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POST ABORTION FAMILY PLANNING METHOD CHOICES AND ASSOCIATED FACTORS

BY

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DECLARATION

I, Emmanuel Kofi. Sekyere, hereby declare that this study is a result of my independent work. References to other works have been duly acknowledged. I further declare that this study has not been submitted for award of any degree in this institution and other universities elsewhere. I complied with all ethical principles during my research work.

…….. ……..

Emmanuel Kofi Sekyere **DATE**

(STUDENT)

…….... ……

PROF. AUGUSTINE ANKOMAH **DATE**

ACADEMIC SUPERVISOR

DEDICATION

I dedicate this work to God for granting me the knowledge, guidance and protection, my parents; Nana Kwasi Addae II and Mary Achina, and my entire family.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

Acronyms	Meaning
AIDS	Acquired Immune Deficiency Syndrome
CAC	Comprehensive Abortion Care
DMPA	Depot-medroxyprogesterone acetate
FP	Family Planning
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
LARC	Long-Acting Reversible Contraceptives
LDCs	Least Developed Countries
MCM	Modern Contraceptive Methods
MDGs	Millennium Development Goals
MSIG	Marie Stopes International Ghana
NGOs	Non-Governmental Organizations
PAC	Post-abortion contraceptive
PAFP	Post-abortion family planning
SAC	Safe Abortion Care
SDG	Sustainable Development Goal
SRH	Sexual and Reproductive Health
USAID	United States Agency for International Development
WHO	World Health Organization

ABSTRACT

Background

Repetitive abortions especially in restricted environments increase risk of unsafe abortion and its complications and pregnancies less than six months post-abortion have increased risk of adverse maternal and perinatal outcome. Ensuring effective post-abortion family planning method usage improves both situations. However, there is limited data on post-abortion contraceptive practices in Ghana which can largely be attributed to the concentration of researchers on general abortion situation with limited attention to post-abortion Family Planning uptake and the associated socio-demographic and reproductive factors.

Objective

This study therefore seeks to examine the post-abortion family planning method choices and associated factors at all 9 Marie Stopes Ghana Clinics in Ghana.

Methodology

The cross-sectional study employed secondary data on Safe Abortion Care (SAC) clients for the period between January 1, 2015 and December 31, 2016 at all the centers of Marie Stopes International Ghana. The factors affecting the client's choice for Post-Abortion Family Planning method were identified through both binary and multinomial logistic regression methods.

Findings

The result showed that 89.4% of Safe Abortion Care clients opted voluntarily for various types of Post Abortion Family Planning (PAFP) with the majority opting for short-term methods like Depo-Provera, Norigynon, and COCP; long-term methods like IUCD and Jadelle implant. The gestational age at which clients received SAC influenced their choice of specific PAFP method as in relatively terms, more of Depo-Provera, Norigynon and COCP were preferred in the gestational period under 9 weeks whereas more of IUCD, Jadelle implant, Zarin and Implanon NXT implant were preferred in the period between 9 to 12 weeks. The SAC client's choice of long term contraceptive methods relative short-term methods was positively associated with living children, gestational age and the previous contraceptive used; but negatively associated with clinic location, education, age group, and abortion method.

Conclusion

It can therefore be concluded that SAC clients are statistically different in terms of their preference of short-term, long-term and permanent methods.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The lives and health of women worldwide are threatened by complications from spontaneous and unsafely induced abortions (Corbett and Turner, 2003; Sedgh et al., 2007). From the induced abortion estimate of 43.8 million worldwide, unsafe abortions constitute nearly 20 million (World Health Organization [WHO], 2011). The estimated unsafe abortion is the cause of the death of about 47,000 women and girls that constitute about 13% of all pregnancy-related mortalities (WHO, 2011). With virtually all unsafe abortions taking place in the developing world, the unsafe abortion related death is about 98% (Shah and Ahman, 2010; Sedgh et al., 2012). In Africa, about 97% of the induced abortions are not safe (Sedgh et al., 2012 cited in Mutua et al., 2015) as they are carried out by unskilled persons or/and within environments of minimal standards medically (WHO, 2011; Trussell, Nucatola, Fjerstad and Lichtenberg, 2014). A more serious phenomenon is that about half of the deaths related to unsafe abortion occur in Sub-Saharan Africa, although, only 24% of abortions occur within the sub-region (Singh, 2006; WHO, 2011). Thus, the sub-region records the highest maternal mortality ratio of 500 per 100,000 births in the world (Rominski and Lori, 2014), with 47,000 of these deaths related to unsafe abortion (WHO, 2011 cited in Rominski and Lori, 2014). Ghana in the Sub-Saharan Sub-region has high level of unsafe abortion of at least 19 abortions per 100 pregnancies with two-third of abortions performed outside the medical environment (Hill, Tawiah-Agyemang and Kirkwood, 2009). The high levels of maternal morbidity and mortality in the country are significantly contributed to by complications associated with abortion. As a leading cause of maternal mortality, unsafe abortion accounts for more than 1 in 10 maternal deaths (i.e., 11%) (Sedgh, 2010). It is further estimated that for every

maternal mortality due to unsafe abortion, 15 suffer short and long-term morbidities (Rominski and Lori, 2014). The institutional record of pregnancy related maternal deaths of 955 in 2016 in Ghana corresponds to the increase in Maternal Mortality Rate (MMR) of 163.5 that declined from 2013 to 2015 due to the implemented MDG Acceleration Framework (MAF) program (Ghana Health Service, 2016). The large estimates of maternal deaths have the potential to decline by 25% to 35% through the improved accessibility, correct and consistent usage of contraceptives (Lule, Singh and Chowdhury, 2007).

The enormous rate of death related to unsafe abortion and the associated injuries to an estimated five million women worldwide due to complications implies the need for post-abortion care (PAC) (Fullerton and Ottolenghi, 2012; Passini et al., 2014). PAC constitutes a life-saving strategy that ensures reduction in morbidity and mortality risks emanating from incomplete induced abortion (Osur et al., 2013). The PAC service is essential for women experiencing complications due to induced abortion (USAID, 2007, Billings et al., 2007). The International Health Community in 1994 identified PAC as a crucial strategy in maternal morbidity and mortality reduction through the provision of post-abortion family planning counseling services to reduce repeated unintended pregnancies and abortions (Opoku, 2012). The International Conference on Population and Development (ICPD) projected global awareness and support on Post-Abortion Care as a reproductive and sexual health intervention through service provider and community partnership, post-abortion counseling, treatment, contraceptive and FP services (Corbett and Turner, 2003; Okonofua, 2006; Sedgh, 2007). The PAC Consortium in 2003 certified a framework that stipulated the critical components of care, with the goal of enhanced PAC sustainability and service quality based on the assertion of healthcare providers and patients (Corbett and Turner, 2003). The PAC

services, however, have failed to address the contraceptive unmet needs of women as it had largely focused on treating post-abortion hemorrhage and sepsis to attain maternal mortality reduction (Rasch, Yambesi and Massawe, 2008; Curtis, Huber and Moss-Knight, 2010).

Return to fertility after an uncomplicated first trimester abortion can be as early as 10 days and since many women resume sexual activity shortly after the termination, it is important to offer those not seeking another pregnancy effective contraceptive method (Opoku, 2012). The exposure of women in reproductive age to abortion-related complications including maternal mortality is increased with repetitive unsafe abortions and in environments that do not have favorable laws on abortion, the probability of subsequent abortions being unsafe is higher. The World Health Organization recommends that women should wait at least 6 months, after an induced abortion or a miscarriage, before attempting another pregnancy to decrease the risks of adverse maternal and perinatal outcomes (WHO, 2017). Post Abortion Family Planning is defined as the uptake of a family planning method by a woman within 14 days of an uncomplicated abortion (WHO). The women are presented with several varying forms of FP methods with varying advantages and drawbacks. There is generally some endogeneity between method choice and reasons for choosing the method, especially in areas where women have informed choice about contraceptive methods (Staveteig, Mallick and Winter, 2015). The FP methods available to the women include short acting, long acting, and permanent methods (Bekele, Gebremariam and Tura, 2014). In all considered settings, short-term methods are commonly utilized compared to the LARC methods, despite the Long-term methods having more efficacy, more cost-effective in the long run, and better tolerated in terms of side effects than short-acting methods (Secura et al., 2010; Bekele, Gebremariam and Tura, 2014; Tibaijuka et al., 2017). The drawbacks and advantages associated

with the usage of the FP methods inform continuation or switching intention of clients (Tibaijuka et al., 2017). Contraceptive failures largely result in unwanted births (Bradley, Croft and Rutstein 2011; Ali, Cleland and Shah 2012). A worrying situation arises when clients switch to less effective FP methods or abandon contraceptive usage. The latter place women at risk of unintended and/or unwanted pregnancy that could potentially result in unsafe induced abortions in environments with restricted access to safe abortion (Singh, Sedgh and Hussain 2010). Thus, considering the potential effect of FP method type on client discontinuation or continuation, it is imperative to investigate the post-abortion family planning method preferences and associated factors at Marie Stopes Ghana facilities in Ghana.

1.2 Problem Statement

In Ghana, forty-five percent of abortions are unsafe despite the liberalization of the law on abortion over two decades (Opoku, 2012). The report of the Adolescent Health and Development Program indicated that about 16,182 girls performed unsafe abortion in 2011 resulting 15% of maternal deaths in Ghana (Rominski and Lori, 2014). From Ghana's maternal mortality ratio of 319 deaths per 100,000 live births estimated in 2015; failing to meet the global MDG target of 54 per 100,000 live births, unsafe abortion contributed more than 11 percent (CIA World Factbook, 2017).

Ghana therefore needs an intensified PAC package to meet the Goal 3 of the Sustainable Development Goal (SDG) of ensuring reduction of maternal and child health mortality, access to safe, affordable and effective medicines for all by 2025. Ghana could therefore meet the goal 3 requirements of the SDG by addressing the low level of post-abortion contraceptive uptake.

In Ghana, "*current use of any method is 23 percent among all women, 27 percent among currently married women, and 45 percent among sexually active unmarried women. Among currently married women, 22 percent are using a modern method and 5 percent are using a traditional method. Contraceptive use varies with the woman's age"* (GHS, 2015). For target facilities in Ghana, post-abortion FP uptake increased from 15% in July 2008 to 43% in June 2012 (Cole et al., 2012). It is also significant to mention that a national survey in 2007 reported that 70% of women involved in abortions were not using any method of contraceptive. In 2012, only 5% of women that received abortion services were provided contraceptive method (Opoku, 2012). Therefore, quality and focused counseling services need to be enhanced in PAC to improve post-abortion uptake of FP methods (Abamecha, Shiferaw and Kassaye, 2016).

There are limited data on post-abortion contraceptive practices in Ghana and this can largely be attributed to the concentration of researchers on general abortion situation with limited attention to post-abortion FP uptake and the associated socio-demographic and reproductive factors (Geelhoed et al., 2002; Mote, Otupri and Hindin, 2010; Agyei, 2014). It is essential to examine the socio-demographic factors affecting post-abortion FP uptake as past studies indicate wide variation in the socio-demographic characteristics of women adopting FP methods immediately after abortion and large differences in the methods adopted (Rasch et al., 2004; Ertopcu, Inal and Ozelmas, 2005; Delvaux et al., 2008; McCarraher et al., 2010; Kokeb et al., 2015; Abamecha, Shiferaw and Kassaye, 2016). Post-abortion uptake of FP has also been demonstrated to be relatively higher among the unmarried in African compare to their Asian counterparts (Prata et al., 2011; Abamecha, Shiferaw and Kassaye, 2016).

1.3 Research Questions

This study seeks to provide answers to several questions including:

1. What is the proportion of clients that took up Post-Abortion Family Planning (PAFP)?
2. What types of FP methods are preferred by clients after the first trimester Safe Abortion Care?
3. What are the socio-demographic and reproductive factors that influence Post-Abortion Family Planning Uptake?

1.4 General Objective

Generally, the study seeks to describe the reproductive and socio-demographic factors associated with the choice of PAFP taken after first trimester Safe Abortion Care (SAC).

1.5 Specific Objectives

The specific objectives of the study include:

1. To determine the proportion of clients who opt voluntarily for PAFP
2. To assess the types of modern FP method taken up by clients after first trimester SAC
3. To evaluate the socio-demographic and reproductive factors affecting PAFP Uptake.

1.6 Motivation/Significance of the Study

The study is of great significance to several stakeholders in the health sector including Healthcare Practitioners and Administrators, Clients, Government and NGOs seeking to bridge the unmet needs of women in Least Developed Countries (LDCs). Adequate data would also be provided for the usage of academicians. Many countries in Africa including Ghana are confronted with the

difficulty of stalling and reducing the high rate of unintended pregnancies resulting in unwanted pregnancies with it increased possibility of unsafe abortion among women. Policy makers and Governments have an increasing concern about reducing the rate of maternal mortality and morbidity and hence require data from this study and others to inform effective policies. The Government of Ghana in its attempt to meet the Millennium Development Goals (MDGs) instituted several policies and still fell short of the standards in 2015. Renewed policies and strategies are being instituted in the health sector in Ghana in an attempt to meet the 2025 Sustainable Development Goal (SDG) three of reducing maternal mortality and morbidity. The study would also provide the needed information for health practitioners in their quest to provide quality Comprehensive Abortion Care (CAC) services to clients and contribute their quota in meeting the unmet contraceptive needs of clients. The study provides NGOs with adequate information on the FP preferences of clients and assists them in instituting effective strategies to reduce unsafe abortion. By exploring these relationships, educational campaigns can be designed to suit specific populations and counseling will be more tailored for effectiveness.

Furthermore, the low uptake of modern FP methods and the differences in the preference of women for short acting, long acting, and permanent methods is also a critical motivation for the study. Previous studies in different geographical settings assert that the rate of usage of short-acting methods is higher than long-acting and permanent methods (Bekele, Gebremariam and Tura, 2014; Staveteig, Mallick and Winter, 2015; Tibaijuka et al., 2017). The current study also seeks to examine the factors associated with the preference of women for varying methods of FP. The enormous volumes of studies on post abortion contraceptive intention and/or practice, and associated factors among abortion clients have largely ignored the preferences of women for short

term, long term or permanent methods. Understanding the characteristics associated with post-abortion women's preference for either short-term, long-term or permanent methods will improve client-centered counseling. More so, the studies on post abortion contraceptive intention and/or practice, and associated factors among abortion clients in Africa are largely concentrated in Eastern Africa with limited attention to the Sub-Saharan Africa (e.g., Kokeb, Admassu, Kassa and Seyoum, 2015; Mutua, Maina, Achia and Izugbara, 2015; Abamecha, Shiferaw and Kassaye, 2016). This study therefore seeks to contribute and help partly fill these study gaps by investigating the post abortion family planning method choices and associated factors in the Marie Stopes International Ghana SRH Clinics.

1.7 Conceptual Framework/Hypotheses

Post-abortion FP method choices of clients differ. After abortion and counseling, the preference of women for FP services varies from short acting, long acting reversible contraceptive and permanent methods. This study therefore seeks to evaluate the socio-demographic and reproductive factors affecting PAFP uptake in Ghana. The dependent or outcome variable of the study, type of PAFP method taken is therefore three facets - short acting, long acting and permanent methods. The short acting methods include, hormonal pills and injectable hormones; and the long-acting reversible contraceptive (LARC) methods include intrauterine devices (IUCD) and hormonal implants; and the permanent contraceptive method considered is voluntary female sterilization called Bilateral Tubal ligation. Scientific studies have consistently identified that method type is the most vital factor in the continuation or discontinuation of FP methods (Bradley, Schwandt and Khan, 2009). Thus, for policy effectiveness and strategy implementation it is essential to identify the socio-demographic and the reproductive factors affecting PAFP uptake in

Ghana. The considered socio-demographic factors include age, location, educational background, number of living children, religion, marital status and occupation. The reproductive factors include previous contraceptive use, parity and previous history of abortion. It should be emphasized that the study assumes the provision of standardized counseling services by MSIG. The discussed concept is presented in the framework (Figure 1.1).

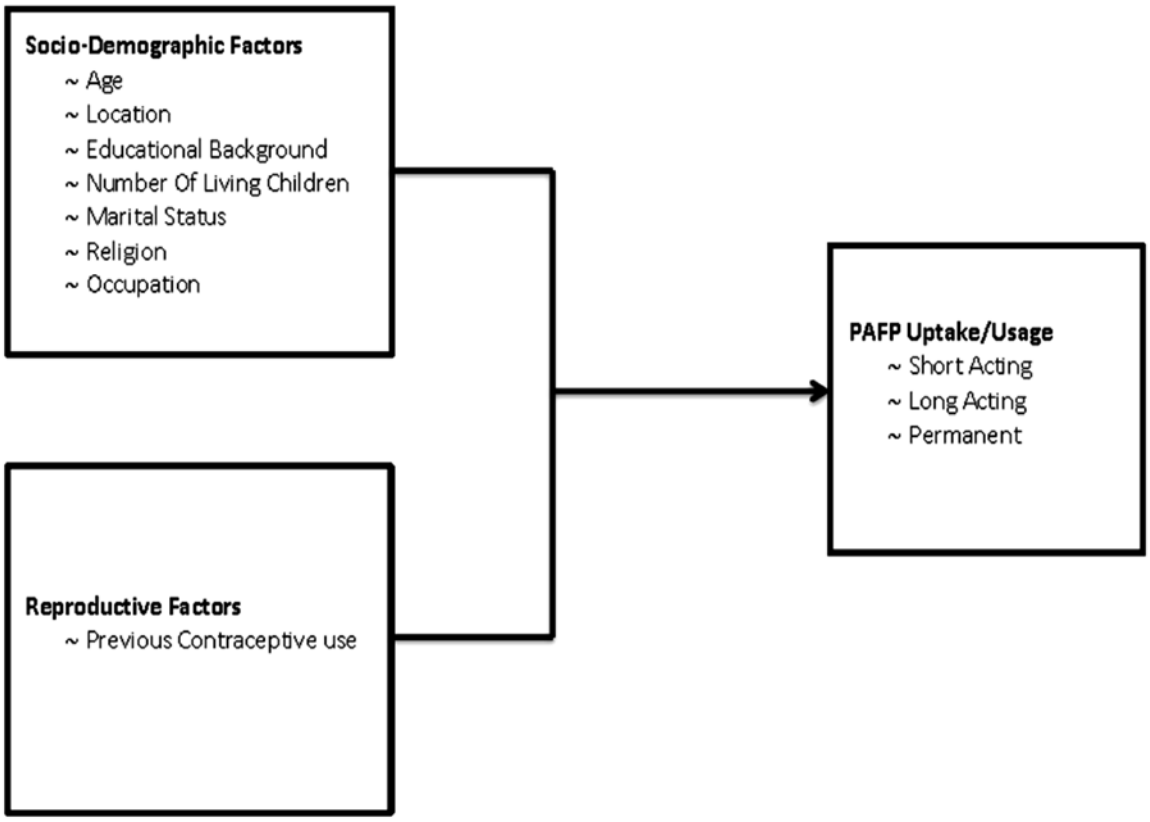

Figure 1.1: Conceptual framework of the study

Source: Author's Own Construct (2017)

1.7.1 Developed Hypotheses

Based on the considered dependent or outcome variable and the predictors of the study model, the developed hypotheses include:

H_1: Age is associated with the choice of PAFP methods

H_2: Education is associated with the choice of PAFP methods

H_3: Marital status is associated with the choice of PAFP methods

H_4: The number of living children is associated with the choice of PAFP methods

H_5: Previous contraceptive use is associated with the choice of PAFP methods

1.8 Study Assumptions

The study assumes the following;

1. Marie Stopes International (MSI) has a standardized counseling framework, the principle and guideline upon which clients are assisted to make an informed choice of which service to receive (abortion and family planning). The study will assume that all clients were counseled using this standardized counseling framework and it is because of this assumption that the study concentrated on only personal socio-demographic characteristics and reproductive health factors.
2. The clients in the study population were counseled by different service providers over the period of study. The study will assume that all the service providers counseled the clients without provider bias.

3. The data collected from the client and by the service providers onto the primary source (client record forms) were correctly entered into the MSI's MIS, CLIC, from which the analysis was done.

CHAPTER TWO

LITERATURE REVIEW

This section of the study reviews both theoretical and empirical literatures related to the uptake of post-abortion care. The chapter initially defined and described the concept of post-abortion care. The chapter subsequently reviewed literatures on thematic areas like the uptake of uptake of PAFP, Method choices, the socio-demographic factors and reproductive factors affecting PAFP uptake.

2.1 Post-Abortion Care

As many as half of the admissions to some hospital gynecological wards in some parts of the developing world are women that require management for unsafe abortions (Center for Reproductive Rights, 2003). One of the consequences of receiving medical treatment for unsafe abortions is prolonged hospitalization which extend from several days to several weeks. The available studies report that it can cost as much as 50 percent of the budgets of some health facilities in some developing countries to treat complications of unsafe abortion (WHO, 2011b). ” *Post-abortion care (PAC) is treatment given to women who visit health center or hospital with complications, usually bleeding or infection, due to an incomplete abortion or miscarriage*” (WHO, 2011a). PAC services include both medical and preventive care. Medical care, including medication or surgery, is given to the woman to evacuate the uterus and to save her life whilst preventive care involves counseling the patient to voluntarily take up a contraceptive method for prevent subsequent unintended pregnancies (Center for Reproductive Rights, 2003).

The International health organizations generally recognize post-abortion care to include: “*(1)* ***Emergency treatment*** *for complications of abortion or miscarriage; (2)* ***Counseling*** *to identify*

and respond to women's emotional and physical health needs and other concerns; (3) ***Contraceptive and family planning services*** *to help women prevent an unwanted pregnancy or unsafe abortion or to practice birth spacing; (4)* ***Management*** *of sexually transmitted infections; and (5)* ***Reproductive and other health services*** *that are provided on-site or through referrals to other accessible facilities"* (Post-abortion Care Consortium Community Task Force, 2002). The 1994 International Conference on Population and Development, in its consensus Program of Action, "*called for all women to have access to treatment for abortion-related complications and post-abortion counseling, education, and family planning services, regardless of the legal status of abortion"* (Post-abortion Care Consortium Community Task Force, 2002).

2.2 Uptake of PAFP

In the study by Mayi-Tsonga et al. (2014) on the introduction of post-abortion contraception, it was reported that the most known method was the oral pill (42.0%) among the patients of the principal maternity hospital of Gabon. The study further revealed that more than 90 percent of the patients accepted a modern contraceptive method after abortion. In this study, two-thirds (66.8%) opted for the pill, 14.6% DMPA, and 9.3% a LARC method. Only 9.1% of the women decided not to use any contraceptive method. In the study of Abamecha, Shiferaw and Kassaye (2016) in the Gambella Health Facilities in the South West Ethiopia, the post abortion contraception utilization rate was 74.4% among clients. Another study in Ethiopia by Kokeb et al. (2015) also reported 59.2 percent rate of post-abortion contraceptive utilization. The study of Prata, Bell, Holston, Gerdts and Melkamu (2011) on the factors associated with choice of post-abortion contraception in Addis Ababa in Ethiopia reported about 44% post-abortion contraception uptake.

2.3 Contraceptive Method Choices

The failure and challenges associated with the traditional methods of family planning have heightened interest in modern methods of family planning (Kopp et al., 2017). Modern contraceptive methods can be classified into three main groups: 1) short-acting contraceptives (i.e. oral contraceptive (OC) pills, condoms, spermicides, and injectable hormones; 2) long-acting reversible contraceptives (LARC), (i.e. intrauterine devices (IUCD) and hormonal implants; and 3) permanent methods (i.e. sterilization via tubal-ligation or vasectomy (Andreea, Duff, Sabrina, and Amy, 2011).

The commonest Short-Acting methods are Combined Oral Contraceptive Pills (COCP), Injectables (Progestin-Only Injectables (POI) and Combined Injectable Contraceptives (CIC)) and Progestin-only pills. Progestin-only pills (POP) are oral contraceptive pills that have synthetic progestogens (progestins) as their active agents and do not contain any estrogen (Curtis et al., 2016). The combined oral contraceptive pills, the vaginal ring, and the skin patch are short-term methods that combine the hormones progestin and estrogen as their active agents. (Curtis et al., 2016). The POPs are in a common language is known as mini pills. In contrast to the more widely used COCPs containing an estrogen and progestin (van Vliet, 2011; Lopez, 2012), these mini pills which contain only progestogen are taken without interruption. Progestin-only pills' mode of action in preventing pregnancy is through three potential mechanisms. the main mechanism is by thickening the cervical mucus into a plug and thus making it relatively impenetrable to sperm and secondly by inhibiting growth of the endometrium with an added effect of ciliary inactivation in the fallopian tube. These two effects potentially decrease the likelihood of implantation (McCann, 1994; Wallach, 2000; Raymond, 2011). The third mechanism is by inhibiting ovulation by a

variable degree (FSRH 2008) The effectiveness of progestin-only pills is not well-established. With common use it has been reported that variable failure rates in the first year of use is between 0 and 13% (Raymond, 2011; Trussell, 2011); some authors have however estimated that with typical use, pregnancy rates may approximate those of combined oral contraceptives (Wallach, 2000). Combined oral contraceptive pills work in the same way as the progestin only pills in preventing pregnancy. However instead after 21 days of taking the active agent, the user must wait for 7 days before restarting another cycle of active agents to ensure continuous protection from pregnancy. Within those 7 days, the user takes a placebo which usually a nutrient supplement.

Injectables which belong to the group of short-acting methods are clinically very effective against pregnancy. Injectables come in different types. The most widely known and used is the depot medroxyprogesterone acetate (DPMA, brand name: Depo Provera), which was licensed and marketed in 1960s (Seth, Nagrath, and Deoghare 2012). It is a progestin-only injectable that provides contraception for up to three months with a two-week grace period, i.e. it can still offer the women protection against pregnancy for up to 14 days after the date of repeat injection. (Adetunji 2011; Seth, Nagrath, and Deoghare 2012). Norethindrone enanthate (NET-EN) is another type progestin-only injectable which provides contraception for two months (Adetunji 2011; Seth, Nagrath, and Deoghare 2012). Combined injectable contraceptives (CICs), such as Cyclofem, Norigynon Mesigyna and Deladroxate, contain both estrogen and progestin and are only effective for preventing pregnancy for up to a month (Seth, Nagrath, and Deoghare 2012). For exclusively or near-exclusively breastfeeding mothers, it is not recommended for them to use CICs until 6 months after delivery (Seth, Nagrath, and Deoghare 2012; WHO 2015). When DMPA shots are taken on schedule the failure rate is less than 1 percent (Hatcher, Trussell, and Nelson

2007). Compared to long-acting methods like implants and IUCD, injectables are less effective (Singh and Darroch 2012). and cannot be actively discontinued until the effectiveness period expires. The return of fertility is delayed, particularly for DPMA and NET-EN (Seth, Nagrath, and Deoghare 2012; WHO 2015). Injectable use is rising rapidly, particularly in sub-Saharan Africa, because of convenience of use and provision, length of effectiveness, and discretion (Adetunji 2011; Bertrand et al. 2014; Seiber, Bertrand, and Sullivan 2007). Adetunji (2013) found in the review of the Demographic and Health Surveys of 6 Sub-Saharan African countries that the use of injectables among married women ranged from 6.2 percent in Ghana to 25.8 percent in Malawi, while a larger study of national surveys from 123 countries found that the contraceptive prevalence rate of injectables in all of sub-Saharan Africa was 7.3 percent (Ross, Keesbury, and Hardee 2015). Amongst the reasons the women expressed in preferring injectables include the fact that they do not have to take a pill everyday while others see an advantage, the side effect of absent menses that can result with the use of Depo Provera. Adetunji (2011) reported, tested, and confirmed the theory that secrecy is also a major factor in the use of injectables as well. The administration of the injectables can either be done at the health facilities or during mobile outreach activities and it would not require partner permission or other family members who may disapprove. These advantages may be responsible for the dramatic increase in injectables during the last 20 years. Bertrand et al, (2014) found that this increase was as high as 42 percentage points in Chad and over 25 percentage points in six other countries.

Long-acting reversible contraceptive (LARC) methods including intrauterine contraceptive devices (IUCDs and, implants comprise a growing part of contraceptive use method mix in low-income countries (Staveteig, Mallick and Winter, 2015). The usage of IUCDs began in the 20th

century (Ali et al., 2011). IUCDs are mainly T-shaped devices inserted into a woman's uterus by a health care provider to prevent pregnancy. IUCD types differ from country to country. The three common types of IUCD are Mirena, TCu 380A, and ParaGard. Mirena is hormonal (containing progestin) and lasts up to 5 years while TCu 380A and ParaGards' copper content prevents pregnancy for up to 12 years (Ali et al., 2011). The IUCD is required to be removed at the end of this period. The rate of failure of the device during the first year of usage is reported to be below 1 percent (Hatcher, Trussell and Nelson, 2007). Studies support the immediate insertion of IUCD postpartum, ideally within 10 minutes and up to 48 hours of the delivery of the placental. The convenience of a woman being present at a health facility and the guarantee that she is not currently pregnant have been the major boosters to advocating for postpartum IUCD insertion. This practice is common in Egypt, China, and Mexico (Grimes et al., 2003; WHO, 2015). IUCD has the highest effective rate of preventing pregnancy and due to the long during of effectiveness of up to 12 years, is the most cost-effective method in comparison with all reversible modern methods of contraception (Ali et al. 2011; Hatcher, Trussell, and Nelson 2007). After the IUCD is removed, there is immediate return to fertility; the 12-month post-removal pregnancy rate is comparable to non-IUCD users (Mansour et al. 2011). In the past few decades, the usage of IUCDs increased worldwide. Despite the declines of its usage in recent times, it is still the most widely used reversible method (Seiber, Bertrand and Sullivan, 2007; Ali et al., 2011). Nonetheless, there several studies that have reported albeit without a significance testing reported in them, either a decrease or stagnation in IUCDs usage, especially in sub-Saharan Africa and other low-income countries (Bertrand et al. 2014; Darroch and Singh, 2013; Seiber, Bertrand and Sullivan 2007).

Implants are also LARCs and very effective at preventing pregnancy, with a typical use failure rate less than 1 percent (Hatcher, Trussell, and Nelson 2007; Rademacher et al., 2014). Implants are progestin containing rods that are inserted under the skin and can prevent pregnancy for up to three to five years depending on the type (Ramchandran and Upadhyay, 2007). "*The first implant, Norplant, was licensed in 1983 although global production was discontinued in 2008 after a lawsuit accused Norplant of causing scarring, pain upon removal, and other side effects"* (Rademacher et al., 2014; Ramchandran and Upadhyay, 2007). *"Newer generations of implants are smaller, offer easier insertion and removal, and have fewer complications*" (Ramchandran and Upadhyay, 2007). These include Jadelle, Sino-Implant, Implanon Classic and Implanon NXT. These newer generation implants are less expensive, and with long duration use, more cost-effective than the short-term methods (Bertrand et al., 2014; Power, French and Cowan, 2007; Singh and Darroch, 2012). Just like the IUCD, with discontinuation return to fertility is immediate for users and also it can be inserted immediate postpartum irrespective of the breastfeeding status of the mother. (Espey and Ogburn 2011; Power, French, and Cowan, 2007). Ross, Keesbury, and Hardee (2015) found that a little less than 1% of all married women in low income countries use implants thereby not making implants the dominant or modal method in any country.

Voluntary surgical sterilization for females (Tubal Ligation) and males (Vasectomy) are the only permanent methods of preventing pregnancy. For couples who intend to limit childbearing, sterilization is considered the most cost-effective method when assessing cost over the duration of effectiveness (Seth, Nagrath, and Deoghare, 2012). Tubal ligation and vasectomy, are considered permanent and thus cannot be discontinued because success rates of reversal are poor, can be expensive and reversal technique is not available in a lot of countries. Therefore, men and women

opting for permanent methods of contraception should have made an informed voluntary choice, understanding the implications of the decision before taking up the method. Although it forms a declining share of the method mix in most countries, permanent methods of contraception is the preferred choice in majority of developed countries (Mansour et al., 2011; Seiber, Bertrand, and Sullivan 2007; Bertrand et al. 2014). In many countries in Latin America, the Caribbean, and Asia, tubal ligation in commonly preferred (Mansour et al., 2011; Seiber, Bertrand, and Sullivan 2007) and accounts for between 31 to 64 percent of the method share in some countries in those regions (Mansour et al., 2011). In the Middle East, North Africa and sub-Saharan Africa, tubal is not common because it is a surgical procedure that requires infrastructure and properly trained providers which are challenging for low-income countries (Ross, Keesbury, and Hardee, 2015; Seiber, Bertrand, and Sullivan, 2007). Use of vasectomy is low at less than 3% of the method mix in many low-income countries (Seiber, Bertrand, and Sullivan 2007).

In all considered settings, short-term contraceptive methods are more commonly utilized than the LARC methods, despite the Long-term methods having a higher efficacy, more cost-effective in the long run, and better tolerated in terms of side effects than short-acting methods (United Nations, 2003; Lipetz, Phillips and Fleming, 2009; Secura et al., 2010). Further, the effectiveness of short-acting methods is highly dependent on user characteristics such as education level (Huber, Curtis, Irani, Pappa and Arringtone, 2016). Consequently, short-acting methods can be less effective in resource-limited settings where many women seeking contraception may have low education levels (Alemayehu and Abebach, 2014). Several studies in the world have reported the level of awareness and clients' preference for modern contraceptive methods. Women's awareness and choice of contraceptives is limited to short acting methods. In a community based cross-

sectional survey of 788 married women aged 15-49 years in Agarfa district in the South-East Ethiopia reported that the most ever known (98.5%) and ever used (81.5%) type of modern contraceptive was Depo-provera (Bekele, Gebremariam and Tura, 2014). Permanent methods were rarely recognized as contraceptive method due to fear of side effect (Bekele, Gebremariam and Tura, 2014). Tibaijuka et al. (2017) indicated that the prevalence of ever use for LARC methods was 23%. The most common reasons advanced for choosing LARC methods were their high effective rate, ability to offer longer protection and providing better child spacing options. The commonest reasons given for not making an informed choice LARC methods included requiring a client-controlled method and desiring to conceive in the immediate future. The most common reasons for choosing short-term methods were ease of accessibility; less expensive cost; privacy of use; perceived fewer number of side effects; and the liberty to discontinue the method without involving the health provider. Evidence from a study on family planning methods among rural women in Osun state in Nigeria reported the level of usage of modern FPs at 66.3 percent (Olugbenga-Bello, Abodunrin and Adeomi, 2011). The common modern family methods used by the rural women include male condom, diaphragm, hormonal, injectable, IUCD, implants and pills (Olugbenga-Bello, Abodunrin and Adeomi, 2011). The most preferred method among the women in the Osun State in Nigeria was pills. A study among rural women in Zambia also reported 56 percent as the level of usage of modern family planning methods (Mubita-Ngoma and Kadantu, 2010). The women in the rural setting in Zambia were largely using short-term methods like pills, condoms and injectables (Mubita-Ngoma and Kadantu, 2010). In the Baringo North District in Kenya, the current usage rate of modern contraceptives was 32.3 percent; pills, injectable and male condoms (short-term methods) were most commonly known and used methods (Malalu, Koskei, Too and Chirchir, 2014). The study of Nangendo (2012) in the Bondo district in Kenya also

reported predominant usage of short-term modern contraceptive methods like pills, male condom and injectables.

The adoption of Modern Contraceptive Methods (MCM) among women in the Silchar Medical College and Hospital in Assam was extremely low (7%), though the awareness level of was about 67 percent (Barbhuiya, 2016). The commonly used method among the women of Assam was the short-term method of oral contraceptive pills (Barbhuiya, 2016). The common Modern Contraceptive Methods also used in Manipur in India were pill, female sterilization and IUCD (Gogoi et al., 2017). The evidence available from the study of Kopp et al. (2017) reported a decreasing trend of the usage of traditional methods and increasing trend in the usage of long-acting and permanent methods (LAPM) over time.

In the Talensi district in the Upper East Region of Ghana, 89% were aware of modern family planning methods but only 18% had used modern family planning methods in the past (Apanga and Adam, 2015). The study in the Nkwanta district of Ghana also reported limited usages of MCMs. the dominant MCMs in the district were short-term methods (Eliason et al., 2014). Evidence from the review literature indicates that clients generally prefer Short-term modern methods relative to the long-term and the permanent methods.

2.4 Socio-Demographic and Reproductive Factors Affecting PAFP Uptake

Studies examining post-abortion contraception usage show that method usage widely varies contingent on demographics and reproductive factors (McCarraher et al., 2010; Prata, Bell, Holston, Gerdts and Melkamu, 2011; Goldstone et al., 2014; Maxwell, Voetagbe, Paul and Mark, 2015; Benson, Andersen, Healy and Brahmia, 2017).

Abamecha, Shiferaw and Kassaye (2016) in their study reported that, "*women within the age groups 20-25 had 1.6 [(OR=1.6, 95%CI (0.99, 2.39) times higher odds of Post abortion family planning utilization than the 20-24 age groups; and the clients with educational status of tertiary and above and those that received counseling were 2.1 [(OR= 2.1, 95%CI (1.30, 3.36) and 3.3 [(OR= 3.3, 95%CI (1.9, 5.6) higher odds of post abortion family planning utilization than the illiterates and those that received no counseling respectively"*. Mutua et al. (2015) also reported that delay in seeking post abortion care among women in Kenya was influenced by several factors including women's age, education level, contraceptive history, fertility intentions and referral status. Age and education have also been reported to affect the uptake of FP after abortion care (Goyal, Canfield, Aiken, Dermish and Potter, 2017; Mutua, Achia, Maina, and Izugbara, 2017).

Kokeb et al. (2015) in their investigation of the utilization of post-abortion contraceptive and associated factors among women in Ethiopia reported that the rate of post-abortion contraceptive utilization was affected by marital status, education and counseling services. The study indicated that married women, counseled clients and women with higher educational level have higher odds of post abortion contraceptive utilization. Wariki et al. (2015) also reported age, income level and education as factors influencing client's post-abortion utilization of family planning methods. The study of Prata, Bell, Holston, Gerdts and Melkamu (2011) on the factors associated with choice of

post-abortion contraception in Addis Ababa in Ethiopia reported the number of children, number of previous abortions, age and education as critical factors influencing post-abortion contraception uptake. Mayi-Tsonga et al. (2014) in a survey of 383 women admitted with abortion complications reported that 206(53.7%) knew of no systemic contraceptives. The best-known method was the oral pill (42.0%) with only 14 women (3.6%) having knowledge of a LARC method (IUCD or implants) and only 2(0.5%) knowing the injectable. Mayi-Tsonga et al. (2014) further reported that over 90% accepted a modern contraceptive method after abortion, with the majority choosing the pill. Abera, Mengesha and Tessema (2015) in a survey of 703 women in a community-based cross-sectional study reported that nearly half (48.4%) of the postpartum women were using different types of contraceptives and the most commonly used method was injectable (68.5%). Abera, Mengesha and Tessema (2015) "*further asserted that resumption of menses [Adjusted Odds Ratio (AOR) = 8.32 95% Confidence Interval (CI): (5.27, 13.14)], age ≤24 years [AOR = 2.36, 95% CI: (1.19, 4.69), duration of 7–9 months after delivery [AOR = 2.26 95% CI: (1.12, 4.54)], and having antenatal care [AOR = 5.76, 95% CI: (2.18, 15.2)] were the factors positively associated with contraceptive use in the extended postpartum period.*"

Prata, Bell, Holston, Gerdts and Melkamu (2011) in the investigation of the factors associated with choice of post-abortion contraception in Addis Ababa in Ethiopia analyzed the medical records of 1,200 women seeking abortion related services using logistic regression model and reported that *"women aged 40-44, students, employed women, receipt of services in private clinics, number of children, and number of previous abortions were significantly associated with the odds of adopting any modern contraceptive post-abortion. The odds of choosing a long-active contraceptive method were significantly and positively associated with being age 25-29, attaining secondary or higher*

education, and number of children. In general, a larger proportion of women seeking safe abortion or post-abortion care in Africa are unmarried compared to Asia, where the majority of women tend to be married" (Bankole, Singh & Haas, 1999). Prata, Bell, Holston, Gerdts and Melkamu (2011) reported that pills and Injectables were the most preferred choice of the SAC clients and the least preferred were IUCD and implant.

Benson, Andersen, Healy and Brahmia (2017) in their study of the factors contributing to post-abortion contraceptive uptake by young women in 10 countries in Asia and sub-Saharan Africa analyzed client log book data from 921,918 abortion care cases in 4,881 health facilities in 10 countries from July 2011 through June 2015 and reported that about 77 percent of the SAC clients left the facility with a contraceptive method. The majority (84%) of contraceptive acceptors selected a short-acting method, especially oral contraceptives. The study reported positive relationship between age and uptake of contraceptive methods as women at age 19 were less likely to choose a method than women 25 years or older. Adolescents and young women were also significantly less likely to choose a long-acting, reversible contraceptive than those ages 25 or older.

Maxwell, Voetagbe, Paul and Mark (2015) in their study of the factors influencing the receipt of post-abortion contraceptive methods using retrospective cohort data collected from 64 health facilities in three regions of Ghana between 1 January 2008 and 31 December 2010 at each health facility and analyzed through fixed effect Poisson regression model. The result of this study showed that more than half (65%) of the 29,056 abortion clients received some form of contraception. The result further showed a relationship between the type of abortion service

provider and the choice of family planning method taken up by the client. Abortion clients seen by midwives and physicians were more likely to choose a long-acting and permanent rather than a short-acting contraceptive method as compared to those seen by house officers. Another finding was that irrespective of the indication for the abortion (whether induced or post-abortion care) or the type of service provider, younger women were less likely to receive contraception than older women.

Goldstone, Mehta, McGeechan, Francis and Black (2014) in the examination of the uptake of long-acting reversible contraceptive (LARC) methods after abortion among women seeking abortions through a major Australian abortion provider using MSI data gathered between 1 September and 31 December 2012 showed that just over a quarter of women (27.4%) chose a LARC method for use after abortion. The result further showed that *"compared with women aged 20–24 years, those aged 16–19 years were less likely to have immediate LARC insertion and those over 30 more likely. Women in the lowest socioeconomic quintile were the least likely to leave the service with their chosen LARC in place compared with those in higher quintiles."* The result also indicated that immediate LARC provision occurred more often after surgical abortion compared with medical abortion. Women choosing surgical and medical abortion differed subtly, but significantly in several respects (Niinimäki et al., 2009). Pregnancy repeat termination was reported lower after surgical abortion compare to medical abortion as medical termination of pregnancy was not linked to an increased risk of another abortion when compared with surgical methods (Niinimäki et al., 2009).

Evident from the reviewed literature is that studies on post abortion uptake of contraception in Africa are largely concentrated in Eastern African countries like Kenya, Ethiopia and Uganda.

Generally, the factors identified by the studies to be related to post-abortion uptake and the choice of contraception included marital status, age, income, education, counseling, number of living children, previous abortions.

CHAPTER THREE

RESEARCH METHODOLOGY AND STUDY AREA

This chapter provides information on the study location and the study organization. The chapter further provides and discusses the research methodologies and methods employed in the study. The thematic areas discussed included the research design, population of the study, sample size, sampling procedure, data collection instruments, data collection procedure, inclusion and exclusion criteria, quality control, data processing and analysis.

3.1 Study Location or Area

This study focused on data from SAC clients from all the clinics or facilities of Marie Stope Ghana for a two-year period from the period of January 1, 2015 to December 31, 2016. "*MSIG is an international non-governmental organization providing contraception and abortion services in 37 countries around the world. Marie Stopes International as an organization lobbies in favor of access to abortion when it is indicated, and provides a variety of sexual and reproductive healthcare services including contraceptive counseling, vasectomies, and abortion care in the UK and other countries where it is legal to do so. Marie Stopes International estimated that the services they provided in 2013 prevented approximately 6.1 million unintended pregnancies, 14,300 maternal deaths and 3.1 million unsafe abortions. In 2013 there were 15.6 million women using a method of contraception provided by Marie Stopes International"* (Marie Stopes International, 2013). In 2015 there were an estimated 21 million women around the world using a method of contraception provided by Marie Stopes International. The contraception and safe abortion services that the organization provided in 2015 averted 6.3 million unintended

pregnancies, 4 million unsafe abortions and 18,100 maternal deaths (Marie Stope International, 2015).

The organization's core services include family planning; safe abortion and post-abortion care; maternal and child health care, including safe delivery and obstetrics; diagnosis and treatment of sexually transmitted infections; and HIV/AIDS prevention (Global Impact Report 2012). In Africa, Ghana is among the countries where the institution provides reproductive health services. Marie Stopes Ghana began providing contraception and safe abortion services in 2007. Since then they have become one of the country's most trusted providers, helping more than 115,000 women each year.

Marie Stopes International Ghana (MSIG) operates in every region of the country, delivering services and information to the country's underserved communities in many different ways. The reproductive health services are provided through 9 clinics in urban areas located in Kokomlemle, Ashaiman, Tema New Town (in the Greater Accra Region), Koforidua (Eastern Region), Santasi, Alabar (Ashanti Region), Techiman (Brong Ahafo Region), Tamale (Northern Region) and Takoradi (Western Region). The other channels through which MSIG provides reproductive services are six rural and two urban mobile outreach teams, 136 private healthcare providers, operating under our BlueStar social franchise brand, Social marketing of contraceptives and a call center, providing information and referrals. Marie Stopes International Ghana works closely with the Government of Ghana to reduce unsafe abortion and ensure that more women can access the contraception that will allow them to take control of their futures.

All the nine MSIG centers are licensed by Ghana Health Facilities Regulatory Agency under the Health Facilities Regulatory Agency Act, Act 829 in 2011 to provide Sexual and Reproductive Healthcare services. Included is safe abortion care which comprises client-centered counseling;

client-focused, simple, safe and effective methods of terminating pregnancy for all legal indications, treatment of incomplete and unsafe abortions at gestational ages up 12 weeks achieved either through a surgical procedure or medical process using pharmacological agents; and provision of contraceptive and family planning services to help women prevent unintended pregnancies.

Irrespective of the type of abortion services, every client who reports at the center is registered into the Marie Stopes International's Management Information System (MSI) called Client Information Center (CLIC) with the generation of a client ID number. Basic demographic details like age, sex, educational status and occupation, and marketing details like source of referral and how or where client learnt of MSI services are entered into CLIC and printed on a Client/Clinical Record Form on which clinical history, physical examination, informed consent, type of service and procedure notes are noted when the client meets the service provider. In the consulting room the client is provided with client-centered options counseling (both on abortion and voluntary post-abortion contraception) and when assessed to be eligible for chosen methods, service is provided. After service, relevant clinical details are entered into CLIC against the client identification number generated for the client. Future visits by the client are linked to this initial client identification number. The socio-demographic and reproductive factors researched in this study were extracted from SAC client entries recorded in CLIC from January 1, 2015 to December 31, 3016.

3.2 Research Design

This study was largely underpinned on the cross-sectional design. This study fits this type of design as it examined the fraction of SAC clients of MSIG and their choices of post-abortion family planning types. "*Cross-sectional studies are carried out at one time point or over a short period. They are usually conducted to estimate the prevalence of the outcome of interest for a given population, commonly for the purposes of public health planning"* (Levin, 2006). Cross sectional studies largely investigate prevalence and associations (Bland, 2001). Cross sectional studies are essential for study of many variables using data from a large number of subjects in an attempt to explore public health planning and generate hypotheses for future research through observations (Hemed, 2015).

3.3 Study Population

The study population constituted the clients that received SAC services in the 9 MSIG centers from January 1, 2015 to December 31, 2016. The clients that received SAC services in MSIG from the period of January 1, 2015 to December 31, 2016 were 22,382. Therefore, the study population constituted all 22,382 clients that received SAC services in MSIG centers. The SAC clients were taken from the 9 MSIG centers located in Kokomlemle, Ashaiman, Tema New Town (in the Greater Accra Region), Koforidua (Eastern Region), Santasi, Alabar (Ashanti Region), Techiman (Brong Ahafo Region), Tamale (Northern Region) and Takoradi (Western Region).

3.4 Variables

This section of the study describes the outcome variables and the independent or explanatory variables used in the study.

3.4.1 Outcome Variable

The dependent or the outcome variable of the study was the choice of PAFP method taken up after 1st trimester SAC in Ghana. The choices of PAFP method considered are short-acting, long acting and permanent. The description of the outcome variable is shown in Table 3.1.

3.4.2 Independent Variables

The independent variables of the study included socio demographic factors and reproductive factors of women. The considered socio demographic factors include age, location, educational background, number of living children, marital status, religion, and occupation. The reproductive factors considered were previous contraceptive use, abortion method and gestational age.

3.5 Sampling

The sample size and sampling method employed in the current study are discussed in this section of the study.

3.5.1 Sample size

As the study is dependent on secondary data, all clients that received SAC services in MSIG centers from January 1, 2015 to December 31, 2016 were considered as part of the sample size of the study. The clients that received SAC service in MSIG from the period of January 1, 2015 to December 31, 2016 were 22,382.

3.5.2 Sampling method

The study did not sample from the study population but considered the entire population as the sample size of the study. Therefore, no sampling procedure was done.

3.6 Data Collection Techniques

The study relied on secondary data. In CLIC (Marie Stopes International's MIS Platform) several reports can be run, two of which are Client Visit Dataset and Service Package Dataset. For every visit that a client makes at the center (first visit or follow up visit), it is recorded in CLIC and gets populated in the Client Visit Dataset whereas the Service Package Dataset populates services that clients had opted for whether received on the day of entry or not. After complying with MSI's data protection policy and signing data protection and confidentiality agreement, MSIG's IT experts exported these two datasets from its servers to MS Excel format. From these two datasets, all entries of safe abortion services were filtered. The second level of filtering involved filtering out all follow up visits on safe abortion services thus only initial visits were available. The third level of filtering was for those who actually received the safe abortion services on the day of entry. It is this filtered data which contained the socio-demographic and reproductive factors, SAC service received and PAFP that was used for the analysis.

3.6.1 Inclusion Criteria

The study considered all clients that received SAC services in MSIG centers from January 1, 2015 to December 31, 2016. The inclusion criteria further considered clients with complete data on issues related to age, location, educational background, number of living children, marital status, religion, occupation, previous contraceptive use, abortion method and gestational age.

3.6.2 Exclusion Criteria

The researcher excluded clients without the full or complete required information or data for the study who were 139 in number out of the total 22,382 entries.

Of the remaining 22,243, making 99.38% of the study population, all clients who received an abortion service but did not opt for a PAFP were excluded in analyzing the association between the personal socio-demographic and reproductive health facts, and post-abortion family planning choices. The total number of such clients were 2,366. The sample size was therefore not exactly the same as the study population after the exclusion criteria were applied.

3.7 Quality Control

Data collected by Marie Stopes International is a robust and credible source of data for the study because of the following reasons;

1. MSIG captures data from each client visit in a centralized system, making these datasets the primary source of information on all service provision.
2. The MIS used, CLIC has an in-built data validation system that flags some discrepancies, for instance Vasectomy being recorded as service received by a male gender or Surgical SAC being recorded for a male gender. The monitoring and evaluation (M& E) team run reports on these flags, the site of data entry informed and also given a temporary access to rectify the error by referring to the client record form if the daily shift is already closed. The M&E checks serve as a control for the daily end-of-day report running by the clinic themselves before closing the shift. The clinics also, to ensure the quality and accuracy of the data in CLIC, on regular basis verify the paper medical records to information captured in CLIC to ensure the accuracy and quality of same.

3. On regular basis the M&E team conduct data quality checks by randomly selecting clients that had agreed to be contacted after service provision. The call center (MarieCall) will make follow-up calls to verify from clients whether they had actually received the services recorded in CLIC.
4. On quarterly basis the M&E team visit the service provision sites, randomly compare the source document (the client record forms) with has been entered into CLIC and also check whether the number of client record forms tally with the entries in CLIC. If variations or discrepancies are noticed, service sites are granted temporary access to correct entry errors, referring to the client record forms and adjustments are passed in subsequent reports respectively.
5. The datasets are already anonymized and do not contain client identifying information and that it would not be possible to re-identify clients based on the datasets that will be available to the researcher.

These are the reasons that make the MSIG data a robust source of data for this study.

3.8 Data Processing and Analysis

The secondary data was sieved to ensure that clients with incomplete information are discarded from the analysis. The data was analyzed using STATA 14. The statistical analytical methods included both descriptive and inferential methods. The descriptive methods like frequency, percentages, mean and standard deviation were employed in examining the proportion of clients that voluntarily opt for PAFP and the types of modern FP method preferred by clients after first trimester SAC. The inferential analytical method involved both binary and multinomial logistic regression methods. Bivariate analysis was also carried to examine the inclusion of the

independent variables in the logistic models through independent sample t-test. The variables used in the estimation of the logistic regression models are provided in Table 3.1.

3.8.1 Description of Variables used in the Estimated Models

This section of the study describes and operationalizes the key variables used in the study. The section provides the operational definition, the type of variables and the possible signs as shown in Table 3.1. The table further provides apriori assumptions on the signs of the relationship between the independent variables considered and the dependent variable based on the reviewed literature.

Table 3.1: Description and Operationalization of Variables

Variables	Operational Definition of Variables	Type of Variable	Apriori Sign
PAFP Uptake or usage	No FP service = 0, Short-Acting = 1, Long acting = 2, Permanent = 3 Short-acting methods will include combined oral contraceptive pills, Progestin-only pills, Progestin-only injectable, Combined Injectable, Condoms Long-acting methods will include Levonorgestrel – Intrauterine Device, Copper-Intrauterine Device, Implants (Implanon Classic, Implanon NXT, Jadelle, Zarin. Permanent methods will include Bilateral Tubal Ligation	Categorical	
Socio Demographic Factors			
Age	15-19 = 0, 20-24 = 1, 25-29 = 2, 30-34 = 3, 35-39 = 4, 40-44 = 5, 45-49 = 6 15-34 will be defined as Young Women 35-49 will be defined as Aged Women	Interval	+
Location	Southern belt = 0, Middle belt = 1 and Northern belt = 2 Northern - Tamale Centre Middle – centers at Santasi, Alabar, Techiman Southern – centers at Takoradi, Kokomlemle, Ashaiman, Tema Newtown, Koforidua	Categorical	-/+
Educational background	No Formal = 0, Basic = 1, Secondary = 2, Tertiary = 3 Clients with Secondary and Tertiary education will be operationalized as highly educated Clients with no formal or basic education will be operationalized as less educated	Categorical	+
Number of living children	The number of living children of clients	Continuous	+
Marital status	Married = 0 , Single = 1, Co-Habitation = 2, Widowed/Divorced/Separated = 3	Categorical	-/+
Religion	Christianity = 0, Islamic = 1, Atheist = 2, Traditional =3	Categorical	-/+
Occupation	Agriculture = 0, Artisan = 1, Formal or salary worker = 2, sales/services = 3, student/apprentice = 4, unemployed = 5	Categorical	
Reproductive Factors			
Previous contraceptive use	Never Used MM = 0 Currently not using MM = 1 Short term = 3 Long term = 4 Short and long term methods describes the usage of MCMs in the last 3 months before pregnancy Clients currently not using MCMs is operationalized as using MCMs but stopped 3 months or more months before pregnancy	Categorical	+
Abortion method	Medical = 0 Surgical = 1	Categorical	+/-

3.8.2 Statistical Methods Used

The socio-demographic and reproductive factors affecting PAFP uptake were evaluated using multinomial logistic regression method. The dependent variable is categorical rather than continuous. Each choice of post-abortion family planning method of SAC clients is another category. The dependent variable of this study therefore had three categories that are unordered. Dependent variables of this nature are largely modeled empirically through probabilistic choice model which is an extension of a standard linear model, in which each choice is modeled with a separate equation including the predictors and an error (Dow and Endersby, 2004). Among the most widely used probability choice models is multinomial logistic regression and hence its adoption for the current study. The multiple facets of PAFP considered include short acting, long acting and permanent methods. The study also employed cross-tabulation method Pearson's Chi Square and Fisher's Exact tests in examining the relationship between the uptake of PAFP and the socio-demographic factors and the reproductive factors since these factors are categorical variables; and location and the socio-demographic and reproductive factors.

3.9 Ethical Considerations

In all quantitative studies, researchers are required to anticipate and adhere to ethical issues that may arise during the studies (Hesse-Biber and Leavy, 2011). The researcher, prior to the conduct of the study ensured professional association standards and obtained the permission of the supervisor and the ethics approval of the Ghana Health Service Ethical Review Committee with GHS-ERC Number, GHC-ERC: 139/12/17 (Appendix A). The researcher further sought the permission of the Country Director of MSIG for the study to be conducted in the Marie Stopes International Ghana organization and signed off to Marie Stopes International's Data Protection Policy, which is a confidentiality agreement, which amongst other things ensures the researcher maintains the privacy of the clients' data (Appendix B). Moreover, since the study problem identified would be of immense significance to the selected institution, policy makers and the Government of Ghana, the purposes of the study was disclosed to the selected institution (MSIG) and further granted the institution the freedom to request for a copy of the result. The researcher did not reveal the identity of any of the clients whose data was used in the study and maintained the highest confidentiality principles MSIG offers their clients.

CHAPTER FOUR

RESULTS

This chapter is largely in two basic sections. The first section mainly discusses the socio-demographic distribution of the SAC clients of Marie Stopes International Ghana (MSIG) by location of the facilities. The second section employed inferential analytical methods to identify the socio-demographic and reproductive factors associated with SAC clients' uptake of post-abortion family planning method. The second section involved the adoption of both binary and multinomial logistic regression methods in identifying the factors affecting PAFP methods uptake.

4.1 Socio-Demographic Characteristics of FP Clients by Location

This section of the study discusses the personal data of the clients that received SAC services in the 9 MSIG centers from January 1, 2015 to December 31, 2016. The socio-demographic characteristics of the clients by location of Marie Stopes' facilities in Ghana is shown in Table 4.1. Table 4.1 further presents a Chi-Square test of the relationship between the socio-demographic characteristics of the clients and the location of the facilities.

Table 4.1, shows that out of the post-abortion clients of 22,243 that visited MSIG facilities countrywide during the study period, the highest level of education of just half was JHS or SHS (50.1%). About 39% and 7% of the clients had tertiary education and no formal education respectively. The post-abortion clients of MSIG in the Middle Belt during the study period were largely JHS or SHS leavers (48.1%) whilst those who had tertiary education made up 41.1% of the total. From the Northern location of MSIG, the post abortion clients largely had JHS or SHS and tertiary level of education. Similarly, the post abortion clients of MSIG in the Southern Belt had

JHS or SHS (50.7%) and tertiary (38.0%) level of education respectively. it is therefore evident that the SAC clients that visited MSIG clinic during the study period largely had basic level of education.

Table 4.2: Socio-demographic data of FP Clients by Location

	Location			Total	X(df)
	Middle	Northern	Southern		
Education					**2.231(15)*** **
JHS/SHS	1408(48.1%)	329(43.1%)	9403(50.7%)	11140(50.1%)	
No Formal	180(6.1%)	96(12.6%)	1187(6.4%)	1463(6.6%)	
Post-graduate	22(.8%)	11(1.4%)	129(.7%)	162(.7%)	
Primary	115(3.9%)	23(3.0%)	787(4.2%)	925(4.2%)	
Tertiary	1205(41.1%)	304(39.8%)	7044(38.0%)	8553(38.5%)	
Total	2930(100.0%)	763(100.0%)	18550(100.0%)	22243(100.0%)	
Marital Status					2.247(12)***
Div./Wid./Sep.	29(1.0%)	3(.4%)	103(.6%)	135(.6%)	
Co-habiting	148(5.1%)	13(1.7%)	1765(9.5%)	1926(8.7%)	
Married	714(24.4%)	217(28.4%)	3176(17.1%)	4107(18.5%)	
Single	2039(69.6%)	530(69.5%)	13506(72.8%)	16075(72.3%)	
Total	2930(100.0%)	763(100.0%)	18550(100.0%)	22243(100.0%)	
Occupation					2.255(21)***
Agriculture	8(.3%)	8(1.0%)	50(.3%)	66(.3%)	
Artisan	151(5.2%)	7(.9%)	1959(10.6%)	2117(9.5%)	
Formal	676(23.1%)	160(21.0%)	4719(25.4%)	5555(25.0%)	
Not applicable	0(.0%)	0(.0%)	9(.0%)	9(.0%)	
Sales/service	809(27.6%)	150(19.7%)	5043(27.2%)	6002(27.0%)	
Student/ap	887(30.3%)	332(43.5%)	4690(25.3%)	5909(26.6%)	
Unemployed	399(13.6%)	106(13.9%)	2080(11.2%)	2585(11.6%)	
Total	2930(100.0%)	763(100.0%)	18550(100.0%)	22243(100.0%)	

Note: ***,** &* signifies 1%, 5% and 10% significant levels respectively
Note: Percentages are in Parentheses
Source: MSIG DATA (2018)

Table 4.2 showed that over two-thirds (69.6%) of the SAC clients that visited the Middle Belt MSIG clinics were unmarried. Similarly, in the Northern and Southern Belt clinics of MSIG, 69.5% and 72.8% of the visiting SAC clients respectively were unmarried. The occupation of the SAC clients of Marie Stopes Ghana during the study period was across wide range of sectors including the agriculture; formal and the informal sector. A large proportion of the clients were also unemployed or apprentices. Based on location, the distribution of the Middle belt SAC clients

showed that 23.1% were in the formal sector, 27.6% were in the sales or service sector, 30.3% were students or apprentices and 13.6% were unemployed. Also, in the Northern Belt, 21.0% of the SAC clients were in the formal sector, 19.7% were in the sales or service sector, 43.5% were students or apprentices and 13.9% were unemployed. In the Southern Belt, 10.6% of SAC clients were artisans, 25.4% were in the formal sector, 27.2% were in the sales or service sector, 25.3% were students or apprentices and 11.2% were unemployed. The percentage of clients that were in agriculture was very small across all the three sectors because the MSIG clinics are located in urban or peri-urban areas.

Table 4.3 shows that the majority (92.1%) of the SAC clients of Marie Stopes Ghana were Christians whereas 7.7% were Muslims. In Southern and Middle Belt Clinics of MSIG, the majority of the SAC clients were Christians whereas Muslims were the dominant visitors in the Northern Belt. The SAC clients of MSIG were largely in the youthful age group of 20 to 34 years. The situation was evident in the Southern, Middle and Northern Belts clinics of MSIG throughout the country.

Table 4.3 The gestation age of the majority (86.5%) of the SAC clients MSIG was under 9 weeks whereas that of 13.5% of the post-abortion clients was 9 to 12 weeks. In all the clinics of MSIG in the Southern, Middle and Northern Belts, the gestational age situation was similar to the general trend. The majority (74.5%) of the SAC clients of MSIG had previously never used modern family planning method (MFPM) whereas 1.8% were previously using long-term method and 23.7% were also previously using short-term methods. The location of the clinics did not affect this trend as the situation was same in all the three belt facilities of MSIG. The majority (55.1%) of the SAC

clients of MSIG preferred the medical abortion method whereas 44.9% preferred the surgical method. In the Northern and Southern Belt clinics, the majority of the SAC clients preferred the medical method of abortion whereas the majority (50.4%) in the Middle belt clinics preferred the surgical method.

Table 4.3: Socio-demographic data of FP Clients by Location

	Location			Total	X(df)
	Middle	**Northern**	**Southern**		
Religion					2.621(18)***
Christian	2535(86.5%)	266(34.9%)	17692(95.4%)	20493(92.1%)	
Muslim	379(12.9%)	497(65.1%)	833(4.5%)	1709(7.7%)	
No Religion	7(.2%)	0(.0%)	7(.0%)	14(.1%)	
Other	7(.2%)	0(.0%)	13(.1%)	20(.1%)	
Traditional	2(.1%)	0(.0%)	5(.0%)	7(.0%)	
Total	2930(100.0%)	763(100.0%)	18550(100.0%)	22243(100.0%)	
Age Group					2.237(24)***
10 - 14 Years	5(.2%)	1(.1%)	65(.4%)	71(.3%)	
15 - 19 Years	279(9.5%)	111(14.5%)	1558(8.4%)	1948(8.8%)	
20 - 24 Years	1119(38.2%)	325(42.6%)	6291(33.9%)	7735(34.8%)	
25 - 29 Years	894(30.5%)	189(24.8%)	5754(31.0%)	6837(30.7%)	
30 - 34 Years	421(14.4%)	107(14.0%)	3365(18.1%)	3893(17.5%)	
35 - 39 Years	158(5.4%)	18(2.4%)	1197(6.5%)	1373(6.2%)	
40 - 44 Years	50(1.7%)	11(1.4%)	286(1.5%)	347(1.6%)	
45 - 49 Years	4(.1%)	1(.1%)	34(.2%)	39(.2%)	
Total	2930(100.0%)	763(100.0%)	18550(100.0%)	22243(100.0%)	
Gestational Age					2.229(6)***
9 to 12 weeks	336(11.5%)	49(6.4%)	2615(14.1%)	3000(13.5%)	
Under 9 weeks	2594(88.5%)	714(93.6%)	15935(85.9%)	19243(86.5%)	
Total	2930(100.0%)	763(100.0%)	18550(100.0%)	22243(100.0%)	
Previous MFPM					2.359(9)***
Never Used MFPM	1974(67.4%)	664(87.0%)	13932(75.1%)	16570(74.5%)	
Long-term	**292(10.0%)**	**6(.8%)**	**99(.5%)**	**397(1.8%)**	
Short-term	664(22.7%)	93(12.2%)	4519(24.4%)	5276(23.7%)	
Total	2930(100.0%)	763(100.0%)	18550(100.0%)	22243(100.0%)	
Abortion Method					2.235(6)***
Medical	1452(49.6%)	537(70.4%)	10271(55.4%)	12260(55.1%)	
Surgical	1478(50.4%)	226(29.6%)	8279(44.6%)	9983(44.9%)	
Total	2930(100.0%)	763(100.0%)	18550(100.0%)	22243(100.0%)	

Note: ***,** &* signifies 1%, 5% and 10% significant levels respectively
Note: Percentages are in Parentheses
Source: MSIG DATA (2018)

4.2 Proportion of Clients Who Opt Voluntarily for PAFP

The proportions of the SAC Clients that opted voluntarily for various types of post-abortion family planning and those that did not opt for any method are shown in Table 4.3. The table shows the distribution of the clients in terms of the types of PAFP such as long-term, No FP services, permanent and short-term methods.

Table 4.4: Type of PAFP

Type of PAFP	Frequency	Percent
No FP service	2,366	10.6
Short-term	12,382	55.7
Long-term	7,466	33.6
Permanent	29	.1
Total	**22,243**	**100.0**

Source: MSIG DATA (2018)

Table 4.4 shows that the post-abortion family planning methods adopted by the majority (55.7%) of the SAC clients of Marie Stopes Ghana were short-term whereas 33.6% preferred long-term family planning methods. The least preferred PAFP method was the permanent method as the SAC clients of MSIG were largely within the youth bracket. Nonetheless, 10.6% of the SAC clients opted not to take any form of family planning services. The preferred short term PAFP methods were Depo-Provera (Depot Medroxyprogesterone Acetate, DMPA) and, Combined Oral Contraceptive Pills (COCP) (see Table 4.5). However, long-term post-abortion family planning methods preferred were Jadelle (17.2%), Intra-Uterine Contraceptive Device (13.5%) and Norigynon (9.5%) (See Table 4.5).

Table 4.5: The Types of PAFP Methods

Specific PAFP Method	Frequency	Percent
BTL	29	0.1
Depo-Provera	7555	38.0
Implanon Classic	30	0.2
Implanon NXT	901	4.5
IUCD	2681	13.5
Jadelle	3409	17.2
Norigynon	1879	9.5
COCP	2940	14.8
POP	8	0.04
Zarin	445	2.2
Total	**19877**	**100**

Source: MSIG DATA (2018)

4.3 Types of Modern FP Method Uptake by Clients after First Trimester SAC

This sub-section reviewed the distribution of the types of modern family planning methods adopted by SAC clients after first trimester in the 9 MSIG centers from January 1 2015 to December 31 2016. The distribution of the specific PAFP methods by gestational age is shown in Table 4.6.

Table 4.6: Specific PAFP Method and Gestational Age

Specific PAFP Method	Gestational Age		Total
	9 to 12 weeks	Under 9 weeks	
BTL	5(0.2)	24(0.1)	29(0.1)
Depo Provera	996(36.0)	6559(38.3)	7555(38.0)
IUCD	490(17.7)	2191(12.8)	2681(13.5)
Implanon Classic	4(0.1)	26(0.2)	30(0.2)
Implanon NXT	139(5.0)	762(4.5)	901(4.5)
Jadelle implant	576(20.8)	2833(16.6)	3409(17.2)
Norigynon	186(6.7)	1693(9.9)	1879(9.5)
COCP	297(10.7)	2643(15.4)	2940(14.8)
POP	2(0.1)	6(0.0)	8(0.0)
Zarin	72(2.6)	373(2.2)	445(2.2)
Total	2767(100)	17110(100)	19877(100)

Percentages are in Parentheses
Source: MSIG DATA (2018)

Table 4.6 shows that out of the total 2767 clients with gestation age of 9 to 12 weeks, 0.2% preferred BTL (permanent). In terms of short-term methods, 36.0% preferred Depo-Provera, 6.7% preferred Norigynon, 10.7% preferred COCP and 0.1% preferred POP and 17.7% and 20.8% preferred long term method like IUCD, and Jadelle implant respectively.

Table 4.6 shows that out of the total 17,110 clients with gestation age less than 9 weeks, 0.1% preferred BTL (permanent). In terms of short-term methods, 38.2% preferred Depo-Provera, 9.9% preferred Norigynon, and 15.4% preferred COCP. The long-term post-abortion family planning methods preferred by clients with gestation age of less than 9 weeks were IUCD (12.8%) and Jadelle implant (16.6%).

4.4 Cross-tabulation of Demographic and Reproductive Factors and the Types of PAFP

This section of the study provides a picture of the distribution of the socio-demographic and reproductive characteristics of the post abortion clients of MSIG on the basis of the types of post abortion family planning methods. The cross-tabulation and chi-square test results are shown in Tables 4.7 and 4.8.

Table 4.7 shows that MSIG received greater interest from clients in the Southern Belt as the majority of the clients that preferred the various types of PAFP were in the Southern Belt. All the types of PAFP were less preferred by the clients in the Northern Belt. It is evident that all the types of PAFP were largely preferred by high educated clients of MSIG. Table 4.7 shows that the majority of the PAFP clients without children preferred short-term and long-terms methods whereas clients with 3 to 6 children preferred permanent methods. The divorced or widowed or

separated post-abortion clients of MSIG preferred short-term and long-term types of PAFP whereas the client's co-habiting preferred permanent methods.

Table 4.7: Cross-tabulation of Demographic and Reproductive Factors and the Types of PAFP

	Type of PAFP			Total	X(df)
	Short-term	Long-term	Permanent		
Location					3.434E2(4)***
Middle	1264(10.2)	1432(19.2)	5(17.2)	2701(13.6)	
Northern	539(4.4)	198(2.7)	0(0.0)	737(3.7)	
Southern	10579(85.4)	5836(78.2)	24(82.8)	16439(82.7)	
Total	12382(100)	7466(100)	29(100)	19877(100)	
Education					3.225E2(8)***
JHS/SHS	749(6.0)	580(7.8)	2(6.9)	1331(6.7)	
No Formal	394(3.2)	464(6.2)	3(10.3)	861(4.3)	
Post-graduate	6088(49.2)	4161(55.7)	15(51.7)	10264(51.6)	
Primary	5046(40.8)	2225(29.8)	9(31.0)	7280(36.6)	
Tertiary	105(0.8)	36(0.5)	0(0.0)	141(0.7)	
Total	12382(100)	7466(100)	29(100)	19877(100)	
Number of Living Children					1.034E3(16)***
0 child	7956(64.3)	3679(49.3)	1(3.4)	11636(58.5)	
1 child	2193(17.7)	1517(20.3)	1(3.4)	3711(18.7)	
2 children	1260(10.2)	1059(14.2)	1(3.4)	2320(11.7)	
3 children	628(5.1)	673(9.0)	6(20.7)	1307(6.6)	
4 children	263(2.1)	366(4.9)	11(37.9)	640(3.2)	
5 children	53(0.4)	117(1.6)	4(13.8)	174(3.2)	
6 children	25(0.2)	40(0.5)	3(10.3)	68(0.9)	
7 children	2(0.0)	13(0.2)	1(3.4)	16(1.0)	
8 children	2(0.0)	2(0.0)	1(3.4)	5(0.0)	
Total	12382(100)	7466(100)	29(100)	19877(100)	
Marital Status					3.512E2(6)***
Div./Wid./Sep.	9487(76.6)	4885(65.4)	3(10.3)	14375(72.3)	
Co-habiting	1866(15.1)	1683(22.5)	19(65.5)	3568(18.0)	
Married	963(7.8)	845(11.3)	7(24.1)	1815(9.1)	
Single	66(0.5)	53(0.7)	0(0.0)	119(0.6)	
Total	12382(100)	7466(100)	29(100)	19877(100)	
Occupation					1.795E2(12)***
Agriculture	4(0.0)	2(0.0)	0(0.0)	6(0.0)	
Artisan	1430(11.5)	896(12.0)	4(13.8)	2330(11.7)	
Formal	3467(28.0)	1822(24.4)	1(3.4)	5290(26.6)	
Not applicable	3135(23.3)	2334(31.4)	14(46.3)	5483(27.6)	
Sales/service	3207(25.9)	1550(20.8)	7(24.1)	4764(24.0)	
Student/ap	1115(9.0)	824(11.0)	3(10.3)	1942(9.8)	
Unemployed	24(0.2)	38(0.5)	0(0.0)	62(0.3)	
Total	12382(100)	7466(100)	29(100)	19877(100)	

Note: ***,** &* signifies 1%, 5% and 10% significant levels respectively
Note: Percentages are in Parentheses
Source: MSIG DATA (2018)

Table 4.8: Cross-tabulation of Demographic and Reproductive Factors and the Types of PAFP

	Type of PAFP			Total	X(df)
	Short-term	Long-term	Permanent		
Religion					6.017(8)***
Traditional	4(0.0)	1(0.0)	0(0.0)	5(0.0)	
No Religion	8(0.1)	4(0.1)	0(0.0)	12(0.1)	
Muslims	991(8.0)	576(7.7)	0(0.0)	1567(7.9)	
Christian	11374(91.9)	6878(92.1)	29(100.0)	18281(92.0)	
Others	5(0.0)	7(0.1)	0(0.0)	12(0.1)	
	12382(100)	7466(100)	29(100)	19877(100)	
Total	12382(100)	7466(100)	29(100)	19877(100)	
Age Group					3.730E2(12)***
10 - 14 Years	28(0.2)	33(0.4)	0(0.0)	61(0.3)	
15 - 19 Years	5519(44.6)	3228(43.2)	2(6.9)	8749(44.0)	
20 - 24 Years	4006(32.4)	2100(28.1)	1(3.4)	6107(30.7)	
25 - 29 Years	2098(16.9)	1326(17.8)	5(17.2)	3429(17.3)	
30 - 34 Years	590(4.8)	600(8.0)	14(48.3)	1204(6.1)	
35 - 39 Years	130(1.0)	153(2.0)	7(24.1)	290(1.5)	
40 - 44 Years	11(0.1)	26(0.3)	0(0.0)	37(0.2)	
Total	12382(100)	7466(100)	29(100)	19877(100)	
Gestational Age					1.052E2(2)***
9 to 12 weeks	10901(88.0)	6185(82.8)	24(82.8)	17110(86.1)	
Under 9 weeks	1481(12.0)	1281(17.2)	5(17.2)	2767(13.9)	
Total	12382(100)	7466(100)	29(100)	19877(100)	
Previous MFPM					4.844E2(4)***
Never Used MFPM	9193(74.2)	5774(77.3)	24(82.8)	14991(75.4)	
Long-term	3142(25.4)	1376(18.4)	5(17.2)	4523(22.8)	
Short-term	47(0.4)	316(4.2)	0(0.0)	363(1.8)	
Total	12382(100)	7466(100)	29(100)	19877(100)	
Abortion Method					6.178E2(2)***
Medical	4957(40.0)	4345(58.2)	16(55.2)	9318(46.9)	
Surgical	7425(60.0)	3121(41.8)	13(44.8)	10559(53.1)	
Total	12382(100)	7466(100)	29(100)	19877(100)	

Note: ***,** &* signifies 1%, 5% and 10% significant levels respectively
Note: Percentages are in Parentheses
Source: MSIG DATA (2018)

Table 4.7 shows that the short-term and long-term PAFP types were preferred by clients in the formal, sales and service sectors whereas the permanent method was largely preferred by clients in the sales and service sectors. Table 4.8 shows that Christians preferred all the types of PAFP methods. The young post-abortion clients between 15 and 24 years preferred short-term and long-term PAFP methods whereas older clients between 30 and 39 years preferred permanent methods (See Table 4.8). All the types of PAFP methods were preferred by clients in the gestational period

of 9 to 12 weeks and clients who have never used modern types of family planning methods. The post-abortion clients that underwent medical abortion preferred long and permanent methods whereas those that underwent surgical abortion preferred short-term methods.

4.5 Socio-Demographic and Reproductive Factors Affecting PAFP Uptake

This section of the study employed inferential methods in identifying the socio-demographic and reproductive factors affecting post-abortion family planning methods uptake among SAC clients. Bivariate analysis was initially carried out to examine the possible relationship between the independent variables and the dependent variables. This independent sample t-test was necessary to examine the inclusion of the independent variables in the logistic regression models. The first part involved the employment of binary logistic regression method to test the relationship between the personal socio-demographic and reproductive health factors, and the uptake of a post-abortion family methods in Ghana. In the second part, a multinomial logistic regression method was also used to test the relationship between socio-demographic and reproductive health factors, and the client's choice of post-abortion family method; Short-term, Long-term or Permanent, taken up by post-abortion clients in Ghana.

4.5.1 Bivariate Analysis of the Independent and Dependent Variables

This section of the study examines the various considered explanatory variables that qualify to be added to the logistic model through bivariate analysis. The independent sample t-test method was employed to examine the significance level of the mean differences between the explanatory variables and the considered dependent variable. The result of independent sample Tt-test is shown in Table 4.9

Table 4.9: Bivariate Analysis of the Independent and Dependent Variables

Variables	Mean	Mean diff.	SE	SD	t	Pr(|T|>|t|
Dependent						
PAFP	1.232		.004	.627		
Explanatory						
Location	1.702	-.470	.005	.687	-75.38	0.000
Education	2.226	-.994	.005	.817	-1.40E+02	0.000
Living Children	.81	.423	.005	1.218	46.01	0.000
Marital Status	.376	.804	.004	.667	139.46	0.000
Occupation	2.950	-1.718	.008	1.178	-1.98+02	0.000
Religion	3.918	-2.686	.002	.294	-5.800	0.000
Age	1.911	-.679	.007	1.015	-84.822	0.000
Gestational Age	.135	1.10	.002	.342	229.06	0.000
Prev. Contra. Use	.273	.959	.003	.484	180.54	0.000
Abortion Method	.551	.681	.003	.497	126.82	0.000

Table 4.9 shows that the mean difference between the explanatory variables and the dependent variable were all statistically significant at 1%. This result implies that there is statistical relationship between each of the explanatory variables and the dependent variable (PAFP). Therefore, all the independent variables produced significant association with PAFP to be added in the logistic regression model.

4.5.2 Binary Logistic Regression of Factors Affecting PAFP Uptake

This section inferentially identified the socio-demographic and reproductive factors related to the uptake of post-abortion family planning methods using binary logistic regression method. The dependent variable considered in the developed model was the uptake of post-abortion family planning methods whereas the independent variables included the socio-demographic and reproductive factors. The result of the binary logistic regression method is shown in Table 4.10 and Table 4.11. The diagnostic test of the binary logistic regression model produced log likelihood of -7273.8822 from 22,243 observations (See Table 4.10). In logistic regression models, the higher the negative log likelihood value, the better. A good-fit model also requires significance of the Log Ratio (LR) (χ=526.72, p<.01) (See Table 4.10). The pseudo R^2 of 0.039 provides an idea of the ability of the independent variables to explain the dependent variable and the approximately 4 percent explanatory power is perceived good for the model (See Table 4.10).

Table 4.10: Goodness-of-fit test of the Binary Logistic Model

Goodness-of-fit test	**Result**
Log likelihood	-7172.7681
Number of obs	22243
LR chi^2 (29)	727.83
Prob > chi^2	0.0000
Pseudo R^2	0.0483
Hetroscedasticity	
Number of obs	22238
Number of groups	10
Hosmer-Lemeshow chi^2 (8)	16.29
Prob > chi^2	0.3850

Table 4.11: Binary Logistic Regression of Uptake of PAFP

Variables		OR	Std. Err.	z	P>|z|
Location					
	Southern	**2.7030**	**.5916**	**4.54**	**0.000**
	Middle (Reference)				
	Northern	**.6440**	**.0491**	**-5.78**	**0.000**
Education					
	None/non-formal	**1.2777**	**.2081**	**1.50**	**0.132**
	Primary	**1.2220**	**.1240**	**1.98**	**0.048**
	JHS/SHS	**.7570**	**.0798**	**-2.64**	**0.008**
	Tertiary	**1.0654**	**.2784**	**0.24**	**0.805**
	Post-graduate (Reference)				
Living Children					
	1 child	**1.3959**	**.1038**	**4.49**	**0.000**
	2 children	**1.4716**	**.1474**	**3.86**	**0.000**
	3 children	**1.7081**	**.2190**	**4.18**	**0.000**
	4 children	**1.5977**	**.2630**	**2.85**	**0.004**
	5 children	**1.3566**	**.3579**	**1.16**	**0.248**
	6 children	**1.5226**	**.6452**	**0.99**	**0.321**
	7 children	**1.3857**	**1.1175**	**0.40**	**0.686**
	8 Children (Reference)				
Marital Status					
	Single	**.6807**	**.0550**	**-4.76**	**0.000**
	Married	**1.3326**	**.1460**	**2.62**	**0.009**
	Living With Partner	**.7133**	**.1997**	**-1.21**	**0.228**
	Divorced/Widowed/Separated				
	Others (Reference)				
Occupation					
	Unemployed/House-worker	**5.5264**	**4.0617**	**2.33**	**0.020**
	Student/Apprentice	**4.7688**	**3.5085**	**2.12**	**0.034**
	Sales/Service (non-formal)	**4.5960**	**3.3827**	**2.07**	**0.038**
	Formal/Salaried Workers	**5.1939**	**3.8366**	**2.23**	**0.026**
	Artisan	**6.2448**	**5.6744**	**2.02**	**0.044**
	Agriculture (Reference)				
Religion					
	No religion	**.5373**	**.6291**	**-0.53**	**0.596**
	Christian	**.4284**	**.3956**	**-0.92**	**0.359**
	Muslim	**1.6139**	**1.2857**	**0.60**	**0.549**
	Traditional	**1.7066**	**1.3520**	**0.67**	**0.500**
	Others (Reference)				
Age Group					
	10-14 Years	**1.7738**	**.6326**	**1.61**	**0.108**
	15-19 Years	**1.7614**	**.6349**	**1.57**	**0.116**
	20-24 Years	**1.4149**	**.5153**	**0.95**	**0.341**
	25-29 Years	**1.2278**	**.4597**	**0.55**	**0.584**
	30-34 Years	**.8396**	**.3343**	**-0.44**	**0.661**
	35-39 Years	**2.7028**	**2.2235**	**1.21**	**0.227**
	40-44 Years (Reference)				
Gestational Age					
	Under 9 Weeks	**1.1569**	**.0861**	**1.96**	**0.050**
	9-12 weeks (Reference)				
Previous Con. Used					
	Never used Modern method	**.8377**	**.0417**	**-3.56**	**0.000**
	Short-term	**.7910**	**.1496**	**-1.24**	**0.215**
	Long term (Reference)				
Abortion Method					
	Surgical	**.5277**	**.0267**	**-12.70**	**0.000**
	Medical (Reference)				
_cons		**1.2783**	**1.4229**	**0.22**	**0.825**

Source: MSIG DATA (2018)

The Table 4.11 shows location of Marie Stope facilities in the southern belt had a positive relationship with the uptake of post-abortion family planning services (OR=2.7030, P<.01). However, location of the Marie Stopes facilities in the Northern belt is negatively associated with clients' uptake of post-abortion family planning methods (OR=.6440, P<.01). The clients with primary level of education had 1.222 odds of adopting post-abortion family planning methods. The primary level of education had positive relationship with client's uptake of post-abortion family planning methods (OR=1.2220, P<.05). The clients with JHS or SHS level of education had 0.7570 odds of adopting post-abortion family planning methods relative to the other levels of education (OR=.7570, P<.01). The clients with a one living child had 1.3959 odds of adopting post-abortion family planning methods (OR=1.3959, P<.01). The clients with 2 children had 1.4716 odds of adopting post-abortion family planning methods (OR=1.4716, P<.01). The clients with 3 children had the highest odds (1.7081) of adopting post-abortion family planning methods (OR=1.7081, P<.01). The clients with 4 children had 1.5977 odds of adopting post-abortion family planning methods (OR=1.5977, P<.01).

Table 4.11 shows that the clients with single marital status had negative effect on association with the uptake of post-abortion family planning methods (OR=.6807, P<.01). Thus, the clients of Marie Stopes that were single had 0.6807 odds of adopting post-abortion family planning methods. The married clients also had 1.3326 odds of adopting post-abortion family planning methods relative to the other clients with different marital engagements. In terms of the occupation of the clients of Marie Stopes Ghana, the unemployed or house-workers had 5.5 odds of adopting post-abortion family planning methods relative to the other categories of occupation (OR=5.5264, P<.05). The students or apprentices had 4.7688 odds of adopting post-abortion family planning

methods (OR=4.7688, P<.05). The workers in the non-formal sector (sales/services) had 4.5960 odds of adopting post-abortion family planning methods (OR=4.5960, P<.05). The workers in the formal sector (salaried workers) had 5.1939 odds of adopting post-abortion family planning methods (OR=5.1939, P<.05). The Artisans that visited the Marie Stopes facilities in the study period had the highest odds (6.2448) of adopting post-abortion family planning methods (OR=6.2448, P<.05).

Table 4.11 indicates that the clients with gestation age of less than 9 weeks had 1.1569 odds of adopting post-abortion family planning methods (OR=1.1569, p<.10). In terms of previous contraceptive methods used by the clients, the clients that had never used modern methods had the highest odds (0.8377) of adopting post-abortion family planning methods (OR=0.8377, p<.01). The clients that went through surgical abortion had 0.5277 odds of adopting post-abortion family planning methods relative to the other category (OR=0.5277 p<.01). The relationship of surgical method to client's adoption of post-abortion methods was negative and this implies that surgical abortion method is adversely associated with post-abortion family planning methods uptake in Ghana.

Table 4.12: Multinomial Logistic Regression of Uptake of PAFP

Types of FPAFP	Variables	Coefficient	Std. Err.	z	P>|z|
1 (Short-term)	Base Outcome				
2 (Long-term)					
	Location	-.3432	.0220	-15.62	0.000
	Education	-.1019	.0201	-5.06	0.000
	Marital Status	.2893	.0190	15.23	0.000
	Living Children	.0692	.0267	2.59	0.009
	Occupation	.0035	.0136	0.26	0.794
	Religion	.2642	.0546	4.84	0.000
	Age Group	-.1347	.0207	-6.51	0.000
	Gestational Age	.2403	.0435	5.52	0.000
	Previous Con. Used	.0973	.0323	3.01	0.000
	Abortion Method	-.6069	.0314	-19.35	0.000
	_cons	-.5205	.2107	-2.47	0.013
3 (Permanent)					
	Location	-.3161	.2613	-1.21	0.226
	Education	.6861	.2668	2.57	0.010
	Marital Status	1.1474	.1420	8.08	0.000
	Living Children	.2145	.2889	0.74	0.458
	Occupation	-.2263	.1933	-1.17	0.242
	Religion	14.6217	692.375	0.02	0.983
	Age Group	.4046	.2101	1.93	0.054
	Gestational Age	.0554	5317	0.10	0.917
	Previous Con. Used	-.3566	.4680	-0.76	0.446
	Abortion Method	-.1702	.4040	-0.42	0.673
	_cons	-68.2621	2769.5	-0.02	0.980
	Number of obs	19,877			
	LR chi2 (20)	1564.22			
	Prob > chi^2	0.0000			
	Pseudo R^2	0.0585			

Note: 1 = Short-term, 2 = Long-term, 3 = Permanent
Source: MSIG DATA (2018)

Table 4.12 shows that the Northern location of the facilities of Marie Stopes Ghana had negative relationship with clients choice of long-term post-abortion family planning methods relative to short-term methods (β=-.3432, p<.01). Thus, Marie Stopes facilities in the northern belt received lower level of uptake of long-term post-abortion family planning methods compared to the

facilities in the southern belt relative to long-term methods. The educational level of the clients also had negative association with the post abortion clients choice of long-term family planning methods relative to short-term methods (β=-.1019, p<.01). Thus, in relative terms the less educated clients had greater odds of choosing long-term post-abortion family planning methods whereas the more educated preferred short-term methods. The marital status of the post abortion clients was positively associated with their choice of long-term family planning method relative to short term methods (β=.2893, p<.01). The number of living children of the post abortion clients also was positively associated with their choice of long-term family planning methods relative to short-term methods (β=.0692, p<.01). Thus, the post-abortion clients with higher number of living children preferred long-term methods whereas those with lower number of living children preferred short-term methods.

Age was negatively associated with the post abortion clients choice of long-term family planning methods relative to short-term methods (β=-.1347, p<.01). This result implies that the younger post-abortion clients preferred long-term family planning methods whereas the older clients preferred short-term methods. The religious belief of the post-abortion clients was positively associated with the clients choice of long-term family planning methods relative to short-term methods (β=.2642, p<.01). This implies that SAC clients that either had no religion or were traditionalist were more interested in long term family planning methods than short term method in comparison with their Christian and Muslim believers. The gestational age of the post abortion clients was positively associated with their choice of long-term family planning methods relative short term methods (β=.2403, p<.01). Thus, the post abortion clients with longer age of gestation preferred long term family planning method whereas those with shorter gestation period preferred

short term methods. Previous usage of contraceptive method was positively associated with post abortion clients choice of long term family planning methods relative short term methods (β=.0973, p<.01). Thus, the post abortion clients with previously using modern family planning methods preferred long term methods whereas those that were not previously using any method preferred short term methods. The abortion method of post abortion clients was negatively associated with their choice of long term methods relative short term methods (β=-.6069, p<.01). It can therefore be inferred that the post abortion clients that underwent medical abortion preferred long term methods whereas those that underwent surgical abortion preferred short term methods.

Table 4.12 shows that the educational level of the post abortion clients was positively associated with their choice of permanent family planning methods relative to short term methods (β=.6861, p<.01). Hence, the highly educated post abortion clients preferred permanent methods whereas the less educated preferred short-term methods. The marital status of the post abortion clients was positively associated with their choice of permanent family planning methods relative to short term methods (β=1.1474, p<.01).

CHAPTER FIVE

DISCUSSION OF RESULT

5.1 Demographic and Reproductive Factors of the SAC clients

MSIG has facilities throughout Ghana with the sole aim of providing reproductive service to the less privilege in society. The facilities are therefore largely situated in deprived communities dominated by residents with lower level of education. Thus, the highest level of education of the majority of the post-abortion clients receiving safe abortion care (SAC) was JHS or SHS. The clients were also largely unmarried and employed in the formal and service or sales sector. This observation of the majority of SAC clients being unmarried has cultural and religious influence since in Ghana these factors discourage having children out of wedlock and thus they seek SAC services. The services of MSIG were also highly patronized by unemployed and students or apprentices. Thus, the occupational distribution of the SAC clients of Marie Stopes cuts across a wide range of sectors of the economy. The observation of the religious orientation of the clients being predominantly Christianity can be explained by the fact that the Southern sector MSIG facilities attend to the majority of the clients and these facilities are located in Christian dominated regions of the country. Also, this is not surprising as the dominant religion in Ghana is Christianity. There is also the wrong perception that Islamic religion frowns on many family planning services as it amounts to killing (Omran, 1992). MSIG facilities during the period of January 1, 2015 to December 31, 2016 were predominantly patronized by clients of the youthful age group. The SAC clients of Marie Stopes Ghana are largely in the youthful age class and the active economic population of Ghana. Cross-referencing this with the occupational distribution, this class represents the population that is either in school or working and unmarried who usually would want to focus on school and work. The visited post-abortion clients had never used modern family

planning methods and often preferred medical abortion except for post-abortion clients that visited the Middle Belt facilities of MSIG. Relatively, the northern belt clients were the predominant non-users of any form of modern family planning method before the SAC service. The gestational age at which majority of the MSIG clients opted for SAC services during the period of study was under 9 weeks. This observation is encouraging because it indicates the population is increasingly becoming aware of the availability of SAC services and therefore when they decide to terminate their pregnancies, they seek help as early as possible when it is easier to terminate and with less complications.

5.2 Proportion of Clients Who Opted Voluntarily for PAFP

After receiving counseling services on family planning methods, 89.4% of the SAC clients voluntarily opted for various forms of family planning methods. This result is consistent with several previous studies that provide evidence that significant number of post-abortion clients make an informed choice of using a family planning method as opposed to not using it (Mayi-Tsonga et al., 2014; Kokeb et al., 2015; Abamecha, Shiferaw and Kassaye, 2016; Benson, Andersen, Healy and Brahmia, 2017). Other studies from developing countries, clients after SAC services often take up PAFP methods (Prata, Bell, Holston, Gerdts and Melkamu, 2011; Mayi-Tsonga et al., 2014; Kokeb et al., 2015). The study of Benson, Andersen, Healy and Brahmia (2017) in Sub-Saharan Africa reported about 77 percent of SAC clients adopted contraceptive methods.

5.3 Factors Associated with the Uptake

The uptake of PAFP methods by the post-abortion clients was associated with several socio-demographic factors like education, living children, occupation and marital status. These findings are consistent with the study of Prata, Bell, Holston, Gerdts and Melkamu (2011) in Ethiopia that reported number of children, education and occupation of SAC clients were related to their choice of post-abortion contraception. The post-abortion clients with primary and JHS or SHS education had positive uptake of PAFP methods in reference to client with post-graduate level of education. Also, the post-abortion clients with living children of 1 to 4 had positive uptake of PAFP methods. Thus, post-abortion clients with more children were more ready to take up PAFP method relative those with fewer children. The unmarried post abortion clients had negative preference for PAFP methods whereas married clients had positive preference for PAFP methods in reference to co-habiting clients. The unemployed and house-workers also had the greatest odds of taking up PAFP methods. The reproductive factors that were also associated with the post-abortion client's uptake of PAFP included gestational age, previous contraceptive method used and the abortion method. Niinimäki et al. (2009) also reported significant association between abortion method and SAC clients' uptake of contraceptive methods and even further indicated that due to the higher risk associated with surgical abortion, women that underwent this procedure had greater odds of taking PAFP methods relative to those that underwent medical abortion.

5.4 Factors Associated with SAC Clients Choice of Contraceptives

The post-abortion clients of MSIG largely preferred short-term methods and were disinterested in permanent methods. This result is consistent with the study of Mayi-Tsonga et al. (2014) that indicated that the best-known method of family planning method adopted by post-abortion clients was oral pill in Gabon, 9.3% going for LARC methods and only 9.1% refusing to initiate the use of any method. Most of the SAC clients of MSIG during the study period were young and in line with the studies of Prata, Bell, Holston, Gerdts and Melkamu (2011) and Benson, Andersen, Healy and Brahmia (2017) that reported higher uptake of short term contraceptive methods among younger SAC clients. Permanent methods were least preferred as previous studies indicate that they are rarely recognized as contraceptive methods due to fear of side effect (Bekele, Gebremariam and Tura, 2014). The disinterest in permanent methods can also be explained by the fact that the majority of the clients that received SAC services were either unmarried, young adults or with lower number of children, and these are the common characteristics of clients who have not completed their families to want to take up a permanent method of contraception. The preference of the clients for short-term methods was not in a vacuum as in all settings, short-acting methods are more commonly used than LARC methods, despite the fact that LARC methods are more effective, more cost-effective, and better tolerated than short-acting methods (United Nations, 2003; Lipetz, Phillips and Fleming, 2009; Secura et al., 2010). The most preferred short-term family planning method was Depo-Provera (Depot Medroxyprogesterone Acetate, DMPA). The preference of the clients for Depo-Provera is supported by the study of Bekele, Gebremariam and Tura (2014) in South East Ethiopia that reported that the most known (98.5%) and ever used (81.5%) type of modern contraceptive was Depo-Provera. Most women that prefer Depo-Provera believe it provides them the advantage of not taking daily pills and going through the difficulties

of monthly menses (Ross, Keesbury, and Hardee 2015). Depo-Provera like many other injectables are also gaining grounds in many developing countries partly due to the theory of secrecy and they can also be easily administered to a woman at a health clinic or through mobile outreach efforts without the permission from her spouse or other family members who may disapprove (Adetunji, 2011). For the two sets of clients accessing SAC services at gestational ages of 9 weeks or 9 to 12 weeks, they both showed a preference for short-term methods. However, in terms of preference for Long-term methods, clients seeking SAC services at gestational age 9 to 12 weeks positive association relative to those with gestational age under 9 weeks. Thus, SAC client's choice of modern family planning methods was associated with the gestational age of the pregnancy. Location of MSIG facilities, educational level of the clients, age group and abortion methods preferred by clients were all adversely associated with post-abortion client's choice of long-term methods relative short-term methods. The post-abortion clients of MSIG with less education and less aged preferred short-term PAFP methods relative to long-term methods. This result is consistent with previous studies that reported higher uptake of short term contraceptive methods among younger SAC clients (Goldstone, Mehta, McGeechan, Francis and Black, 2014; Benson, Andersen, Healy and Brahmia, 2017), and less educated SAC clients (Prata, Bell, Holston, Gerdts and Melkamu, 2011). Nonetheless, marital status, living children, religion, previous modern family method used and gestational age of the post-abortion clients were positively associated with their choice of long-term method relative to short-term methods. Married and women with greater number of living children preferred long term contraceptive methods relative to short term methods. This result is consistent with the study of Prata, Bell, Holston, Gerdts and Melkamu (2011) in Addis Ababa in Ethiopia that reported the number of living children and marital status of SAC clients positively influenced the uptake of contraceptive methods.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The chapter gives a summary of the key findings of the study, makes the appropriate conclusions and provides both policy and managerial levels recommendations.

6.1 Summary of Findings

A summary of the key findings of the study is provided in this section based on the research objectives. The objectives considered in the summary were the proportion of clients who opt voluntarily for PAFP, the types of modern FP method taken up by clients after first trimester SAC and the socio-demographic and reproductive factors affecting PAFP uptake.

6.1.1 Proportion of Clients Who Opt Voluntarily for PAFP

From all MSIG facilities in Ghana, 19,877 clients that received SAC services opted for various types of post-abortion family planning methods in the period from January 1, 2015 to December 31, 2016 representing a PAFP rate of 89.4%. More than half (55.7%) of the clients opted for short-term family planning methods, 33.6% chose long-term methods and 0.1% opted for permanent methods. The preferred short-term post-abortion family planning were Depo-Provera, Combined Oral Contraceptive Pills (COCP) and Norigynon. The preferred long-term methods by clients included Jadelle implant and IUCD. However, 2,366 clients after receiving SAC services failed to take up any form of family planning services.

6.1.2 Types of Modern FP Method Taken Up By Clients after First Trimester SAC

The clients after receiving SAC services opted for long-term methods like Jadelle implant and IUCD within the gestational period of 9 to 12 weeks. The short-term method preferred by the clients in the gestational period of 9 to 12 weeks were Depo-Provera and Combined Oral Contraceptive Pills. The preferred long-term post-abortion family planning methods by clients after receiving SAC services were IUCD and Jadelle implant in the gestational period under 9 weeks, whereas the preferred short-term methods were Depo-Provera, Combined Oral Contraceptive Pills and Norigynon. Though the types of modern family planning methods taken up by clients who received SAC services at 9 to 12 weeks gestational period and under 9 weeks were similar, statistically, there was relationship between the specific post-abortion family planning method preferred by clients and gestational age. Thus, the gestational period or age showed an association with the specific type of post-abortion family planning methods adopted by clients after receiving SAC services. Relatively, more of Depo-Provera, Norigynon and COCP were preferred in the gestational period under 9 weeks whereas more of IUCD, Jadelle implant, Zarin and Implanon NXT implant were preferred in the period between 9 to 12 weeks.

6.1.3 Socio-Demographic and Reproductive Factors Affecting PAFP Uptake

The socio-demographic factors found to be positively associated with the decision of SAC clients to take or not to take post-abortion family planning methods were location and educational level of the clients. The reproductive factors that were positively associated with the decision of SAC clients to take contraceptive method were the number of living children, and gestational age. However, socio-demographic factor like age and reproductive factors like contraceptive method previously used and the abortion method were negatively associated with SAC client's decision to

take or not to take contraceptive methods. The SAC clients with primary education had greater odds of adopting PAFP method relative to clients with JHS or SHS education. The clients with 3 living children had the highest odds of taking up PAFP methods in reference to those with 8 living children. The unmarried clients had inverse association with the uptake of PAFP methods whereas the married clients had demonstrated the opposite. In terms of occupation, artisans had the greatest odds of adopting PAFP methods.

The SAC clients choice of long term contraceptive methods relative short term methods were positively associated with marital status, living children, religion, gestational age, and the previous contraceptive used. The SAC clients' choice of long term contraceptive methods relative to short term methods was negatively associated with location, education, age group, and abortion method.

6.2 Conclusions

The post-abortion uptake of contraceptive methods is receiving both research and policy attention in Ghana due to its enormous effects on maternal mortality rate. In the examination of the post-abortion family planning method choices and associated factors in MSIG, the cross sectional institutional study involved the analyses of secondary data on client's post-abortion contraceptive uptake for the period between January 1, 2015 and December 31, 2016 at all the centers of MSIG. Evident from the study was that the SAC clients had previously never used modern family planning methods. The SAC clients largely preferred the uptake of short-term methods like Depo-Provera, Norigynon, and Combine Oral Contraceptive Pills (COCP); long-term methods like IUCD and Jadelle implant. The gestational age at which clients received SAC influenced their choice of specific PAFP method as in relatively terms, more of Depo-Provera, Norigynon and COCP were

preferred in the gestational period under 9 weeks whereas more of IUCD, Jadelle implant, Zarin and Implanon NXT implant were preferred in the period between 9 to 12 weeks.

Furthermore, the socio-demographic and reproductive factors of the clients that affected their uptake of PAFP methods were location of the clinic, education, number of living children, age, previous contraceptive method used and abortion method. The Southern location facilities attracted more clients relative to the Northern facilities of MSIG. The less educated clients had greater odds of uptake of PAFP method relative to the higher educated and the clients with higher number of living children also had greater odds of adopting PAFP methods. The married clients were also more willing to adopt PAFP methods relative to single clients. The SAC clients that have never used modern family planning methods had greater odds of uptake of PAFP methods relative to clients previously using short-term, or long-term methods. The SAC clients choice of long term contraceptive methods relative short term methods were positively associated with living children, gestational age and the previous contraceptive used; but negatively associated with clinic location, education, age group, and abortion method.

6.3 Recommendations

Based on the findings of the study, the following are recommended;

1. The findings of the study showed that majority of the SAC clients preferred taking up a short-term method, because the contraceptive discontinuation rate is higher with short-term method users than long-term users and the importance of post-abortion family planning in reducing the risk of adverse maternal and peri-natal outcomes in subsequent pregnancies, strategies including allowing other cadres of healthcare workers like registered general and community health nurses to provide IUCD, to improve the long-term method proportion of the PAFP method mix will go a long way to improve outcomes in pregnancies after abortions.
2. Considering 55% of the studied population received medical abortion which affirms the increasing preference for medical over surgical abortion, but had lower uptake of PAFP for all methods, health promotion activities to improve post medical abortion family planning uptake like ensuring all abortion medication packs come with FP voucher will improve uptake.
3. With about 75% of SAC clients who had never used modern methods of contraception before, it represents a high unmet need for Family Planning, specifically unmet need for spacing. Therefore MSIG should work with its stakeholders to promote contraceptives use to reduce the rate unintended pregnancies.
4. MSIG should develop health promotion strategies to positively influence the unmarried Safe Abortion Care clients to consider and/or take up contraception after the process or procedure.

6.4 Limitations and Suggested Areas for Further Studies

This study was limited to only MSIG facilities in Ghana and hence confines conclusions to the boundaries of only Ghana. Therefore, future studies that seek to infer and extend conclusions to other West African countries could extend the study to include facilities in other West African countries.

REFERENCES

Abamecha, A., Shiferaw, A. &and Kassaye, A. (2016). Assessment of Post Abortion Contraceptive Intention and Associated Factors among Abortion Clients In Gambella Health Facilities, Gambella Town, South West Ethiopia. *International Journal of Medical Science and Clinical Inventions*, 3(8), 2061-2070.

Agyei, H. (2014). Factors Influencing Contraceptive Uptake Among Women With Induced Abortion Presenting At Kath, Kumasi-Ghana. *Global Educational Research Journal*, 2(12), 209-242.

Ali, M. M., Cleland, J. G. &and Shah, I. H. (2012). *Causes and Consequences of Contraceptive Discontinuation: Evidence from 60 Demographic and Health Surveys*. Cairo, Egypt: World Health Organization. Available at http://apps.who.int/iris/bitstream/10665/75429/1/9789241504058_eng.pdf. Assessed on 17/9/2017

Apanga, P. A. &and Adam, M. A. (2015). Factors influencing the uptake of family planning services in the Talensi District, Ghana. *Pan African medical Medical Journal*, 1-9.

Bankole A., Singh, S. & Haas, T. (1999). Characteristics of Women Who Obtain Induced Abortion: A Worldwide Review. *International Family Planning Perspectives*, 25, 68-77.

Barbhuiya, F. (2016). Factors Affecting Couples to Adopt Family Planning Methods: A Study in Silchar Medical College &and Hospital, Silchar, Assam. *International Research Journal of Interdisciplinary &and Multidisciplinary Studies (IRJIMS)*, 2(2), 73-82.

Bekele, T., Gebremariam, A. &and Tura, P. (2014). Contraceptive Choice and Switching Pattern among Married Women in Rural Community of South East Ethiopia. *Family Medicine &and Medical Science Research*, 3(3), 1-6.

Benson, J., Andersen, K., Healy, J. & Brahmia, D. (2017). What Factors Contribute to Post-abortion Contraceptive Uptake By Young Women? A Program Evaluation in 10 Countries in Asia and sub-Saharan Africa. *Global Health: Science and Practice*, 5(4), 644-657.

Billings, D. L., Crane, B. B., Benson, J., Solo, J. &and Fetters, T. (2007). Scaling-up a public health innovation: A comparative study of post-abortion care in Bolivia and Mexico. *Social Science &and Medicine*, 64, 2210-2222.

Bradley, S. E. K., Croft, T. N. &and Rutstein, S. O. (2011). *The Impact of Contraceptive Failure on Unintended Births and Induced Abortions: Estimates and Strategies for Reduction*. DHS Analytical Studies No. 22. Calverton, Maryland, USA: ICF Macro. Available at http://dhsprogram.com/pubs/pdf/AS22/AS22.pdf. Assessed on 17/9/2017

Bradley, S. E. K., Schwandt, H. M. &and Khan, S. (2009). *Levels, Trends, and Reasons for Contraceptive Discontinuation*. DHS Analytical Studies No. 20. Calverton, Maryland, USA: ICF Macro. Available at http://dhsprogram.com/pubs/pdf/AS20/AS20.pdf. Assessed on 17/9/2017

Callahan, L. T. (2013). *Blueprints obstetrics & gynecology*. Caughey, Aaron B., (6th Ed.). Baltimore, MD: Lippincott Williams & Wilkins.pg.89.

Center for Reproductive Rights (2003). Breaking the Silence: The Global Gag Rule's Impact on Unsafe Abortion (2003).

CIA World Factbook - A page last updated on July 9, 2017 (pg.91). https://www.cia.gov/library/publications/the-world-factbook/: Assessed on 17/9/2017

Cole, C. B., Israel, E., Jega, F. M., Kitzantides, I. &and Tindanbil, J. L. (2012). *Support for Scale-Up of Comprehensive Abortion Care in Northern Ghana: Technical Update*. A Global Leader in Sexual and Reproductive Health, Pathfinder International (pg.67). Assessed on 17/9/2017

Corbett, M. R. &and Turner, K. L. (2003). Essential elements of post-abortion care: Origins, evolution and future directions. *International Family Planning Perspective*, 29, 106-111.

Curtis, C., Huber, D. &and Moss-Knight, T. (2010). Post-abortion Family Planning: Addressing the Cycle Of Repeat Unintended Pregnancy and Abortion. *Int Perspect Sex Reprod Health*, 36, 44-48.

Curtis, K. M., Tepper, N. K., Jatlaoui, T. C., Berry-Bibee, E., Horton, L. G.; Zapata, L. B., Simmons, K. B.; Pagano, H. P., Jamieson, D. J. (2016). U.S. Medical Eligibility Criteria for Contraceptive Use, 2016. *MMWR. Recommendations and Reports*, 65 (3), 1–103.

De Vaus, D. (2002). *Surveys in Social Research* (5th ed.). London: Routledge. Ch. 8-pp.379.

Delvaux, T., Soeur, S., Rathavy, T., Crabbe, F. &and Buve, A. (2008). Integration of comprehensive abortion-care services in a Maternal and Child Health clinic in Cambodia. *Trop Med Int Health*, 13, 962-9.

Dow, J. K. and W. Endersby, J. W. (2004). Multinomial Probit and Multinomial Logit: a Comparison of Choice Models for Voting Research. *Electoral Studies*, 23, 107-122.

Eliason, S., Awoonor-Williams, J. K., Eliason, C., Novignon, J., Justice Nonvignon, J. &and Aikins, M. (2014). Determinants of modern family planning use among women of reproductive age in the Nkwanta district of Ghana: a case–control study. *Reproductive Health*, 11(65), 1-10.

Ertopcu, K., Inal, M. M. &and Ozelmas, I. (2005). Demographic analysis of post-abortive and interval administered hormonal contraceptive methods. *Eur J Contracept Reprod Health Care*, 10, 1-5.

Faculty of Sexual and Reproductive Healthcare (FSRH) Clinical Effectiveness Unit (2008). Progestogen-only pills. http:// www.ffprhc.org.uk/ (accessed 2 April 2009).

Fullerton, J. T. &and Ottolenghi, E. (2012). *Global post-abortion care desk review*. Washington (DC): The Global Health Technical Assistance Project; 2012 (pg.78).

Geelhoed, D. W., Nayembil, D., Asare, K., van Leeuwen, J. H. S. &and van Roosmalen, J. (2002). Contraception and induced abortion in rural Ghana. *Tropical Medicine and International Health*, 7(8), 708–716.

Ghana Health Service (2015). *Ghana Demographic and Health Survey for 2014*, Accra, Ghana.

Ghana Health Service (2016). Family Health Division Annual Report 2016 (pg.75). Retrieved at: http://www.ghanahealthservice.org/downloads/FHD_2016_ANNUAL_REPORT_Final_June%2019.2017%20nat%20final.pdf: Accessed on 17/9/2017

Global Impact Report (2012). Reaching the Underserved" (PDF) (pg. 56). https://www.mariestopes.org/resources/global-impact-report-2012-reaching-the-under-served/: Assessed on 17/9/2017

Gogoi, K.,Hazarika, P. J., Chanu, N. S. &and Hazarika, J. (2017). A Study on Status of Family Planning Practices and its Association with Socio-economic and Demographic Factors in Manipur, India. *International Journal of Statistics and Systems*, 12(3), 441-455.

Goldstone, P., Mehta, Y. H., McGeechan, K, Francis, K. and Black, K. I. (2014). Factors predicting uptake of long-acting reversible methods of contraception among women presenting for abortion. *MJA*, 201(7), 412-416

Goyal, V., Canfield, C., Aiken, A. R. A., Dermish, A. &and Potter, J. E. (2017). Post-abortion Contraceptive Use and Continuation When Long-Acting Reversible Contraception Is Free. 0(0), *Obstetrics &and Gynecology*, 1-8.

Happ, M. B., Sereika, S., Garrett, K. &and Tate, J. (2008). Use of the Quasi-experimental Sequential Cohort Design in the Study of Patient-Nurse Effectiveness with Assisted Communication Strategies (SPEACS), *Contemporary Clinical Trials*, 29(5), 801–808.

Hesse-Biber, S. N., &and Leavy, P. (2011). *The practice of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.pg. 47.

Hill, Z. E., Tawiah-Agyemang, C. &and Kirkwood, B. (2009).The Context of Informal Abortions in Rural Ghana. *Journal of Women's Health*, 18(12), 2017-2022.

Kokeb, L., Admassu, E., Kassa, H. &and Seyoum, T. (2015). Utilization of Post Abortion Contraceptive and Associated Factors among Women who Came for Abortion Service: a Hospital Based Cross Sectional Study. *J Fam Med Dis Prev*, 1(22), 1-4.

Kopp, D. M., Rosenberg, N. E., Stuart, G. S., Miller, W. C., Hosseinipour, M. C., Bonongwe, P., Mwale, M. &and Tang, J. H. (2017). Patterns of Contraceptive Adoption, Continuation, and Switching after Delivery among Malawian Women. *PLoS ONE*, 12(1), 170-284.

Lopez, L. M., Newmann, S. J., Grimes, D. A., Nanda, K. and Schulz, K. F. (2012). Immediate start of hormonal contraceptives for contraception. *Cochrane Database of Systematic Reviews*, 12(3), 346-370.

Lule, E., Singh, S. &and Chowdhury, S. A. (2007). Fertility Regulation Behavior and Their Costs: Contraception and Unintended Pregnancies in Africa and Eastern Europe and Central Asia. World Bank, Washington, DC (pg.98).

Malalu, P. K., Koskei, A., Too, R. &and Chirchir, A. (2014). Determinants of use of modern family planning methods: A case of Baringo North District, Kenya. *Science Journal of Public Health*, 2(5), 424-430.

Marie Stope International (2015). "Global Impact Report 2015"(pg.64). Retrieved 2017, 17, October. https://www.mariestopes.org/resources/global-impact-report-2014/: Assessed on 17/9/2017

Marie Stopes International (2013). ''Global Impact Report of 2013 (pg. 81).'' Retrieved 2017, 17, October. https://www.mariestopes.org/resources/financial-statements-2013/: Assessed on 17/9/2017

Maxwell, L., Voetagbe, G., Paul, M. and Mark, A. (2015). Does the type of abortion provider influence contraceptive uptake after abortion? An analysis of longitudinal data from 64 health facilities in Ghana. *BMC Public Health*, 2(5), 554:586

Mayi-Tsonga, S., Obiang, P. A., Minkobame, U., Ngouafo, D., Ambounda, N. &and de Souza, M. H. (2014). Introduction of postabortion contraception, prioritizing long-acting reversible contraceptives, in the principal maternity hospital of Gabon. *International Journal of Gynecology and Obstetrics*, 126, S45–S48.

McCann, M. F. and Potter, L. S. (1994). Progestin-only oral contraception: a comprehensive review. *Contraception*, 50, S1–S198.

McCarraher, D. R., Chen-Mok, M., Oronoz, A. S., Brito-Anderson, S., Grey, T., Tucker, H. &and Bailey, P. E. (2010). Meeting the needs of adolescent postabortion care patients in the Dominican Republic. *J Biosoc Sci*, 42, 493-509.

McCarraher, D. R., Chen-Mok, M., Oronoz, A. S., Brito-Anderson, S., Grey, T., Tucker, H. and Bailey, P. E. (2010). Meeting the needs of adolescent post-abortion care patients in the Dominican Republic. *Journal of Bio-sociological Science*, 42, 493-509.

Ministry of Health (2014). Holistic Assessment of the Health Sector Programme of Work 2013, Ghana. Final version 30th July 2014 (pg. 98).

Mote, C. V., Otupiri, E. &and Hindin, M. J. (2010). Factors Associated with Induced Abortion among Women in Hohoe, Ghana. *African Journal of Reproductive Health*, 14(4):1-15.

Mubita-Ngoma, C. &and Kadantu, M. C. (2010). Knowledge and use of modern family planning methods by rural women in Zambia. *Curationis*, 33(1), 17-22.

Mutua, M. M., Achia, T. N. O., Maina, B. W. &and Izugbara, C. O. (2017). A cross-sectional analysis of Kenyan postabortion care services using a nationally representative sample. *Int J Gynecol Obstet*, 138, 276–282.

Mutua, M. M., Maina, B. W., Achia, T. O. &and Izugbara, C. O. (2015). Factors associated with delays in seeking post abortion care among women in Kenya. *BMC Pregnancy and Childbirth*, 15(2), 1-8.

Nangendo, S. M. (2012). Knowledge And Use Of Family Planning Methods And Services In West Yimbo Division, Bondo District, Western Kenya. *African Study Monographs*, 33(4), 233-251.

Niinimäki, M., Pouta, A., Bloigu, A., Gissler, M., Hemminki, E., Suhonen, S., and Heikinheimo, O. (2009). Frequency and Risk Factors for Repeat Abortions After Surgical Compared With Medical Termination of Pregnancy. *Journal of Obstetric Gynecology*, 113, 845–52.

Okonofua F. (2006). Abortion and maternal mortality in the developing world. *Journal of Obstetrics and Gynaecology Canada*, 28, 974-979.

Olugbenga-Bello, A. I., Abodunrin, O. L. &and Adeomi, A. A. (2011). Contraceptive Practices among Women in Rural Communities in South-Western Nigeria. *Global Journal of Medical research*, 11(2), 1-9.

Omran, A. R. (1992). *Family Planning in the Legacy of Islam*, (2nd edition), London: Routledge.pg5-6.

Opoku, B. (2012). Contraceptive Preferences of Post-Abortion Patients in Ghana. *J Women's Health Care*, 1(2), 1-3.

Osur, J., Baird, T. L., Levandowski, B. A., Jackson, E. &and Murokora, D. (2013). Implementation of misoprostol for post-abortion care in Kenya and Uganda: A qualitative evaluation. *Glob Health Action*, 6(1), 11-16.

Passini, R. Jr, Cecatti, J. G., Lajos, J. G., Tedesco, R. P., Nomura, M. L. &and Dias, T. Z. (2014). For the Brazilian Multicenter Study on Preterm Birth study group. Brazilian Multicenter Study on Preterm Birth (EMIP): prevalence and factors associated with spontaneous preterm birth. *PLoS One,* 9, 109-169.

Post-abortion Care Consortium Community Task Force (2002). Essential Elements of Post-abortion Care: An Expanded and Updated Model (July 2002) (pg.89).

Prata, N., Bell, S., Holston, M., Gerdts, C. &and Melkamu, Y. (2011). Factors Associated with Choice of Post-Abortion Contraception in Addis Ababa, Ethiopia. *African Journal of Reproductive Health*, 15(3), 55-62.

Prata, N., Bell, S., Holston, M., Gerdts, C. &and Yilma Melkamu, Y. (2011). Factors Associated with Choice of Post-Abortion Contraception in Addis Ababa, Ethiopia. *African Journal of Reproductive Health*, 15(3): 55-62

Rasch, V., Yambesi, F. &and Massawe, S. (2008). Medium and long-term adherence to post abortion contraception among women having experienced unsafe abortion in Dar es Salaam, Tanzania. *BMC Pregnancy Childbirth*, 8, 32-39.

Raymond, E. G. (2011). Progestin-only pills. In: Hatcher RA, Trussell J, Nelson AL, Cates W Jr, Kowal D, Policar MS editor(s). *Contraceptive Technology*. 20th Edition. New York: Ardent Media, Inc., 237–47.

Rominski, S. D. &and Lori, J. R. (2014). Review: Abortion care in Ghana: A critical review of the literature. *African Journal of Reproductive Health*, 18(3), 17–35.

Secura, G.M., Allsworth, J.E., Madden, T., Mullersman, J.L. &and Peipert, J.F. (2010). The Contraceptive CHOICE Project: reducing barriers to long-acting reversible contraception. *Am J Obstet Gynecol*, 203(2), 111–117.

Sedgh, G. (2010). *Abortion in Ghana*. Issues in brief (Alan Guttmacher Institute), 2:1, Pg.60.

Sedgh, G., Henshaw, S., Singh, S., Ahman, E. &and Shah, I. H. (2007). Induced abortion: estimated rates and trends worldwide. *Lancet*, 370, 1338-1345.

Sedgh, G., Singh, S., Shah, I. H., Åhman, E., Henshaw, S. K. &and Bankole, A. (2012). Induced abortion: incidence and trends worldwide from 1995 to 2008. *The Lancet*, 379(9816), 625–32.

Shah, I. &and Ahman, E. (2010). Unsafe Abortion in 2008: Global and Regional Levels and Trends" *Reproductive Health Matters,* 18(35), 132-142.

Singh, S. (2006). Hospital admissions resulting from unsafe abortion: estimates from 13 developing countries. *Lancet*, 368, 1887-1892.

Singh, S., Sedgh, G. &and Hussain, R. (2010). Unintended Pregnancy: Worldwide Levels, Trends, and Outcomes. *Studies in Family Planning,* 41(4), 241-250.

Staveteig, S., Mallick, L. &and Winter, R. (2015). *Uptake and Discontinuation of Long-Acting Reversible Contraceptives (LARCs) in Low-Income Countries*. DHS Analytical Studies No. 54. Rockville, Maryland, USA: ICF International (pg.112)

Tibaijuka, L., Odongo, R., Welikhe, E., Mukisa, W., Kugonza, L., Busingye, I., Nabukalu, P., Ngonzi, J., Stephen B. Asiimwe, S. B. &and Bajunirwe, F. (2017). Factors influencing use of long-acting versus short-acting contraceptive methods among reproductive-age women in a resource-limited setting. *BMC Women's Health*, 17(25), 1-13.

Trussell, J. (2011). Contraceptive failure in the United States. *Contraception*, **83**(5), 397–404.

Trussell, J., Nucatola, D. &and Fjerstad, M. &and Lichtenberg, E. S. (2014). Reduction in infection-related mortality since modifications in the regimen of medical abortion. *Contraception*, 89(3), 193–196.

USAID (2007). USAID Report of the post-abortion care technical advisory panel. Washington D.C (pg 56)

van Vliet, H. A., Grimes, D. A., Lopez, L. M. and Schulz, K. F. (2011). Helmerhorst FM. Triphasic versus monophasic oral contraceptives for contraception. *Cochrane Database of Systematic Reviews*, 11, 256-273.

Wallach, M., Grimes, D. A., Chaney, E. J., Connell, E. B., Creinin, M. D., Emans, S. J. (2000). *Modern oral contraception*. Totowa, NJ: Enron (pg.19)

Wariki, W. M. V., Ali, M., Mori, R., John J Wantania, J. J., Kuroiwa, C. &and Shibuya, K. (2015). Post-abortion care in North Sulawesi, Indonesia: Patients determinants in selection of health facility. Post-abortion care in North Sulawesi, Indonesia: Patients determinants in selection of health facility. *Quality in Primary Care*, 23(3), 181-188.

WHO (2011a). Global HIV/AIDS Response: epidemic update and health sector progress towards Universal Access. Progress Report (pg.85).

World Health Organisation (2017). Healthy timing and spacing of pregnancy toolkit (pg.35). https://www.k4health.org/toolkits/HTSP: Assessed on 17/9/2017

World Health Organization (2011b). Unsafe abortion: global and regional estimates of the incidence of unsafe abortion and associated mortality in 2008. 3rd ed. Geneva (pg.13).

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

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

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MyRef. GHS/RDD/ERC/Admin/App 1881
Your Ref. No.

21st December, 2017

Emmanuel Kofi Sekyere
University of Ghana
School of Public Health
Legon, Accra

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

GHS-ERC Number	**GHS-ERC: 139/12/17**
Project Title	Post Abortion Family Planning Method Choices and Associated Factors
Approval Date	21st December, 2017
Expiry Date	20th December, 2018
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report **after completion** of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

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

SIGNED.....
DR. CYNTHIA BANNERMAN
(GHS-ERC CHAIRPERSON)

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

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CLIC Data Request form

This form should be completed by the data requester wishing to access and use CLIC datasets for either routine programme monitoring or research purposes. The data requester should also sign a confidentiality form after filling out this form

Application for access to research datasets shall be made either to:

a) Country Director/SMT
b) RME Manager

1. Name	***Emmanuel Kofi Sekyere***
2. Institution/Organisation	***Marie Stopes International***
3. Position	***Global PSS Quality Advisor***

4. Specify CLIC data required

Country programme	Channel(s)	Dates of data required (months, years)	Type of dataset required:
Ghana	**Centres (Tema New Town Ashaiman, Kokomlemle, Santasi, Techiman, Koforidua, Tamale, Takoradi, Alabar**	**01-January-2015 to 31-December-2016**	**All SAC (Medical & Surgical) Clients with same-day PAFP**

4. Aims and objectives of the research or analysis using CLIC data	***To describe the reproductive and socio-demographic factors associated with the choice of PAFP taken after first trimester Safe Abortion Care (SAC).***
5. Will any external collaborators or consultants be given access to these data?	***Not the Data but the analysis of the data as approved by the Ghana Health Service Ethical Review Committee namely University of Ghana, School of Public Health and the GHS ERC***
6. Where will you be storing CLIC data?	***On MSI given LAP to and after the research, it will be given to the MSIG IT team to discard***

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7. Estimated end date of the project /analysis/data use	***31st July 2018***

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4. Will there be any benefits/gains to Marie Stopes Ghana? If yes what are they?	***Yes, it will help MSIG understand its clients better to inform client-centered counseling***

RME/MIS Use only:

Approval granted by (print name):

Position:

Signed:

Date that data are sent:

Data use logged on CLIC data use system (by RME M&E officer):

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Annex 3: Confidentiality agreement for MSI staff members using CLIC data

Confidentiality agreement on the use of CLIC data between

Emmanuel Kofi Sekyere

and

Marie Stopes International

1. I have read the MSI CLIC Data Management Policy and the MSI CLIC Research Guidance Note and agree to adhere to the following procedures for saving, storing and presenting CLIC data:
    a. Datasets will be saved on password-protected MSI servers, encrypted computers and encrypted USBs only.
    b. Analytical outputs and raw data will be stored in separate spreadsheets.
    c. Analytic output will contain no client identifiable data, and will adhere to the guidance on small cell sizes to avoid deductive disclosure.
    d. Any maps containing numbers or rates with CLIC data will be approved by a senior manager in the RME team or the Country Director, and will adhered to guidance on small cell sizes.
    e. Any data breaches will be reported immediately to the Country Director and to the MIS and RME teams based at the London Support Office, including instances of lost or stolen laptops or USB drives containing CLIC data, and access to and use of CLIC data by unauthorised individuals.
2. I will ensure that any consultant or sub-contractor granted access to CLIC data will sign a 'Data Sharing Agreement'.
3. I will not attempt to identify by any means whatsoever any individual client, nor will I claim to have done so.
4. I will not release nor permit others to release CLIC data or analytical output to any person (including media and subcontractors) except with written approval of the MSI Country Director or the Head of Research, Monitoring and Evaluation in the London Support Office.
5. The Country Director or the Head of Research, Monitoring and Evaluation will approve every publication or report (internal or external) which includes CLIC data. Country Directors have the right to request that their data be dropped from analysis for any given publication or report.
6. The datasets remain the property of the MSI, who reserves the right to request the return of the dataset should any of the above conditions be violated.

Signed: _____ Date: ____March 23, 2018_____

PRINT NAME: _____Emmanuel Kofi Sekyere_____
MSI Staff member

Signed: _____ Date: _____

PRINT NAME: _____

Country Director or Head of Research, Monitoring and Evaluation

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Annex 4: Data Sharing Agreement with Marie Stopes International

This agreement should be used for sharing MSI data with external collaborators. It can be used for research using data from CLIC, client exit interviews, mystery client surveys, discrete evaluation or formative research studies conducted by MSI and partners, and voucher management system data.

Part 1: For access to MSI datasets by external collaborators

The investigator(s) named below

Print names

are scientists or consultants employed at	*name of collaborating institution or consultancy firm*

who are collaborating with	*name and position of MSI collaborator*

and will be accessing the following datasets:

For CLIC, voucher or CEI data, specify country/ies, date ranges, channels, type of CLIC dataset (standard, with no IDs; vs research dataset with scrambled IDs)

Title of the study

Aims and objectives of the study

Short summary of analysis methods

Study start and end dates (estimated)

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Part 2

This Agreement protects the confidentiality and related interests of Marie Stopes International ("MSI") clients, protects the confidentiality of MSI operations, supports the work of the investigators, and ensures the long-term integrity of results quoted as originating in MSI datasets or databases.

In return for having access to the data, the investigators agree as follows:

1. The investigators shall comply with the following procedures for saving and storing MSI data:
    a. Those accessing CLIC data will read the 'Use of CLIC data for research' Guidance Note.
    b. Datasets are saved on one of the following:
        i. password-protected and firewalled servers or computers in a physically protected area.
        ii. Encrypted laptops or USBs only.
    c. Any client-identifiable routine service data (i.e. containing client names and phone numbers) will be anonymised by MSI before sharing. Routine service data will be deleted from local servers in a time-frame agreed by the research partners.
    d. Analytic output must be separated from raw data, and contain no client- or participant-identifiable data. Any CLIC analytical output must adhere to the guidance on small cell sizes set out in the 'Use of CLIC data for research' Guidance Note, to avoid deductive disclosure.
    e. Any data breaches are reported immediately to the Country Director and/or to the Head of the RME teams based at the London Support Office, including instances of lost or stolen laptops or USB drives containing MSI data, and access to and use of MSI data by unauthorised individuals.
    f. Upon request of MSI (usually upon satisfactory completion of the work), MSI data are without delay returned to MSI or destroyed.
2. The investigators shall not attempt to identify from any dataset, and by any means whatsoever, any individual client, nor shall the investigators claim to have done so.
3. The investigators shall neither release nor permit others to release any data or any analytical output to any person (including, without limitation, the media or any subcontractors, partners or affiliates) unless they have prior written approval of the relevant MSI Country Director and/or the Head of Research, Monitoring and Evaluation in the London Support Office.
4. The investigators shall neither use nor permit others to use any MSI data in any way other than for the specific purposes stated in this agreement. Any additional use of data will require a separate agreement.
5. The investigators shall treat as strictly confidential, and shall not use or disclose to any other person, any information, data or document that relates to MSI or any of its subsidiaries or affiliates, or any business, operations or clients of any of the aforesaid, and is obtained in the course of collaborating with MSI, unless such use or disclosure is expressly authorised by MSI, or required by law, or the information in question is already in the public domain other than as a result of acts or omissions of the investigators.
6. The investigators shall keep all MSI data, and any confidential information, data or document referred to in paragraph 5, secure and to prevent any unauthorised access to it.
7. The investigators shall obtain the approval of the relevant Country Director or the Head of Research, Monitoring and Evaluation for every publication or report which includes MSI data. Country Directors shall have the right to require that the investigators not include any data in any analysis or information that is to be reported on, published, or in any other way publicly disseminated. The country programmes and/or the Research, Monitoring and Evaluation Team shall have the right to have one or more co-authors of their choice participate (in accordance with the International Commission of Medical Journal Authors) in any publication based on any analyses of any MSI data.
8. The investigators shall ensure that every publication, report or other form of public dissemination of information or analysis that is based on, or arises from, or otherwise includes any data carries an acknowledgement in the following terms:

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"Analysis based on data collected by Marie Stopes International" (non-CLIC data); or
"Analysis based on data collected from the Client Information Centre ('CLIC') operated by Marie Stopes International" (for CLIC data)

9. All data shall remain the property of MSI, who reserves the right to request the immediate return of it at any time.

I declare that:

(1) The information that I have provided in Part 1 of this Agreement is true and accurate.

(2) I agree with Part 2 of this Agreement, and shall comply with its requirements.

Signed: _____ Date: _____March 23, 2018____

Investigator Emmanuel Kofi Sekyere

Signed: _____ Date: _____

Country Director or Head of Research, Monitoring and Evaluation in London Support Office