short; and this was imposed by limited funding and strict reporting requirements by funding agency. Some of the data collectors abandoned the study because of inadequate remuneration. New data collectors had to be trained to continue data collection. This brought about some delays in data analysis and reporting.

Abbreviations

ANC: Antenatal clinic; AOR: Adjusted odds ratio; CI: Confidence interval; FP: Family planning; GHS: Ghana Health Service; LMIC: Low-and middle-income countries; MDG: Millennium development goals; MHD: Municipal Health Directorate; NCCE: National Commission for Civil Education; OR: Odds ratio; PFPF: Postpartum family planning; UNFPA: United Nations Population Fund.

Competing interests

The authors declare that they have no competing interest.

Authors' contributions

SE and FB were responsible for the conceptualization of the study. SE and FB were responsible for its design and implementation. SE and BY were responsible for production of the initial draft of the manuscript. SE was responsible for finalizing the manuscript after critical review by KAA. All authors read and approved the final manuscript.

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