FACTORS ASSOCIATED WITH UPTAKE OF LONG-ACTING REVERSIBLE CONTRACEPTIVES AMONG FEMALE SOLDIERS AGED BETWEEN 18 AND 45 YEARS IN BOMBO MILITARY BARRACKS

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DEDICATION

I dedicate this research report to my husband Late Major Alfred PhilipOdeng as well as my parents Mr.Ebidu Charles and Mrs.Ebidu Regina who always believed in me and whose support, prayers and encouragement, gave me hope and inputs to complete this study. I dedicate this scholarly achievement to you for standing up with me in the critical time I needed you most.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACOG	American College of Obstetricians and Gynaecology
AOR	Adjusted Odds Ratio
FP	Family Planning
HBM	Health Belief Model
HIV	Human Immune Virus
IMR	Infant Mortality Ratio
IUC	Intrauterine Contraception
IUCDs	Copper Intrauterine Contraceptive Devices
IUD	Intra-Uterine Device
LARCs	Long Acting Reversible Contraceptives
MMR	Maternal Mortality Ratio
SPSS	Statistical Package for Social Scientists
STIs	Sexually Transmitted Infections
TFR	Total Fertility Ratio
UBOS	Uganda Bureau of Statistics
UDHS	Uganda Demographic Health Survey
UNFPA	United Nations Population Fund or Fund for Population
UPDF	Uganda People's Defence Forces
WHO	World Health Organization

OPERATIONAL DEFINITIONS

Birth rate	The ratio of total live births to total population in a specified community or area over a specified period of time, often expressed as the number of live births per 1,000 of the population per year (WHO, 2016)
Contraception	Refers to methods or devices used to prevent pregnancy majorly categorized in two types: modern and traditional methods (Oshin et al, 2019).
Contraceptive prevalence	Refers to the percentage of women (15-49 years) who are currently using, or whose sexual partner is currently using, at least one method of contraception, regardless of the method used (WHO, 2019).
Contraceptive method choice	Contraceptive method choice is an indication of existing quality of care for women. A wide range of contraceptive options is a sign that programs can meet the diverse needs of women (Stephenson, Bake 2008).
Family planning	CDC define family planning to include an array of services that confer myriad health benefits in addition to enabling women and couples to time and space their pregnancies (Hasstedt, 2014, p.2)
Long-acting reversible contraceptives	A method of birth control which provides effective contraception for an extended period of time without requiring user action The most common methods of these contraceptives are non-hormonal copper intrauterine contraceptive devices (IUCDs) and implantable contraceptive which are safe, effective, convenient and less expensive for the users (Taye*et al.*, 2014).
Parity	The number of pregnancies reaching 20 weeks and 0 days of gestation or beyond, regardless of the number of foetuses (ACOG, 2014).

Unmet family planning need	Women with unmet need are those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child (WHO, 2019).

ABSTRACT

Introduction: Globally, long acting reversible contraceptives (LARCs) are the most effective modern contraceptive methods for preventing unintended pregnancy. However, these methods are still underutilized in low-resource countries more so among female soldiers working at Bombo Military Barracks despite having contraceptive as well as non-contraceptive benefits. Thus, a study was initiated to explore the factors associated with uptake of LARCs among female aged between 18 and 45 years.

Objective: The general objective is to determine the factors associated to the uptake of long-acting reversible contraceptives among female soldiers aged 18-45 years at Bombo Military Barracks.

Methods: Descriptive cross-sectional study employing quantitative and qualitative data collection methods was used and sampling 223 female soldiers, the study successfully solicited views from 201 respondents giving a response rate of 90.5%. Primary data was obtained using a structured questionnaire instrument anchored on a five point Likert scale. From the field, data was sorted, edited and processed using SPSS (v.20).qualitative data used narratives by key informants Results were presented using a frequency table and descriptive statistics of mean and standard deviation.

Results: Overall 201 military women were interviewed with 92.6% response rate and 41.3% of the respondents were aged between 31-40 years followed by those aged 20-30 years 33.3%. The prevalence of LARCs utilization was 48.8%. Bivariate analysis using Chi-square test found that age (p=.025), education level (p=003), marital status (p=.009) and parity (p=.041) had statistically significant difference or relationship with use of LARC. On the other hand, period of service (p=.305) and religion (p=.069) had no statistically significant relationship with LARC use. Multivariate analysis using logistic regression indicates that military women aged 20-30 and 31-40 years were 1.92 and 1.87 times respectively more likely to use LARC compared to those aged 41-50 years (AOR=1.92, 95%CI:.907-4.058, p=0.088 and AOR=1.87, 95%CI:.915-3.799, p=0.086). Certificate (AOR=1.79, 95%CI:.498-5.43, p=.372) and bachelor's degree (AOR=1.10, 95%CI: .451-2.672, p=.836) holders were about 1.79 and 1.10 times more likely to use LARC respectively compared to master's degree holders. Married

military (AOR=1.87, 95%CI: .513-6.805, p=.343), divorced/separated (AOR=1.86, 95%CI: .391-8.829, p=.436) and single women (AOR=1.59, 95%CI: .421-5.986, p=.495) were 1.87, 1.86 and 1.59 times respectively more likely to use LARC compared widowed military women. On parity, primi-gravida women were about 1.4 times more likely to use LARC compared to multi-gravida military women (AOR=1.43, 95%CI: .773-2.645, p=0.255). The individual factors likely to influence LARC use identified were; women's knowledge regarding usage of LARCs (Mean=4.23), level of awareness on contraceptive side effects (Mean=4.21) and knowledge on the benefits of long term contraceptives (Mean=3.73). Service provider factors influencing uptake of LARC with mean greater than the overall average mean identified were; encouragement from health workers (Mean=4.66), encouragement by medical staff on seeking advice in case of complication (Mean=4.14), counselling (Mean=4.01), benefits of long acting contraceptives (Mean=4.01), timeliness of medical services (Mean=3.93) and readily available family planning information (Mean=3.78).

Conclusion: The uptake of LARC was low at 48.8%. Socio-demographic factors; age, education level, marital status and parity had important attributes in explaining the uptake of LARCs. There is need to revive and support family planning education programs at barracks and community level. Retraining the service providers is mandatory if improvement in the quality of provider interaction and knowledge of proper usage are to be achieved. Promote the uptake of contraceptives at family level and strengthen delivery of family planning services to the people in need. The leadership of UPDF should strengthen and implement policies concerning reproductive health in the army.

CHAPTER ONE: INTRODUCTION

1.1. Introduction

Within the field of reproductive health, long acting reversible contraceptives (LARCs) are the most effective modern contraceptive methods for preventing unintended pregnancy (Diedrich, Klein &Peipert, 2017). These methods are long-acting, reliable, safe, and cost-effective and have additional non-contraceptive benefits for a broad range of women seeking spacing or limiting methods of contraception (Joshi *et al*., 2015). Moreover, LARC methods do not rely on user adherence and are also suitable for women with medical disorders. They include intrauterine contraception (including copper intrauterine devices and the levonorgestrel intrauterine system), injectables, and implantable progestogens (Joshi *et al*, 2015). Although the trend for the uptake of LARCs shows a rise in their use in developed countries, these methods are still underutilized in low-resource countries despite having contraceptive as well as non-contraceptive benefits.

Global, statistics indicate an estimated 222 million women who are not using LARC methods to delay or stop childbearing with the majority coming from developing countries (Josh *et al*., 2015). Historically, long-acting reversible contraceptives trace their origin in 1968 when the US government created its population policy with the aim, amongst others, to ensure that family planning services were accessible to people to help them manage and control child births (Chiles *et al.*, 2016). Since then, several methods have been invented including Lippes Loop, the Copper-7, and the Copper-T to help prevent unwanted pregnancies .(Hamilton&Mathews, 2016).

Utilization of long acting reversible contraceptives (LARC) helps couples in making suitable family planning decisions, including delaying and spacing pregnancies and is linked to improved birth outcomes for babies, either directly or through healthy maternal behaviours during pregnancy (Peipert, 2014).

Similarly, usage of long term contraceptives has a range of additional benefits such as reducing pregnancy-related morbidity and mortality, reducing the risk of developing certain

reproductive cancers, and can be used to treat many menstrual related symptoms and disorders among women (Kavanaugh& Anderson, 2013).

Moreover, LARCs are easy to use, safe, long lasting, quickly reversible and 20 times more effective than oral contraceptive pills (Winner, Peiper*et al.*, 2012). Additional benefits are related to high patient acceptability, have limited contraindications for use and are often recommended in some cases due to their dramatically improved bleeding control (Peipert e*t al*., 2011).

Worldwide, it is indicated that LARCs are the second most common method of contraception, after female sterilization with rates of usage peaking at 13% of women aged 15-49 years (World Health Organization, 2016). However, different countries report varying rates of usage ranging from 11% of women in United Kingdom, 12% of United States of America women, 8-22% in Western Europe to 40% in China and 42% in North Korea (United Nations, 2015). Similarly, in Sub-Saharan Africa, whereas long-acting reversible contraceptives are safer, simpler, and more effective than female sterilization, the method lags behind as available statistics indicate that on average 5% of African women use LARCs with Egypt taking a lead at 36% of women aged 15-49 years (Shoupe, 2016).

It is something that has been partly responsible for the increase in unmet need for family planning from 22% in 2013 to 24% in 2015, a statistic that doubles the world health organization estimates (WHO, 2016).

In the United States of America, LARC methods could be limitedly tracked, where in 2002, only 1.5% of women used LARC (Mosher and Jones, 2010; Jones, 2015), moreover, the use of IUD and implants represent the most cost-effective reversible option to preventing untended pregnancy among women (Trussell*et al*., 2015). Contraceptives like implant and intrauterine devices which do not require daily adherence, offer an effective method to help decrease unintended pregnancies and another study on the Contraceptive CHOICE Project in the United States have demonstrated high efficacy, acceptability and continuation rates of LARC (Ecura*et al*., 2014).

In Australia, the use of LARC remains very low compared to other European countries despite the fact the uptake of LARC has the potential of reducing untended regencies among women thereby reducing abortion rates and improving quality of life among others (Eeckhaut*et al*., 2014).

In sub-Saharan Africa, there is a great unmet need for contraceptives, despite being cost-effective and highly efficacious long-acting reversible contraceptive (LARC) availability and use is low while unmet need for family planning (FP) remains high, particularly in rural and remote areas (Stavetieng*et al*., 2015).

In Uganda, there is limited data on LARC and factors influencing uptake of LARC among female military soldiers, available statistics indicate that uptake of long-acting reversible contraceptives is still low at 13% of all women aged 15-49 years, despite the methods being more efficacious, more cost-effective, and better tolerated than short-acting methods (Anguzu*et al*., 2014).

In addition, according to Tibaijuka*et al*.,(2017), the low uptake of LARCs is partly responsible for the unintended pregnancies, short birth intervals and higher risk of obstetric and new born complications among women of child bearing age.

Additional statistics from Ministry of Health indicates that about 44% of pregnancies in Uganda are unintended with occurrence of unsafe abortions estimated at 62 per 1,000 women aged 15–49 years (Ministry of Health Report, 2015).More so, Uganda has a high maternal mortality ratio (MMR) at 336 maternal deaths per 100,000 live births and an infant mortality rate (IMR) of 43 per 1,000 live births per year (UBOS, 2016). These undesirable maternal and child health outcomes associated with high total fertility rate (TFR) could be substantially reduced by meeting the family planning (FP) needs of women through increased uptake of long-acting reversible contraceptives(Nalwadda*et al*., 2010). Similarly, provision of highly efficacious contraceptives contributes to a reduction in maternal mortality by lowering the risk of maternal death per birth hence preventing high-risk and high-parity births (Stover&Ross,

2010). It also offers individuals and couples' ability to anticipate and attain the desired number of children by birth spacing and timing.

1.2. Background to the Study Area

The study was carried out among female soldiers in Bombo Military Barracks. Bombo Military Barracks is located along Kampala-Luwero Highway, in Luweero District about 34 kilometers from Kampala, the capital and largest city of Uganda.

Bombo Military Barracks has hospital located on the premises of the Barracks, serving as a referral center for the various health units within the UPDF. It serves the whole population with the Barracks and the neighborhood and all services offered in hospitals are offered here including maternal and child health.

Modern methods of family planning for women at the facility for female soldiers have been available however the prevalence of long acting reversible contraceptives among the female soldiers is low. There is limited data on the maternal mortality among the female of Bombo Military Barracks at the health facility.

According to the military records, there are 500 female officers attached to Bombo Military Barracks (Bombo Annual Report, 2016).

1.3.Statement of the Problem

Contraception is an important component of reproductive health because of its contribution towards prevention of unplanned pregnancy and unsafe abortion, and improvement in maternal health (WHO, 2015). Moreover, long-acting reversible contraceptives (LARCs) allow women to prevent pregnancy for many years at a time, as well as providing an opportunity to postpone childbearing safely and effectively, as they require virtually no user adherence (Anguzu*et al.*, 2014).

Despite being safer, simpler and more effective than other methods of contraception, the method lags behind in Uganda as available statistics indicate that the national usage is at 13% among women aged 15-49 years (UDHS, 2016). Similarly, among the female serving officers

of the Uganda People's Defence Forces, usage of LARCs is also low at only 3% (Bombo Hospital Records, 2015). Such a trend has put the country at risk of failing to achieve the Sustainable Development Goal 5 of reducing maternal mortality ratio by at least 75%. With these statistics in place, no study has been undertaken to identify the underlying factors responsible for this trend in the context of female soldiers of child bearing age serving in Uganda People's Defence Forces. Therefore, this study is among those to bridge this gap in Uganda.

1.4. Research Questions

i. What is the level of uptake of long-acting reversible contraceptives among women soldiers aged 18-45 years at Bombo Military Barracks?
ii. What are the individual factors associated with uptake of long-acting reversible contraceptives among women soldiers aged 18 to 45 years at Bombo Military Barracks?
iii. What service provider factors are associated with uptake of long-acting reversible contraceptives among women soldiers aged 18 to 45 years at Bombo Military Barracks?
iv. What are the institutional factors guiding provision of long acting reversible contraceptives among female soldiers aged 18 to 45 years at Bombo Military Barracks?

1.5. Study Objectives

1.5.1. General Objective

To determine the factors associatedto the uptake of long-acting reversible contraceptives among female soldiers aged 18 to 45 years at Bombo Military Barracks.

1.5.2. Specific objectives

i. To determine the level of uptake of long-acting reversible contraceptives among female soldiers aged 18 to 45 years at Bombo Military Barracks.

ii. To determine the association between individual factors and uptake of long-acting reversible contraceptives among women soldiers aged 18 to 45 years at Bombo Military Barracks.

iii. To assess service provider factors associated with uptake of long-acting reversible contraceptives among women soldiers aged 18 to 45 years at Bombo Military Barracks.

iv. To assess institutional factors guiding provision of long acting reversible contraceptives among female soldiers aged 18 to 45 years at Bombo Military Barrack.

Social Ecological Model (SEM)

The Social Ecological Model (SEM) is a theory for understanding the multifaceted and interactive effects of personal and environmental factors that determine behaviours, and for identifying behavioural and organizational leverage points and intermediaries for health promotion within organizations. There are five nested, hierarchical levels of the SEM: Individual, interpersonal, community, organizational, and policy/enabling environment . Table 1 provides a brief description of each of the SEM levels. The most effective approach to public health prevention and control uses a combination of interventions at all levels of the model.

Figure 1. The Social Ecological Model

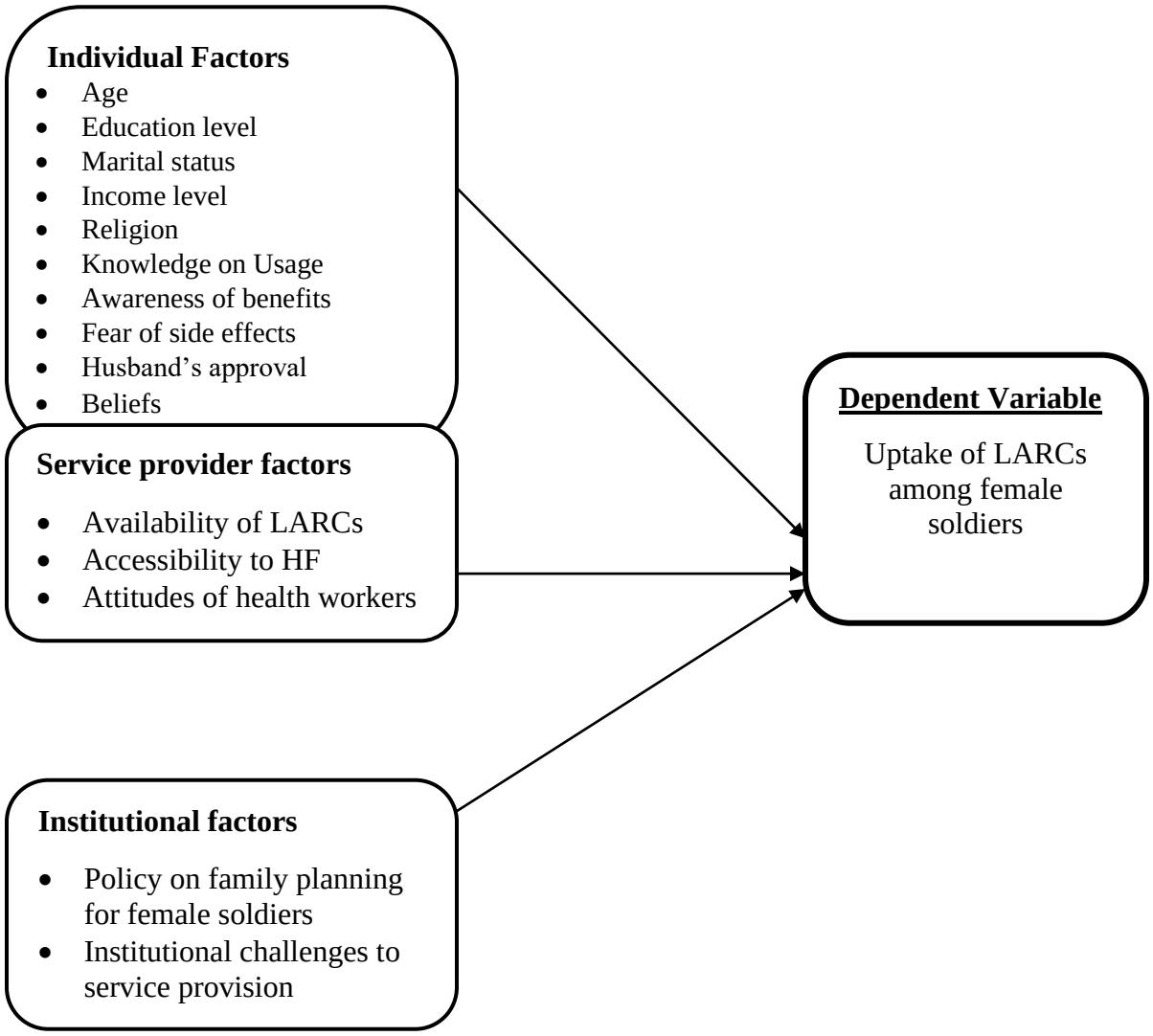
Table 1. A Description of Social Ecological Model (SEM) Levels.

SEM Level	Description
Individual	• Characteristics of an individual that influence behaviour change, including knowledge, attitudes, behaviour, self-efficacy, developmental history, gender, age, religious identity, racial/ethnic identity, sexual orientation, economic status, financial resources, values, goals, expectations, literacy, stigma, and others.
Interpersonal	• Formal (and informal) social networks and social support systems that can influence individual behaviours, including family, friends, peers, co-workers, religious networks, customs or traditions.
Community	• Relationships among organizations, institutions, and informational networks within defined boundaries, including the built environment (e.g., parks), village associations, community leaders, businesses, and transportation.
Organizational	• Organizations or social institutions with rules and regulations for operations that affect how, or how well, for example, MNCH services are provided to an individual or group.

Policy/Enabling Environment	• Local, state, national and global laws and policies, including policies regarding the allocation of resources for maternal, newborn, and child health and access to healthcare services, restrictive policies (e.g., high fees or taxes for health services), or lack of policies that require childhood immunizations.

1.7. Conceptual Framework

Figure 1: Conceptual framework



Source: *Gudaynhe et al., (2014),Ochako et al., (2016), Grindlay and Grossman (2013) and modified by the researcher*.

The conceptual framework shown in figure 1 above is an overview of some of the factors that influence the uptake of LARC among women soldiers aged 18-45 years, and it gives a framework within which this study was conducted. As per the framework, the socio-

demographic factors of the respondents provide their general characteristics such as the age, educational level, their occupation, religion, marital status and their partners' occupation. Such aspects were emphasized by Gudaynhe*et al.,* (2014). In addition, the framework suggests that socio-demographic factors influence decisions of women towards the use of LARCs.

On the other hand, adequate knowledge on the use of LARCs, awareness of benefits for LARCs, beliefs, fear of side effects, affordability as well as husband's refusal could have a bearing on the woman's decision to use LARCs. These constructs were also adopted by Ochako*et al.,* (2016), as realistic individual factors towards the uptake of LARCs among women. Furthermore, availability of various methods, accessibility to health facilities as well as attitudes of health workers also plays a role in the use of the LARCs as noted by Grindlay and Grossman (2013).

1.8. Justification of the study

With ample evidence indicating that long-acting reversible methods are beneficial in improving maternal health, it is very important for the health sector to have policies and programmes that will help increase utilization of LARCs in Uganda. Therefore, understanding the factors that influence decision-making for the uptake of LARCs, provision and utilization of contraceptives will therefore inform policy makers such as ministry of health, ministry of defence and reproductive health Uganda to develop appropriate interventions to improve the uptake of LARCs among female soldiers in the Uganda People's Defence Forces.

The findings of this study will assist policy makers in the UPDF to formulate effective policies and strategies towards addressing the low uptake of LARCs among female soldiers. In this way, the study will inform policy makers in developing programs aimed at meeting the demand for family planning services through the provision of appropriate method mix to meet the need for LARCs depending user's characteristics. In addition, the findings of this study will help providers at Bombo Military Hospital to design strategies that are more acceptable to female soldiers and also help to promote the acceptance of various types of contraceptives.

The study will identify factors associated with uptake of long acting reversible contraceptives among female soldiers aged 18-45 years. Therefore, findings will guide the nursing practice in identifying suitable strategies to improve the uptake of LARCs among female soldiers.

The findings and recommendations of this study will help to design messages on long-acting reversible contraceptives not only targeting the UPDF female soldiers but the general population as well. This will increase awareness of women and will find it easier to access contraceptives.

CHAPTER TWO: LITERATURE REVIEW

2.0. Introduction

This section presents the review of relevant literature in line with the objectives of the study. The aim is to identify the similarities and disagreements between views from different authors. The section starts with an over view of the theory to guide the study.

2.1. Individual factors influencing uptake of long-acting reversible contraceptives among women soldiers aged 18 to 49 years

2.1.1.Socio-demographics (Age, Education, income level, marital status and religion) influencing uptake of long-acting reversible contraceptives among women soldiers

Different scholars have found out that the socio-demographic factors are very important in explaining the variations in uptake of long-acting reversible contraceptives among women of reproductive age (Asiimwe*et al*., 2013; Olalekan*et al*., 2011). This is because social demographic characteristics determine the person's ability to understand the mechanism of action and effective use of any contraceptive method. In particular, social demographic factors such as age, education level, marital status, occupation, religious affiliation, marital status, parity (number of children), among others, are critical in influencing the uptake of LARCs among women. Social demographic factors affect also affect ability to access various types of contraceptive, hence, the type of contraceptive the individual is likely to use.

In relation to age, different studies have indicated that uptake of LARCs vary with age. For a study by Roumi (2010) in Ethiopia among 200 respondents revealed that majority of women adopting long-acting contraceptives belong to the age group 25 to 35 years.

The study also revealed that whereas 49% of the women that were using long-acting contraceptives were aged 25- 35 years, 41% were aged between 30 - 39 years, while no woman aged 50 years and above was found to be using any form of contraceptives. This is an indication that the comparatively younger population are the ones interested in adopting contraceptive methods compared to their old counterparts. Similar studies by Rob *et al*.,

2007), also found out that younger age especially age group (20-29) years was more likely to be associated with use of long-acting reversible contraceptives.

In California, a study by Thompson, Foster and Harper (2011), to describe how Intrauterine Contraception (IUC) users differed from women using other long-acting reversible contraceptives, it was found out that higher IUC use was reported among ever-married women and foreign-born women, and disproportionately low use among nulliparous women (Thompson *et al.*, 2011). More so, women with higher number of living children are also more likely to use contraceptives than their colleagues with fewer living children (Nonvignon&Novignon, 2014). This implies that women with more number of children who feel overburden may increasingly seek for the uptake of LARC services, this however needs to assess to ascertain whether there would be association between having many number of children and uptake of LARC among women aged 15-45 years.

A similar result was obtained in a study on the use of LARC among United States women using contraceptives. After adjusting for key characteristics, in comparison to non-long-acting reversible hormonal method users, married women and women above the age 35 were more likely to use LARCs.

In addition, women who had ever experienced an unwanted pregnancy and women who had ever stopped using a short-term hormonal method due to dissatisfaction were all more likely to be LARC users (Kost*at al*., 2008; Kavanaugh*et al*., 2013).

Furthermore, the use of long-acting reversible contraceptives vary across marital status with married women using the services most compared to single women due to high incidences of sexual activities compared to single women (Taye*et al*.,2014). In this case, it is argued that the use of contraceptives is aimed at helping couples to space children and prevents unwanted pregnancy. Likewise, Gudaynhe*et al.*, (2014), noted that the positive influence of marital status on the likelihood of using LARCs could be attributed to the fact that couples might decide to postpone raising children by resorting to use of family planning services. As such, the value of the marginal effect simply means that a married woman is 2% more likely to use

long-acting contraceptives than a single woman. On the other hand, unmarried youth have distinct contraceptive method preferences due to unsteady partnership dynamics, the knowledge gap concerning the proper usage and the increased awareness of the risk of HIV (Tibaijuka*et al.*, 2017). Condom is the leading method among unmarried youth and this is a desirable option since it minimizes the dual risks of unintended pregnancies and STIs.

Studies showed that even after controlling the effects of other factors, education is a key factor influencing long-acting reversible contraceptive use (Asiimwe*et al*., 2013).

A study by Wanjiku (2013) among 372 women of reproductive age in Msambweni constituency, Kwale County-Kenya, noted that the majority of women using contraceptives had post primary education, while the least users of long-acting contraceptives were those who had no formal education.

In percentage terms, the study noted that whereas 49 percent of the users of family planning services had secondary education, 28 percent had university education while only 15 percent had primary education with a further 6 percent reporting no formal education. This could be attributed to the fact that uneducated women cannot convince their spouses to regularly adopt any contraception either because of illiteracy or low education levels (Wanjiku, 2013).

Similarly, a study conducted by Nazar-Beutelspacher*et al*., 2009) established that women who are educated have higher chances of using contraception. Similar findings were also reported by Wablembo and Doctor's (2013) study in Uganda in which the number of women not using contraception were higher among women with primary education but the number decreased among respondents with secondary or higher education qualifications. From this argument, it can be observed that there is a strong link between declining fertility and increasing utilization of long-acting reversible contraceptives among relatively well-educated, middle-class population in both developed and developing counties. Even in third world countries, secondary or higher educational attainment is more likely to be associated with of the use of contraceptives. For example, Rob *et al.*, (2007), demonstrated that higher educational

attainment is more likely to be associated with of use of LARCs in Burkina Faso, compared lower educational attainment.

Interestingly, religious beliefs are known to influence the uptake of LARCs among women of reproductive age. As Hall, Stephenson and Juvekar (2008) noted, religious and cultural practices in some parts of the world also deter women from using contraceptives. For instance, in Pakistan, Sonia, Nazia, Nabila and Hassan (2011), found that 65% of women believed that contraception is prohibited in religion while 35% believed that contraception is permitted in religion in view of providing better resources for the child.

In regards to health, 57% of the women thought contraceptive use affects their health considerably in contrast to the 43% who believed that their health is not affected by contraceptive use.

Analysis of the National Family Health Surveys in India for Muslim and Non-Muslim showed that Muslim women had greater opposition to family planning compared to other denominations and they further tend to utilize private-sector services due to greater privacy needs but the program rely on public-sector sources of supply of family planning (Mishra, 2004).

A related study conducted in western Kenya also found out that cultural beliefs were a major barrier to the uptake of long-acting reversible contraceptives as respondents indicated that contraceptives were a transgression against the "Luo Supreme Being" (Mangendo, 2012). Hence, several of the participants in the study stated that it was beyond their human power to make decisions concerning conception and childbirth, as decisions depended solely on the "Luo Supreme Being". Furthermore, informants below 30 years of age were not using contraceptives because of the desire to give birth within culturally legitimate marital unions. Several of them were also fearful of modern contraceptives because they believed that some contraceptives were harmful to them and their spouses (Sonia *et al.*, 2011). A study by Eeckhaut*et al*., (2014) showed that LARC use was particularly low among women in United States who were married, were aged 40–44 or had had three or more children, yet there was

comparatively high use of LARC among women who were 18–24-years old, those aged 35–39 or 40–44 were more likely to use LARC than 18–29-years and those who had had three or more children were more likely to do so than were those who had had none or one and women who had completed college were less likely than those who had not finished high school were more likely to use LARC.

Similarly, the intention to use LARCs was predicted by marital status, frequency of sexual activity, number of children, planned timing of next pregnancy, and previous LARC use. However some of the barriers to using LARC included; perception of impaired future fertility, being harmful to health, irregular bleeding, risk of complications, and lack of awareness with regards to LARCs (Luo*et al*., 2018).

Another study by Shiferaw and Musa ,(2017) in Ethiopia showed that utilization of long acting reversible contraceptive among mother of reproductive age was 38%, with mothers whose occupation were daily laborers being less likely to utilize long acting reversible contraceptive compared to those whose occupation was house wife. Moreover, those mothers who were unable to read and write utilized long acting reversible contraceptive 5 times more likely compared to those who were above grade 12.

Another study in Burundi to assess the barriers to uptake of contraceptive use found that uptake of contraception was associated with socio-cultural factors such as religious influences and the need for spousal approval, these acted as barriers to receiving contraception among women as some of them were limited by their religious believes not in support of contraceptive use and also some men being negative about their women using contraceptives for birth control (Melino, 2014). A study conducted in Nigeria by Durowade*et al*., (2017) showed that although contraceptive awareness among respondents was high only few of them were using modern contraceptive methods giving a Contraceptive and some of the barriers for not using included the desire for more children, partner refusal, and the fear of side-effects and some of the enablers to the uptake were marital status, educational level and religion, with traditional worshippers having the least uptake.

A study conducted to assess the social cultural inhibitors to the uptake of contraceptives in Uganda showed that some of the barriers to contraceptive use included; persistence of socio-cultural beliefs and practices promoting births such as polygamy, extending family lineage, replacement of the dead, gender-based violence, power relations and twin myths, continued reliance on traditional family planning practices and misconceptions and fears about modern contraception, the sociocultural expectations and values attached to marriage, women and child bearing remain an impediment to using family planning methods (Kabagenyi*et al*., 2016).

In addition, a study done in Ghana identified that LARCs were used mainly by women with more living children and those who had previously used LARCs (Dassah et al., 2013). Another study in France on lifetime use of LARC and factors associated with current use of LARC methods indicated that 11.4% of women at potential risk of an unintended pregnancy at the time of the survey had ever used a LARC method, with 5.4% who had ever used an implant and 6.6% who had ever used an IUCD (Moreau et al., 2013).

2.1.2 Knowledge, Awareness, Fear of side effects, Husband's approval and Beliefs influencing uptake of long-acting reversible contraceptives among women soldiers.

Long-acting reversible contraceptives have recently gained close attention from different researchers and practitioners due to their relevance in predicting women's intent towards the use of contraceptives.

According to Ochako*et al.*, (2016), uptake of contraceptives is associated to women's knowledge on usage of long-acting reversible contraceptives, awareness of the benefits, and fear of side effects as well as husband's approval.

With regard to knowledge of usage, Anguzu*et al.*, (2014), suggested that knowledge about contraceptives and their benefits is the foremost attribute that encourage women to use the methods. This is because knowledge promotes information sharing and an understanding of the contraceptive features including the known side effects, length of use, risks (if any) and this in turn promotes usage among women. Moreover, having adequate knowledge helps

women to know alternate methods, and which ones are more effective and appropriate to use in their family planning decisions.

Likewise, a study by Shabiby*et al*., (2015),among 185 infected and uninfected postpartum women admitted to the postnatal wards of two Kenyan district hospitals in Naivasha revealed that respondents with prior knowledge of contraceptive implants were three times more likely to accept implants insertion compared to those who had no prior knowledge of implants. However, this study had a major limitation of selection bias due to non-probability sampling method. In this study, the researcher will use a large sample size to mitigate this weakness.

A related study by Jabeen and Umbreen (2016) in Lahore also reported similar findings indicating that women's knowledge is a significant predictor in the women's decision to use contraceptives. Therefore, from the foregoing observation, it can be concluded that knowledge of mothers is a significant predictor in the uptake of long-acting reversible contraceptives.

A study conducted by Tang et al., (2016) among Malawian women revealed that more women reported uptake of implant compared to IUD, this was due to the fact that women were more knowledgeable about implant and had a correct implant knowledge and intent which was associated with the use of implant, however women were not knowledgeable about IUD and had less intention to using them, it appears that in order to increase uptake of LARC focus should be put on improving LARC knowledge and removing barriers to LARC. In addition, some of key individual factors that influence uptake of LARC among adolescent women included cost and clinical operations, Knowledge deficits and misconceptions among adolescents (Pritt*et al*., 2017).

In addition, a study by Anguzu*et al*., (2014) assessed individual factors influencing uptake f LARC and confirmed that knowledge about site of previous administration and use of LARC and women's attitude that male partners' choice influence their contraceptive decisions were positively associated with current use of LARC. Contrary, the attitude that LARC was for married women was negatively associated with its use. This study suggests a need to

strengthen client education about LARC to dispel possible myths and to consider integrating male partner's decision making in contraceptive choices for women.

Another study conducted among women to compare to use LARC and SARC indicated that most common reasons for not choosing LARC methods included requiring a client-controlled method and desiring to conceive in the near future and perception of adverse side effects and no freedom to stop using a method without involving the health provider, these personal characteristics of appeared to be important in utilization of LARC suggesting that appropriate interventions should be put in place to improve uptake of LARC among reproductive age women (Tibaijuka*et al*., 2017).

According Twesigye*et al*., (2016) in Uganda, use of family planning or of a modern method specifically was positively associated with awareness and accurate knowledge and beliefs about the IUD, also married women were more knowledgeable about IUD compared to women who were single and they had better knowledge and belief scores.

This implies that there is need to have interventions to increase the use of IUDs in Uganda and also address low availability of the method in facilities, as well as misperceptions and misinformation, especially about the safety of the IUD.

Women's contraceptive uptake is influenced by their beliefs towards contraception. Under this line of argument, it is indicated that the beliefs about side effects of some contraceptives determine the type of choices individuals would opt for. For instance, in rural India village, women said the use of an IUD often causes heavier, longer and more frequent menses, which is not healthy (Paul *et al*., 2011). This also makes them face exclusion from domestic and religious activities more frequently due to the prevailing menstrual taboo which considers women to be "ritually polluted" during the first three days of their menstrual cycle and so are prevented from taking part in domestic and religious activities (Hall *et al.*, 2008).

In addition, a systematic review of qualitative researches from six sub-Saharan Africa countries (two from South Africa, two from Tanzania, and one each from Nigeria and Mali) and one from South-East Asia (Vietnam), to examine limits to modern contraceptive use

identified by young women in developing countries demonstrated relationship between practices and contraceptive use. The review found that beliefs about side effects of hormonal contraceptives; menstrual disruption, limited its use by young women. Whereas this is the case, the major gap identified in this study was the fact that knowledge and attitude of partners towards long-term methods of contraceptives and its influence on their women in fertility age were not assessed, something that this study has taken care of.

Moreover, menstruation disruption is against the belief that menstruation represents "womb being cleared of dirt". Hence, methods that interrupt menstruation are considered unhealthy and unacceptable. Within the same context, the study also revealed that condom use was limited by association of its use with disease and promiscuity, and greater male control. As a result, the young women often relied on traditional methods or abortion (Williamson *et al*, 2009). While these studies present realistic findings, there main limitation has been identified in the methodological approach used. Qualitative studies by their nature generate findings that cannot be extended to wider populations with the same degree of certainty that quantitative analyses do (Atieno, 2009). This is because the findings of the research are not tested to discover whether they are statistically significant or due to chance. The current study will minimize this limitation by using a quantitative approach so as to gather information from a wider category of respondents.

Furthermore, family aspects related to the roles of males and females in decision making in families including husband's approval might play a crucial role in the use of contraceptive by women. Specifically, male partners may influence women either to use or not to use contraceptive, and which type of contraceptive to use (Lebese*et al*., 2013). A study to assess the reproductive aged women's knowledge, attitudes, and factors associated with use of LARC in Kampala district of Uganda found that approximately half (48.1%) of the respondents agreed that the decision to use contraceptives was based on their partners' consent (Anguzu*et al.*, 2012).

In Malaysia, fear of side effects and husband's disapproval of male's contraceptive methods created a substantial barrier to continuing with modern contraceptive methods.

All respondents mentioned that their husband disapproved of male contraceptive methods, and would not like to use condoms (Najafi*et al*., 2011). In Ghana, 48% of respondents in a study to explore factors limiting the use of contraceptives indicated that their partners influenced them not to use contraceptives, while 73% of contraceptive users were influenced by their partners to use contraceptives (Aryeetey*et al*., 2010).

A systematic review conducted on different research findings on the uptake of contraceptives among Asia women showed some of the barriers cultural attitudes, lack of knowledge of methods and reproduction, socio demographic factors and there need to introduce programs that would help deal with increases the knowledge and improving knowledge of the residents and help in improving culturally sensitive family planning programs and reproductive health education through mass media to create awareness of the benefits of contraceptives among the Asian women (Najafi-Sharjabad*et al*., 2013).

Studies from several studies showed that Long-acting reversible contraception (LARC) have greater efficacy than shorter acting methods and that unplanned pregnancy rates are lower among women using LARC. However, overall use of LARC is low; of the reproductive age women using contraception, less than 10% are LARC users in the united states and some of the barriers include lack of knowledge and high up-front cost, and prevent more widespread use and overcoming these barriers and increasing the number of women using LARC will decrease unplanned pregnancies and abortions (Lotke.PS, 2015). In a study conducted by Jabeen and Umbreen, (2016) among 154 women, 34% had knowledge about the implant while 73% have idea about IUCD and only 20% women were aware that use of implant can effectively prevent pregnancy.

The above study found 44.8% had clear concept regarding protective role of IUCD against pregnancy and 55.2% women do not know how long they are protected from pregnancy while using IUCD and that for them to decide on usage on contraception, it had to be jointly with

their husbands (68.8%), implying that the majority did not have appropriate awareness about implants, although awareness and knowledge about LARC increased with age and most of married women were found reluctant to use long acting reversible contraceptive method due to different false belief.

Increases in IUD use were small among African American women who had children and wanted no more, probably because the proportion of this group who has chosen sterilization is already some high. On the other hand, there was little overall variation across education and income (Kavanaugh*et al*. , 2015) given the high upfront costs of IUDs in the USA, these findings attest to the importance of subsidized programmes, such as Title X and Medicaid, to make IUDs and other effective methods affordable to more women (Sonenstein, 2014).

In South Africa, women that strongly agreed to male decision making regarding child-bearing did not influence effective contraception (Peer *et al*., 2013). In Uganda according to Tweheyo*et al*., (2010) and Burkina Faso (Hounton*et al*., 2009), scientific evidence also showed that positive influence of male partners may affect maternal and child health outcomes. Nearly half of the women in this study thought that their male partners should decide the contraceptive to use therefore sociocultural perceptions in Lubaga especially related to roles of males and females in decision making in families might explain these attitudes among women.

A study conducted in the United States stated that unplanned pregnancy rates are lower among women using LARC and the barriers to the uptake of LARC included lack of knowledge and high up-front cost and overcoming these barriers and increasing the number of women using LARC will decrease unplanned pregnancies and abortions (Lotke, 2015).

Barriers to the access and use of LARC methods result in a greater number of Ups, including among adolescents, and negatively affects both individual and collective health, particularly that of low-income and adolescent women. Factors hindering access to use can be of a subjective nature (misinformation, myths and beliefs) or of an objective nature (institutional, service-related, training-related, cost-related and others). Myths associated with the use of

LARC, despite scientific evidence to the contrary, represent significant access barriers for LARC methods and contribute to the low rate of use of LARC methods in LAC (Luchetti and Romero, 2017). The relatively high cost of LARC methods when compared with other contraceptives is a significant factor in obtaining access to these methods (Dehlendorf*et al*., 2010).

It was noted that women of lower socioeconomic levels have more difficulty in accessing LARC due to insufficient availability at public services, high cost at private services, or the lack of that when LARC were offered at no cost for potential users, they were well accepted and contributed to the reduction of UP rates (Ferreira *et al*., 2017).

Clients using LARC were mostly educated up to secondary level or more, the more educated were more likely to use LARC. This is common to all contraceptives probably because of increased awareness and understanding. In Zambia, women with less education were less likely to report LARC use (Hancock *et al*., 2015).

Women who had experienced one or two live births, and particularly those under 30 years, saw some of the largest increases in LARC use in 2009 in the US, which may indicate a provider-level bias for LARC methods toward women who have already reached their fertility intentions (Ahmed *et al*., 2012). In Zambia, Factors associated with LARC use included having at least one child 16. Younger nulliparous women were less likely to have LARC removed early (Dickerson *et al*., 2013).

A study by Bracken and Graham, (2014) among women indicated that most of the had negative attitude towards the use of LARC and some of the disincentive reasons included the possibility of irregular bleeding and concerns about effects on fertility, fear of needles and pain was a particular disincentive for IUD/IUS use, concern about effects on future fertility and this inaccurate beliefs about these methods among the young women were barriers to increasing uptake of LARC and the relatively high proportions of women who had neutral attitudes about LARCs highlight the importance of education and contraceptive counseling to improve knowledge about the advantages of these methods.

A study conducted among Singaporean women revealed that most of the women had poor awareness and knowledge of contraception, especially long-acting reversible methods like use of IUD, this calls for more effective ways to educate women about contraceptive methods with more focus on promoting uptake of LARC among women of reproductive age (Gosavi*et al*., 2016). Among Ethiopian women, the major reasons given for not using or intending to use LARC were: husbands' disapproval, fear of side effects and fear of procedure. Based on the qualitative study findings, clients perceived, side effects, rumours, partner influence, and lack of women's decision making power were the major reasons hindering the use of LARC.

Similarly family planning providers reported: providers' lack of counseling skills, work load, clients' misunderstanding about LARC and husbands influence as major reasons hindering its use. Multivariable logistic regression analysis identified: age, previous use of LARC and educational status of women as the main predictors having statistically significant association with the current use of LARC (Tebeje and Workneh, 2017).

A study conducted South Africa to determine factors influencing uptake of contraception services by Vatsonga adolescents in a rural community of Vhembe district, Limpopo Province indicated that barriers to the uptake of LARC were cultural barriers related to communication about sexuality matters, and cultural role played in sexual education (Lebese*et al*, 2013). These findings were similar to those of the study conducted by Peer and Morojele, (2013) which indicated that there was low uptake among sexually active women from the rural population in Western Cape, LARC uptake was associated with cultural barriers such as male partners' consent and approval.

Women's education is one of the important factors that influence contraceptive use and a study conducted in Nepal showed that older women 35 and above, educated, living in urban and working in a business or service sectors were more likely to use modern contraceptive methods compared to younger women who were in rural areas and where not involved in business and or public service sectors (Sharma *et al*., 2011). In contrast, a survey of South Asian women aged 16 to 50 years, attending inner-city general practices in London, showed that unmarried women were more likely to be using contraception than married women and

thirty percent of married women at all ages and of women aged more than 30 years who said they had completed their families were not using any contraception (Saxena*et al*., 2002).

In South Asia, apart from husbands, the role of peers, mothers-in-law, and elders were also more involved in making decision for contraceptive use (Samandari*et al.*, 2010). Whereas among Pakistan urban women discussion with mothers-in-law was likely to increase uptake of contraceptive if they had discussed it as an option for their families (Kadir*et al*., 2003).

In India involving husbands and mothers-in-law in the intervention increased their support for a longer birth interval and the use of modern contraceptive methods. Moreover, the acceptance of postpartum contraception was significantly increased when the spouse discussed on reproductive issues, talked about family planning than when they did not (Khan *et al*., 2008). A study among Afghan refugee women in Pakistan showed the use of contraceptive methods among women was higher in subsidized healthcare with increasing age as compared to the women in the non-health subsidy group, women aged 25 years in healthcare subsidy group were 0.3 times less likely to use family planning whereas women aged 35 years in the same group were 1.06 times more likely to use it (Raheel*et al*. , 2012). Different ethnic groups face many barriers to accessing family planning services, because of their illiteracy, poverty, and low social status (Mishra, 2011).

Concerns about the side effects, health consequences and inconvenience of methods are particularly high in South and Southeast Asia. Fear of side effects and health concerns have been seen in urban areas of most countries, where barriers related to access seem to be relatively low. Method-related concerns were also common reasons for discontinuation of use among women with unmet need who had used family planning in the past (Sedgh*et al*., 2007). Fear of side effects and the belief of being sterile were reported as the major reasons for not using any contraception in Pakistan (Sajid and Malik, 2010).

Cambodian women believed modern family planning methods can cause infertility, especially when used before having had at least one child (Vathiny and Hourn, 2009). In Nepal the women who were exposed to family planning messages through reproductive health staff,

were more likely to use modern contraceptives. The odd of using modern contraceptives methods was higher for women who were exposed to family planning information on radio than unexposed women (Mishra, 2011).

2.3. Service provider factors influencing uptake of long-acting reversible contraceptives among women soldiers aged 18 to 49 years

Globally, service provider factors have been linked to the uptake of long-acting reversible contraceptives since they are the final point of contact in diagnosing clients' medical needs (Weston *et al*., 2012).

As a result, many scholars have identified attributes such as attitude of health workers, availability of LARCs and accessibility to health facilities as being influential in explaining the variations in uptake of contraception among women of reproductive age.

In relation to attitudes of health workers, several scholars have indicated that uptake of LARCs among women is influenced by the conduct of medical workers towards patients (Mohamed *et al*., 2011; WHO, 2015). It is indicated that a positive attitude towards patients featuring support, interaction, consultation and empathy encourages interested users to seek for contraceptives to manage their medical conditions, while negative attitude by health workers is a barrier that contributes to the minimum use and failure to adhere to the clinical conditions (Baxter *et al*., 2011).

For example, in a study among 1,194 participants in Nigeria, different attitude levels of caregivers towards patients resulted into different perceptions of patients in regard to the treatment they sought (Igbodekwe*et al.*, 2014).Consequently, the quality of provider interaction and client should be improved by retraining the providers to boost their knowledge and understanding of the methods and procedures. In the same way, printed materials should be made available to interested clients improve information sharing between service providers and clients.

In another study, results showed that increased availability and uptake of LARC methods, was positively associated with the presence of a number of trained service providers (Celik, 2016).

Similarly, it is worth noting that discussion of contraceptive choices between clients and service providers during antenatal care of the first child is key to subsequent use of long-acting reversible contraceptives and reduction of unmet need for family planning (Wanjiku, 2013).Particularly, the use of IUDs, injectables and IUCDs is higher in women who have had home visitations by welfare assistants.

Studies further indicate that effective counseling and regular follow-upsis accompanied by a high rate of contraceptive use and a low pregnancy incidence after delivery (Brou*et al*.., 2009).

Moreover, friendliness of medical staff has a marginal effect implying that the likelihood of respondents using LARCs is higher if hospital staff are friendly than when they are rude and unco-operative to clients. The significance of this determinant could be explained by the fact that provision of certain types of long-acting reversible contraceptives requires performance of some procedures in a patient's private parts by the person administering the services. Therefore, if the staff is not friendly, it complicates the smooth process of administering the contraceptive.

With regard to quality of contraceptive services, the probability of a woman consistently using LARCs is higher for women who perceive the services to be of high quality than for those who perceive otherwise (Bertrand et al., 2015). The positive impact of quality could be attributed to the fact that in the process of making a decision on using family planning services, perceived quality of the service is given a high consideration as supported by theory whereby taste and preference is an important factor in making demand decision among customers.

Relatedly, the knowledge, attitude, skills and experience as well as logistics of providers are among the factors that influence the provision of LARC services at health facilities (Kai-Wen, 2011). These factors can affect effective counselling and ability to offer contraceptive services. For instance, a number of physicians, in particular pediatricians, in New York City did not know that a nulliparous adolescent can be an appropriate IUD user and consequently

reported that they never counseled them about this option. Those who knew, other factors such as inability to insert IUD and implant hindered the offering of that service (Rubin *et al*., 2013).

Furthermore, lack of access to a contraceptive method could be a barrier to its use. The accessibility could mean availability of methods or ability to pay for the method. Providers are most likely to counsel clients on methods available in their facility, and clients can only use what is available. A study by Ross and Stoverb (2013) indicated that there is significant potential to increase contraceptive use by expanding access to existing methods and by making new or modified methods widely available. Again, in New York City, a study found that unavailability of LARC commodities in the clinics was the main barrier to counselling and offering services on IUD and implant.

In the study, only two out of seventeen clinics had implant, and few respondents had been counselled about these methods mainly because of limited access and knowledge (Rubin *et al.*, 2013).

Indeed, a qualitative study was conducted in seven middle-income countries in Eastern Europe and Central Asia and aimed at exploring the reasons for low use of long-acting reversible contraceptives. The study focused on clients' view and their reasons for not using modern methods of contraception. It was noted that limited range of contraceptives available on the market and supply chain issues causing frequent stock outs were the main factors influencing non-use of contraceptives in several countries of the study (Soriano *et al*., 2014). Likewise, key informants in Bulgaria strongly recommend that rather than increasing the range of methods available in the country, the focus should be on increasing the number of service sites (UNFPA &European network, 2012). Regarding affordability, Alkema*et al.*, (2013), found that many women in United States had difficulty preventing unintended pregnancy because they could not afford the more effective methods of contraception (LARC). Similar findings were reported by Wanjiku (2013) who noted that more than 20% of public providers, and about 50% of private providers reported that majority of clients had payment problems.

However, findings from other studies did reveal that availability and affordability are not limiting factors to the use of long-acting reversible contraceptives given the fact that most governments in developing countries have implemented cost sharing arrangements in which some of the contractive services are offered free of charge (Winner *et al.*, 2012). Impliedly, there could be other factors. For instance, findings from a postpartum adolescent birth control study in Chicago revealed that for many postpartum women, the health care system posed obstacles to contraceptive uptake.

The barriers included lack of insurance coverage, difficulty scheduling appointments, limited clinic hours, referral requirements, long waiting times, clinic closings, and lack of provider training (John *et al*., 2016). Meanwhile, in a rural Indian village, access to contraceptive services and supplies was not a primary limiting factor in women's use of reversible modern methods. A wide range of temporary family-planning methods was available free of charge at health posts and at nominal cost at pharmacies. Instead, lack of public transportation, time, and privacy together with lack of knowledge were limiting willingness of women to access those resources (Hall*et al.*, 2008).

Among Zambian women, barriers to contraceptive use were mostly related to their ability to access them or their knowledge of the contraceptives. The access barriers included lack of access due to physical/geographical barriers between households and service providers (such as long distances between households and clinics, poor access to transportation). There was also poor access to contraceptives due to frequent shortages (stock outs) in clinics and health centres, long waiting times for service appointments or counselling, high costs of contraceptives and limited choice of contraceptive methods (Belohlav&Karra, 2013).

Within the same context, Biggs *et al*., (2014), also found that although there has been significant expansion in access and understanding about LARC, clinicians' beliefs and unfamiliarity of the methods was limiting provision of the contraceptives and implant respectively. In the study by Wanjiku (2013), factors such as training, beliefs and type of health care provider, and not availability rather determined whether a site provided LARC or not. Another possible reason for not using contraceptives could be use of another method that

women are more comfortable with. This was seen in a study conducted in Mekelle town of northern Ethiopia.

Another study in Ethiopia showed that participants (93.3%) involved in assessing factors associated with utilization of LAPMs among married women of reproductive age in Mekelletown, cited use of another method as the main reason for not using LAPMs. Only 1.6 and 1.3% cited refusal by husband and non-availability of service respectively as reasons for not using LAPMs (Alemayehu*et al*., 2012).

A study by Berlan*et al*., (2017) revealed that very few healthcare workers had favourable attitude of on the use IUD and most did not include IUDs in routine contraception counselling, they perceived IUDs to impose significant risks for adverse reproductive outcomes and poor and/or out dated knowledge influenced inaccurate beliefs and unsupportive attitudes.

Contrary to the past perceptions and opinions, LARC methods are safe for nulliparous young women, do not cause tubal infertility, and studies report a rapid return to fertility after removal (Penney *et al*., 2004). Consequently, experts have been increasingly advocating for use of LARC methods prior to childbearing, hence the American Congress of Obstetricians and Gynecologists recommended IUDs as first-line contraception as early as 2005, for users including teenagers and younger women.

More recently, the Centers for Disease Control and prevention reported that IUDs were safe and effective in nulliparous women (Lackwell*et al*. , 2014). However, there are still several obstacles hindering LARC use. One of them is perceived high costs (Isenberg *et al*., 2013), although it has been proven that LARC methods are highly cost-effective when used for as little as the shortest available duration of three years (Russell *et al*., 2015).

A study by (Endriyas*et al*., 2018) to assess the influence of myths and misconception on the use of LARC indicated that poor provider client interaction about the available methods of family planning had limited the uptake, coupled with the fact women had negative perceived side effects of LARC and therefore there is need to improving community awareness about

the benefits of the long acting reversible contraceptives to avert the myths and misconceptions.

Family physicians also provide a great deal of the contraceptive counseling and provision in the U.S. Although the vast majority of family physicians believe patients are receptive to learning about IUDs, one study found that less than half offer counseling or the method. Both gynecologists and family physicians were found to have inadequate knowledge of IUD eligibility as gauged by the CDC and Prevention Medical Eligibility Criteria for contraception. Family physicians did report an interest in updating contraceptive skills. There is clearly an opportunity to increase LARC uptake through training and education of physician providers (Harper *et al*., 2012).

Although the majority of gynecologists have training in IUD insertion, a smaller percentage have training in implant insertion, and many who have training do not have adequate knowledge of patient eligibility ((Harper *et al*., 2012; American College of Obstetrics, 2017).

The shared barriers to uptake of LARC among young women in Australia were norms, misconceptions, bodily consequences including challenges of accessibility and a perceived lack of control over hormones entering the body from LARC devices, coupled with the fact that health professionals had limited confidence and support in insertion of LARC. This ideally calls for increased knowledge on LARC and access included increasing nurses 'role in contraceptive provision and education (Garrett *et al*., 2015).

Another study conducted in Australia revealed that some of the barriers to the uptake of LARC were; misconceptions, lack of access to general practitioners (GPs) trained in LARC insertion/removal and affordability impede LARC uptake and potential strategies to encourage LARC use include, education of general practitioners to promote informed choice by women, training in LARC insertions/removals, effective funding models for nurses to perform LARC insertions/removals, and rapid referral pathways and at the health system level, primary care incentives to provide LARC to women and health economic analyses to inform government policy changes are required (Mazza*et al*., 2017).

In United States an important strategy is the reduction of cost of LARC was through having large scale purchases and the Department of Defence healthcare services as well as non-governmental organizations (NGOs) such as the Bill and Melinda Gates Foundation illustrated the potential to reduce LARC costs when these drugs and devices are bought in bulk. Statistics illustrates the important role of managed care pharmacies in securing lower drug and device prices (Academy of Managed Care Pharmacy, 2007).

It also emerged that although the majority of gynecologists had training in IUD insertion, a smaller percentage have training in implant insertion, and many who have training do not have adequate knowledge of patient eligibility and Family physicians also provide a great deal of the contraceptive counseling and provision in the U.S. although the vast majority of family physicians believe patients are receptive to learning about IUDs, one study found that less than half offer counseling or the method.

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Training and physician age correlated with the number of IUDs inserted and a total of 59.6% indicated receiving continuing education on at least one LARC method in the past 2years, continuous education was most strongly associated with implant insertion, and 31.7% of respondents cited lack of insertion training as a barrier (Luchowski*et al*., 2014).

In addition to lower costs, increased access to adequate contraceptive counseling has been shown to increase the prevalence with which women choose LARC over other contraceptive methods (Peipert*et al*., 2012). However, when physicians are misinformed about the effectiveness of LARC, the result of contraceptive counseling can have the opposite effect.

A study with obstetrician-gynecologists (OBGYNs) from 19 Latin American countries showed that almost half of them believed that the effectiveness of LARC was lower than what the evidence showed. In addition, OBGYNs from this meeting responded that they did not

routinely recommend the use of IUD for multigravidas, and emphasized that the myth of association between the use of IUD and PID persists (Bahamondes*et al*., 2015).

This study illustrates the importance of increasing education and awareness of HCPs regarding the effectiveness and safety of LARC.A study by Thompson*et al*., (2018) showed that in order to increase uptake of LARC among women health care providers should be given professional guidelines so as to encourage intrauterine device and implant competency for all contraceptive care providers and LARC methods be integrated into routine care so as to improve access.

According to Kumar and Brown, (2016) some of the related to barriers to accessing LARC among adolescents in the United States of America included; costs involved in provision of these methods by institutions and clients and a systematic coordinated efforts by health care institutions, professional organisations and countries' governmental agencies were recommended as essential steps in addressing the barriers for the uptake of LARC. (Espey and Ogburn, 2011) stated that use of LARC in the United States among young women had been regarded as a priority by the National Institute of Medicine.

Hall and Kutler, (2016) state that intrauterine contraception is the first line option for young people yet relatively few prospective studies have been conducted in nulliparous women using currently available IUCDs. Many providers are still reluctant to provide this option to nulliparous women because they are at the prime live (18-30 years), some have started working, and some are starting their families.

A study conducted in Australia indicated that there was low uptake of LARC among women presenting for abortion was reported and this would improve if public health policy in Australia paid attention to facilitate access to LARC methods for post abortion, to prevent further unintended pregnancies (Goldstone *et al*., 2014). Tang *et al*., (2013) studied the characteristics associated with interest in LARC methods in a postpartum population in United States. Their study reported an association between high interest in LARC methods

and postpartum women, especially those that had recent unintended pregnancy, as well as those wanting to avoid pregnancy in the two years postpartum.

A baseline survey conducted in Pakistan, indicated that conducted predictors to contraceptive use and demand for family planning services in underserved areas of Punjab province were, proximity and availability of quality and affordable family planning services (Azmat*et al*., 2015).

LARC methods have been recommended by the WHO as effective methods of contraception for women and couples interested in planning and spacing their families (Gudaynhe*et al*. , 2014). In New Zealand, Contraception counselling and choice of contraception before discharge is part of abortion packages given to women seeking abortion. Despite all that, one-third of women seeking abortion will have subsequent abortions in their child bearing years (Rose *et al*. , 2011) and this similar study showed that in New Zealand women had limited knowledge on LARC, both implants and IUCDs being associated with LARC use and some of the key factors that influenced uptake of LARC included cost was also a key methods (Speidel and Harper, 2008) and awareness in relation to LARC (Rose *et al*. 2011).

A study conducted in Ghana by Robinson et al., (2014) to assess barriers to the uptake of IUD indicated that showed that some of the key barriers included lack of IUD-specific knowledge, provider discomfort with insertion, and incomplete contraceptive counseling provided by the healthcare workers and they asserted there was need to have provider related training and or training of the healthcare workers in order to effectively do counseling for clients and also learn how to confidently insert IUD.

Similarly a randomized controlled study conducted by (Thompson *et al*., 2018) and twenty clinics that were randomly assigned to the intervention arm and other twenty offered routine care and clinic staff participated in baseline and one year surveys assessing intrauterine device and implant knowledge, attitudes, and practices, some of the outcome measures included improvement in the knowledge of patient eligibility for intrauterine devices and implants, positive attitude of clients about safety of the method and counseling practices and

this implies that training of healthcare providers on contraceptives will improve the uptake of the particular methods like LARC as the knowledge, attitude and practices of the clients would be improved by the providers giving clear message and having confidence in performing the procedure.

In addition, healthcare knowledge and practices are vital in uptake of LARC and study conducted among obstetrician and gynecologists showed that they generally offer IUDs, however few of them would offer the single-rod contraceptive implant and this practice was enhanced by continuous education that strongly predicted whether obstetrician-gynecologists inserted implants and was also associated with other practices that encourage LARC use., in the same way, training and age of healthcare workers were strongly correlated with the number of IUDs inserted in a year (Luchowski*et al*., 2014).

A study by Davis *et al*., (2018) also affirmed that training of healthcare worker contributed to increased uptake of LARC among women and all health workers who were trained in these procedures were comfortable counseling about and inserting contraceptive implants, copper intrauterine devices and levonorgestrel (LNG) IUDs, health workers who were pediatricians had low comfort levels counseling about contraceptive implants, copper IUDs, and LNG IUDs and none of pediatricians were comfortable inserting.

A study conducted in New York City showed that some of the enablers to IUD counselling and provision included clinical environment supportive, availability of the IUD in clinic and the ability of the physician to insert IUDs or easy access to an someone who can, these factors act of motivation improves the belief in the overall positive consequences of IUD use. Physicians who rarely counselled clients about implantable contraception because of knowledge gaps and limited access to the device limited the uptake of the method (Rubin *et al*., 2013).

2.5. Institutional factors in relation to contraceptive services provision for female soldiers

In a study among 114,661 servicewomen, 14.5% of them received a LARC method and among those, 60% received an IUD. Intrauterine device insertions decreased over the study period (38.7-35.9 insertions per 1,000 women per year whereas LARC uptake increased, driven by an increase in implant insertions (20.3-35.4/1,000 women per year. Younger age was a positive predictor of LARC uptake: 32.4% of IUD users and 62.6% of implant users were in the youngest age category (18-22 years) compared with 9.6% and 2.0% in the oldest.

Among servicewomen, low but rising rates of LARC insertion, driven by increasing implant use. Unmarried and childless soldiers were less likely to initiate LARC. These findings are consistent with potential underutilization and a need for education about LARC safety and reversibility in a population facing unique consequences for unintended pregnancies (Erickson et al, 2017).

CHAPTER THREE: METHODOLOGY

3.0. Introduction

This chapter discusses the methodology that was used to conduct the research. The section also presents the research design, target population, sample size, sampling procedure, data collection methods and procedure, validity and reliability of the research instruments, data processing and analysis, ethical considerations and limitations of the study.

3.1. Study area

This study was conducted at Bombo Army military barracks.

3.2. Study Design

A descriptive cross sectional study was used that adopted both quantitative and qualitative data collection approaches. The design considered both quantitative and qualitative data collection methods so that the quantitative result is triangulation with qualitative results from the key informants. The design allowed for data collection at a point in time.

3.3. Target population

This study was carried out among female soldiers aged 18-45 years at Bombo Military Barracks. These military barracks are located 34 Kilometres from Kampala along Kampala-Luwero highway. This area was chosen because of the low level of uptake for long-acting reversible contraceptives among female officers serving in the forces .and it's the headquarters of women's wing where by issues affecting these women are representation of all women in other units

3.4. Sample size

The sample size was determined using Yamane's formula (1967).becauseyemanes formula is used when the study population is known. The total population of the female soldiers in Bombo Military Barracks is 500.

From,

$n = N/N+1(e^2)$

$n = 500/500+1\ (0.05^2)$

Thus;

n = 222.22

n = 223 female soldiers.

3.5. Sampling technique

To come with the required number, the researcher applied simple random sampling. List of the female soldiers were obtained to from the registry of the Barracks, initials of their names where written on pieces of paper after gathering them in each unit sections and put in a hate then shaken. Officers were chosen at random without replacement until the required sample size was obtained. This method was used because it is free from bias and therefore gave each member within the population an equal chance of being selected to represent the entire population.

3.6.Study Variables

3.6.1. Dependent Variable

The dependent variable of the study is Uptake of Long Acting Reversible Contraceptives among female soldiers at Bombo Military Barracks.

3.6.2. Independent Variables

The individual factors (socio-demographics), Knowledge, attitude age religious beliefs fear of side effects awareness of benefits husband's approval beliefs.

Service providers factors like availability of LARCS, accessibility to the health facility, attitudes of health workers.

Institutional factors like, policies regarding reproduction among female soldiers ,institutional challenges to provide services to female combatants.

3.7. Sources of data

The study used only primary data sources. Saunders, Lewis and Thornhill (2007; 2009) defined primary data as the first hand data obtained using data collection instruments such as questionnaires and interview guides. In this study data was collected by use of questionnaires and key informants interview guide.

3.8. Data collection Methods and Instruments

In this study, a self-administered questionnaire was used to collect data. The questionnaires were structured following objectives of the study to facilitate a logical flow of findings and conclusions on the study variables. This method was preferred because it is time saving, covers many respondents within a short time period and sensitive questions can be answered objectively since a respondent's name is not required. Besides that, a questionnaire method gives time to the respondent to think and analyse the questions asked before giving an appropriate answer. The questions were gauged on a five point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This served as the basis for measuring the magnitude of the study variables.

3.9. Validity and Reliability of Research Instruments

This section explained how the validity and reliability of research instruments was ensured in this study.

3.9.1 Validity of Research Instruments

Validity is the accuracy and meaningfulness of inferences, which are based on the research results (Mugenda&Mugenda, 2003). In this study, the questionnaires were presented to the supervisor for review and the suggestions raised were used as a basis for the subsequent changes to be made. This facilitated the necessary revision and modification of the research instrument thereby enhancing its validity. More so, experts in the field were requested to comment on the representativeness and suitability of questions and give suggestions for corrections to be made. This helped to improve the content validity of the data to be collected. Similarly, the questions were assessed to arrive at an acceptable content validity index. Qualitative data involved comprehensive asking and recording of results.

3.9.2. Reliability of Research Instruments

According to Amin (2005), reliability refers to the consistency of measurement and was frequently assessed using the test–retest reliability method to help the researcher discover question content, word processing and sequencing errors before the actual study. The instrument was designed by matching questions with objectives for the study. Reliability of questionnaires was obtained by way of pretesting 10-15 questionnaires to the potential respondents to check their views. Their responses allowed the researcher to test for consistence of the views expressed from them. This helped in exploring ways of improving overall quality and reliability of the statements. In addition, Cronbach Alpha Coefficient was computed from the responses obtained to check for reliability. Nunn ally (1978) suggests that the instruments used in basic research should have reliability of 0.70 or better. The key informant tool was pretested with a healthcare provider to ensure that the information collected is reliable and gather same data from different respondents.

3.10. Data Processing and Analysis

The data obtained from the field was coded, sorted and entered into the Statistical Package for Social Sciences (SPSS v.20) to extract findings.

The findings were presented in terms of frequencies, cross-tabulation as well as inferential statistics of chi-square analysis for easy interpretation and analysis of findings. Closed-ended questions were analysed using frequency tables by employing descriptive statistics of mean and standard deviation.

3.11. Ethical Considerations

Much as the matters under investigation by this study are considered very sensitive, the study was purely for academic purposes and all potential respondents were informed as such. In regard to this, a letter of introduction from the university authorities was presented to the management of Bombo Military Barracks seeking permission to carry out research. Then, the researcher requested for a meeting with staff members to inform them of the research objectives (intention) and informing them of their ultimate confidentiality if they are to participate in the study. The researcher also ensured that the data collection instruments did

not provide for the name as a way of increasing their confidentiality. In addition, the researcher picked filled questionnaires according to respondents' convenience to avoid moving into offices that could easily make non-participants suspicious.

3.12. Limitations of the study

The study population consisted of women with mixed literacy levels. To minimise this limitation, the questionnaires were simplified to use a five point likert scale as opposed to structured questions and Yes or No questions as so that clarifying it would be easy for the researcher and would consume less time for respondents.

3.13. Dissemination of Results

On completion of the study, findings shall be submitted to UMU Faculty of Health Sciences, a second copy to the school of postgraduate studies.

CHAPTER FOUR: PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.0. Introduction

This chapter contains the results and the interpretation relating to the sample characteristics of the surveyed respondents. The presentation was guided by the research objectives and the statistics were generated with the aim of generating responses from the research questions.

4.1. Response rate and background characteristics

Out of 223 respondents that this study targeted, responses were successfully obtained from 201 giving a response rate of 92.6%. According to Amin (2005), results are fit for generalizing to the entire population when a response rate of 70% or better is achieved. Henceforth, the obtained results qualify to be generalized.

The study obtained the distribution of respondents by their characteristics in relation to their age, education status, and years in service, marital status, parity and religion. The obtained results were summarized in a frequency table as shown in Table 4.1hereunder.

Table.1 Distribution of respondents by their demographic characteristics

Demographic Characteristic	Category	Frequency	Percentage (%)
Age distribution	20-30 years	67	33.3
	31-40 years	83	41.3
	41-50 years	51	25.4
Education status	Certificate	17	8.5
	Diploma	61	30.3
	Degree	97	48.3
	Masters & above	26	12.9
Period of service	< 5 years	35	17.4
	6-10 years	80	39.8
	11 years & above	86	42.8
Marital status	Single	68	33.8
	Married	103	51.2
	Separated/Divorced	18	9.0
	Widowed	12	6.0
Parity/No. of children	Primigravida	64	31.8
	Multi gravida	137	68.2
Religious affiliation	Catholic	61	30.4
	Protestant	69	34.3
	Muslim	31	15.4
	Born again	40	19.9

Source: Primary data

Table 1provides a summary of the results obtained in relation to the demographic characteristics for respondents. The results indicated that most of the respondents were aged between 31-40 years with 41.3% of the total respondents. In addition; the results indicate that 33.3% of the respondents were aged 20-30 years while an estimated 25.4% were aged 41-50 years. The results imply that the majority of female soldiers employed within Bombo Military Barracks are mature since they constitute the biggest aggregate among the sampled respondents. The results also indicate that the study was age balanced since it sought views from soldiers of different age brackets from young to old and experienced respondents.

In addition, the results indicated that a big proportion of respondents were degree holders contributing 48.3% of the total respondents. This was followed by diploma holders at 30.3% and masters' degree holders with 12.9% while certificate holders were the least proportion with 8.5% of the total respondents. The implication of these findings is that as long as one possesses a degree, she is considered competent enough to offer services within the Uganda Peoples Defence Forces (UPDF). More so, the results also indicate that without a minimum qualification of certificate, a person cannot be recruited within the Uganda Peoples Defence Forces.

Furthermore, the findings from Table 4.1 indicated that majority of respondents had served the institution for at least eleven years since they constituted the biggest percentage at 42.8% in comparison to those who had stayed for a period of 6-10 years with 39.8% and those who had served for five years and less at 17.4%. This level of staff retention is attributed to the fact that most officers employed by the UPDF are offered long term contracts to defend the country and its people, a factor why they stay within the same position longer.

In relation to marital status, the findings revealed that more than half of the respondents making 51.2% were married couples, 33.8% were singles, 9.0% had separated/divorced from their spouses while a mere 6.0% were widowed. The implication is that the study solicited views from women with different marital statuses who would explain better the factors associated with uptake of long acting reversible contraceptives. In the same way, the findings revealed that of the respondents who participated in the study, the majority 68.2% were

multiparous while 31.8% were primigravida. This indicates that the study targeted child bearing women to provide the needed information.

Furthermore, as per the findings in Table 4.1, the results indicated that an aggregate of 34.3% were professing the Protestant faith in comparison to 30.4% who were drawn from the Catholic faith. In addition, Born Again followers constituted 19.9% while Muslim followers constituted 15.4% of the total respondents. These findings indicate the inclusive nature of the study since respondents from different religious denominations were involved in providing the needed information.

4.2. Uptake of long acting reversible contraceptives

Respondents were also asked to indicate whether they had ever used LARCs to assess their level of uptake and the findings in relation to this objective are summarised in Table 4.2 hereunder.

Table 2: Level of uptake for LARCs among female soldiers

Attribute	Response LARC	Frequency	Percept (%)
Have you ever used LARCs?	Yes	98	48.8
	No	103	51.2
If yes, which LARC was used?	IUDs	57	58.2
	Implants	41	41.8
Side effects experienced	Yes	51	52.0
	No	47	48.0
If yes, which side effects?	Irregular bleeding	14	27.5
	Loss of weight	09	17.6
	Headache and dizziness	13	25.5
	Pain during menstruation	15	29.4

Source: Primary data

The results from Table 4.2 above revealed that the prevalence of LARCs utilization was 48.8% of the total respondents while non-use was cited by 51.2% of the responses obtained. Whereas this prevalence is an improvement of the previous statistic of 3%, it should be noted that it is below the threshold of 75% set by the ministry of health. In addition, the results revealed that IUDs were the most used LARCs with a response of 58.2% followed by implants at 41.8%.

However, like any other medicine, the results indicated that uptake of LARCs has some side effects as suggested by 52.0% in this study. Among the side effects cited, pain during menstruation was mentioned by 29.4%, followed by irregular bleeding at 27.5%, headache and dizziness was acknowledged by 25.5% while loss of weight was cited by 17.6%. Perhaps, this could be a reason for the poor uptake of LARCs among women as it causes fear among potential users.

4.3 Individual factors influencing uptake of long-acting reversible contraceptives among women soldiers aged 18 to 45 years

4.3.1 Age, education, period of services, marital status, parity and religion) influencing uptake of LARCs among female soldiers

Under this objective, the researcher was interested in identifyingAge, Education, income level, marital status and religion factors influencing uptake of LARCs. Chi-square tests were performed to determine significant associations between the various socio demographic factors and uptake of LARCs. A p value of 5% level of significance was used and any chi square values of < 0.05 were considered to have a statistically significant association. The results are summarised in a bivariate analysis indicated in table 4.3 on the following page.

Table 3: Socio-demographics Age, Education, period of services, marital status, parity and religion influencing uptake of LARCs among female soldiers

	Uptake of LARC				
Variable	**No**	**Yes**	**Total**	**Chi-Square (χ^2)** **uOR95% CI)**	**p-value**
Age distribution				77.121	0.025*
20-30 years	53(79.1)	14(20.9)	67(100)	2.03(0.968-4.263)	0.061
31-40 years	31(37.3)	52(62.7)	83(100)	1.836(0.903-3.729)	0.093
41-45 years	19(37.3)	32(62.7)	51(100)	**1**	
Education qualification				72.611	0.003*
Certificate	13(76.5)	4(23.5)	17(100)	1.833(0.522-6.445)	0.719
Diploma	33(54.1)	28(45.9)	61(100)	1.033(0.413-2.588)	0.944
Degree	30(30.9)	67(69.1)	97(100)	0.980(0.412-2.328)	0.963
Masters & above	11(42.3)	15(57.7)	26(100)	**1**	
Period of service				2.377(2)	0.305
< 5 years	13(37.1 0	22(62.9)	35	1.86(.830-4.157)	0.132
6-10 years	40(50)	40(50)	80	1.10(.597-2.018)	0.765
11 years & above	45(52.3)	41(47.7)	86	**1**	
Marital status				53.757	0.009*
Single	54(79.4)	14(20.6)	68(100)	2.000(0.550-7.272)	0.293
Married	19(18.4)	84(81.6)	103(100)	2.292(0.649-8.0880)	0.197
Separated/Divorced	18(100)	0	18(100)	2.500(0.548-11.410)	0.237
Widowed	12(100)	0	12(100)	**1**	
Parity				104	0.041*
Primigravida	51(79.7)	13(20.3)	64(100)	1.474(0.810-2.683)	0.204
Multi gravida	52(38.0)	85(62.0)	137(100)	**1**	
Religious affiliation				69.281	0.069
Catholic	39(63.9)	22(36.1)	61(100)	1.54(0.69-3.432)	0.292
Protestant	37(53.6)	32(46.4)	69(100)	1.26(.58-2.749)	0.565
Muslim	21(67.7)	10(32.3)	31(100)	1.30(.509-3.339)	0.580
Born again	06(15.0)	34(85.0)	40(100)	1	

Source: Primary data

As per Table 3, the results of bivariate analysis showed that, although many variables that were statistically significant in the literature review, only age of the women, education qualification, marital status and parity were found to have a statistically significant association with uptake of LARCs. In particular, women aged 31-40 years with a prevalence of 62.7% were more likely to use LARCs than those in other age groups20-30 years with 20.9% and 41-50 years respectively. Similarly, the p-value of 0.025 is below the threshold suggesting that age is a significant factor in the uptake of LARCs among women soldiers (χ^2 =77.121, p=0.025*). Logistic regression analysis result showed that military women aged 20-30 years were two times more likely to use LARC compared to those aged 41 and above (uOR2.031, 95%CI 0.968-4.263,p=0.061), in addition, having age 31-40 years contributed to 1.8% uptake of LARC among military women (uOR1.836, 95%CI 0.903-3.729,p=0.093).

Regarding education qualification of women soldiers, the findings revealed that degree holders had a greater chance of using LARCs with a prevalence rate of 69.1%, followed by master degree holders at 57.7% in comparison to their counterparts who had low academic qualifications of certificates (23.5%) and diploma (45.9%). In the same way, education yielded a p-value of 0.003 indicating its level of significance in the uptake of LARCs. (χ^2 =72.611, p=0.003*), although there no statistically significant relationship between having a certificate and uptake of LARC at bivalent analysis, having certificate academic papers contributed to 1.8% uptake of LARC among the military women (uOR1.833, 95%CI 0.522-6.445, p=0.719). There was no difference in the uptake of LARC among those who had Diploma papers with women who had masters paper (uOR1.033, 95%CI 0.413-2.588, p=0.944) and it emerged having degrees papers among military women contributed to 9.8 % uptake of LARC (uOR0.980, 95%CI 0.412-2.328, p=0.963).

Furthermore, the results indicated that married couples were more probable to use LARCs with an 81.6% prevalence compared to singles. Additionally, the p-value of 0.009 also shows that marital status is a factor in influencing the uptake of LARCs among female soldiers in Bombo military barracks. The study also assessed the parity of women to establish its relationship with uptake of LARCs. As the findings, multi gravida had a higher likelihood (62.0%) of using LARCs than their primi-gravida counterparts who had 20.3%. Moreover, the

influence of parity as a factor was reinforced by the p-value of 0.041 indicating that the correlation is significant.

Logistic analysis results indicated that military women who were single where two times more likely to use LARC compared women who were widowed (uOR2.000, 95%CI 0.550-7.272, p=0.293), and married women were 2.3 times more likely to use LARC compared windowed military women. Interesting military women were separated where 2.5 times more likely use LARC compared to the widowed military women. Moreover, primi-gravida women were 1.4 times more likely to use LARC compared to multi-gravida military women.

Finally, the religious affiliation of the respondents was also assessed, though the findings indicated that it was not a significant predictor. Notably, religion received a p-value of 0.069 indicating that it is an insignificant predictor. Consequently, whereas there are variations in the uptake of LARCs among different religious denominations, these variations have nothing to influence decisions of female soldiers to utilise LARCs in their family planning decisions.

Multivariate analysis for significant variables at bivariate analysis

Table 4: Multivariate Analysis

Variable	LARC USE		Chi-Square (χ^2) uOR95% CI)	p-value	AOR 95%CI	p=value
	No	Yes				
Age distribution			77.121	0.025*		
20-30 years	53(79.1)	14(20.9)	2.03(0.968-4.263)	0.061	1.92(.907-4.058)	0.088
31-40 years	31(37.3)	52(62.7)	1.836(0.903-3.729)	0.093	1.87(.915-3.799)	0.086
41-45 years	19(37.3)	32(62.7)	**1**		**1**	
Education qualification			72.611	0.003*		
Certificate	13(76.5)	4(23.5)	1.833(0.522-6.445)	0.719	1.79(.498-6.43)	0.372
Diploma	33(54.1)	28(45.9)	1.033(0.413-2.588)	0.944	0.995(.388-2.548)	0.991
Degree	30(30.9)	67(69.1)	0.980(0.412-2.328)	0.963	1.10(.451-2.672)	0.836
Masters & above	11(42.3)	15(57.7)	**1**		**1**	
Marital status			53.757	0.009*		
Single	54(79.4)	14(20.6)	2.000(0.550-7.272)	0.293	1.59(.421-5.986)	0.495
Married	19(18.4)	84(81.6)	2.292(0.649-8.0880)	0.197	1.87(.513-6.805)	0.343
Separated/Divorced	18(100)	0	2.500(0.548-11.410)	0.237	1.86(.391-8.829)	0.436
Widowed	12(100)	0	**1**		**1**	
Parity			104	0.041*		
Primigravida	51(79.7)	13(20.3)	1.474(0.810-2.683)	0.204	1.43(.773-2.645)	0.255
Multi gravida	52(38.0)	85(62.0)	**1**		**1**	

The multivariable logistic regression analysis was performed on the variables of; age, education, marital status and parity that revealed statistically significant difference or relationship with use of LARC.

The adjusted analysis shows that women aged 20-30 years were about 1.9 times more likely to use LARC compared to those aged 41-50 years (AOR=1.92, 95%CI: .907-4.058, p=0.088). Similarly, women aged 31-40 years were also 1.87 times more likely to use LARC compared to the reference group (AOR=1.87, 95%C: .915-3.799, p=0.086).

The findings on education indicates that women who attained certificate were about 1.8 times more likely to use compared to those with Master's degree and above (AOR=1.79, 95%CI:.498-6.43, p=0.372). Similarly, women with bachelor's degree were about 1.1 times likely to use LARC compared to the reference group (AOR=1.098, 95%CI: .451-2.762, p=0.836). However, diploma holders were less likely to use LARC compared to those with Master's degree (AOR=0.995, 95%CI: .388-2.548, p=0.991).

Regarding marital status, single (AOR=1.588, 95%CI: .421-5.986, p=0.495), married (AOR=1.869, 95%CI: .513-6.805, P=0.343) and divorced/separated women (AOR=1.859, 95%CI: .391-8.829, p=0.436) were about 1.59, 1.87 and 1.86 times respectively more likely to use LARC compared to the widowed women. However, there were no statistically significant associations.

Concerning parity, the primigravida women were found to be about 1.4 times more likely to use LARC compared to the multi gravida women, however, there was no significant association. (AOR=1.43, 95%CI: .773-2.645, p=0.255).

4.3.2.Knowledge, awareness, fear of side effects, husband's approval and beliefs on uptake of long-acting reversible contraceptives among women soldiers

The researcher also sought views from respondents on Knowledge, awareness, fear of side effects, husband's approval and beliefs uptake of LARCs. This was analysed with the help of descriptive statistics of mean and standard deviation. Table 4.4 on the following page provides a summary of their responses.

Table 5: Knowledge, awareness, fear of side effects, husband's approval and beliefs on uptake of long-acting reversible contraceptives among women soldiers

Knowledge, awareness, fear of side effects, husband's approval and beliefs	**Mean**	**Standard Deviation**
I have knowledge on usage of long-term reversible contraceptives.	4.23	0.831
I discuss with my husband issues of family planning	2.61	0.513
My spouse is aware of the contraceptive choice I am currently using	2.95	0.618
There is no need to visit provider frequently for re-supply of long acting reversible contraceptives	1.59	0.748
I am aware of the side effects of long acting reversible contraceptives	4.21	0.477
I find long term contraceptives easy and convenient to use.	3.02	0.346
Of late, I have ever faced inter-menstrual bleeding/spotting.	3.89	0.471
Long term contraceptives have helped me space my children	2.81	0.658
There are numerous benefits associated with proper use of long acting reversible contraceptives	3.73	0.352
Failure to adhere to long term contraceptives will lead to a larger family not easy to manage	3.27	0.911
I have ever experienced increased pain/cramps during menstruation	3.99	0.452
Traditional methods of birth control are more effective than long acting reversible contraceptives	2.49	0.789
It is against my religious practices to use contraceptives as a family planning method	2.11	0.967
Average Mean and Standard Deviation	**3.15**	**0.626**

Source: Primary data

Respondents were also asked questions in relation to attitude and knowledge on usage of LARCs as per the responses in Table 4.5 above. The results were interpreted using the mean and standard deviation. A mean of 2.6 or more signifies agreement while a mean closer to 2.5 or lower indicates a higher variability in the responses and for purposes of this study, such responses indicate that the majority of respondents disagreed. Consequently, with a grand mean of 3.15, it implies that the majority of respondents agreed to the statements raised to them.

In specific terms, the majority of respondents agreed that they had knowledge on usage of long-term reversible contraceptives and the results gave a mean and standard deviation results of (4.23, 0.831). This implies that the majority of respondents in the study area had knowledge concerning uptake of LARCs. Similarly, most respondents indicated that they discuss issues of family planning with their husbands giving results of (mean=2.61, SD=0.513). In the same way, the majority of respondents agreed that their spouses were aware of the contraceptive choices they were using (mean=2.95, SD=0.618). This implies that knowledge and spouse consent are factors in the uptake of LARCs among women soldiers. However, the majority of respondents disagreed on the statement that there is no need to visit provider frequently for re-supply of LARCs with results of (mean=1.59, SD= 0.748).

In addition, respondents agreed that they find long term contraceptives easy and convenient to use (mean=3.02, SD=0.346).Therefore, ease of use and convenience could be factors increasing the uptake of LARCs. However, the majority indicated that they had ever faced inter-menstrual and sometimes irregular bleeding (mean=3.89, SD=0.471). Perhaps, this could be a barrier for the low uptake of LARCs among female soldiers since it provides fear among them.

When asked whether LARCs help in spacing of children, the majority of respondents agreed providing results of (mean=2.81, SD=0.658). This implies that LARCs are beneficial in child spacing. Likewise, the majority of respondents agreed that there are numerous benefits associated with the usage of LARCs indicated by statistical results of (mean=3.73,

SD=0.352). These findings reinforce the belief that most women's decisions to utilise LARCs are influenced by the perceived benefits associated with use of LARCs.

On whether failure to adhere to long term contraceptives will lead to a larger family not easy to manage, most of the respondents agreed (mean=3.27, SD=0.452), and so did a high proportion who agreed that they were aware of the side effects of LARCs (mean=4.21, SD=0.477).Respondents were also asked whether traditional methods of birth control are more effective than LARCs and the majority disagreed (mean=2.49, SD=0.789). Similarly, the majority of respondents disagreed to the statement that it was against their religious practices to use contraceptives as a family planning method giving results of (mean=2.11, SD=0.967).

4.4. Service provider factors influencing uptake of long-acting reversible contraceptives among women soldiers aged 18 to 45 years at Bombo Military Barracks

In order to assess the extent to which service provider factors influence the uptake of LARCs among female soldiers within Bombo military barracks, the researcher used mean and standard deviation techniques arising from the responses of a five Likert scale. Since the Likert scale used had five points, it implies that statements with mean values of 2.6 and above show that the majority of respondents agreed while mean values of 2.5 or less represent cases where the majority disagreed to the questions. The findings in relation to this objective are summarised in Table 4.5 below

Table 6. Service provider factors influencing uptake of LARCs among female soldiers

Service provider factors influencing uptake of LARCs	**Mean**	**Standard Deviation**
Within Bombo Military hospital, there are a wide range of contraceptives available for couples	3.83	0.513
Medical staff counsel us on family planning choices	4.01	0.811
I often get encouraged to use long term contraceptives in my family planning decisions	4.66	0.332
Information about family planning is readily available	3.78	0.941
Medical staff encourage couples to seek for advice in case of complications arising from uptake of contraceptives	4.14	0.367
Medical services are timely within Bombo military hospital	3.93	0.507
Contraceptives services are provided free of charge	3.42	0.986
Staff are competent and skilful in handling family planning issues among couples	2.91	0.711
Qualified staff are readily available within Bombo military hospital	2.93	0.371
The benefits of long contraceptives are known to me	4.01	0.536
Some couples seeking for contraceptive services return unattended to	2.76	0.914
Of late, some complaints have been raised by couples on the quality of family planning services	2.22	0.649
Average Mean and StdDev	**3.55**	**0.637**

Source: Primary data

From **Table 4.5** above, respondents were asked whether there was a wide range of contraceptives available for couples and the majority agreed (mean=3.83, SD=0.513). This implies that the majority of respondents agreed suggesting that various methods of LARCs are available for couples to choose from.

In relation to counselling, the majority of respondents agreed that they receive counselling from medical staff on different family planning choices (mean=4.01, SD=0.811).

Moreover, respondents agreed that they receive encouragement to use LARCs in their family planning decisions (mean=4.66, SD=0.332) and so did the majority of respondents who agreed that information about family planning is readily available to them (mean=3.78, SD=0.941). These findings imply that availability of LARCs, counselling services, encouragement and information about family planning are factors contributing to their utilization of LARCs.

On whether medical staff encourage couples to seek for advice in case of complications, most of the respondents agreed (mean=4.14, SD=0.367). Similarly, the majority of respondents agreed that services are timely (mean=3.93, SD=0.507) and that medical services are provided free of charge (mean=3.42, SD=0.986). Thus, seeking advice, timeliness and costs (if any) are contributing factors to the uptake of LARCs.

Regarding competence and skilfulness of staff handling family planning issues among couples, most of the respondents agreed (mean=2.91, SD=0.711), availability of qualified staff (mean=2.93, SD=0.371) and knowledge of the benefits doe LARCs (mean=4.01, SD=0.536). By contrast, most of the respondents disagreed that some couples seeking for contraceptive choices return unattended to with statistical results of (mean=2.76, SD=0.914) and the majority of respondents also disagreed that there are some complaints raised by couples on the quality of family planning services (mean=2.22, SD=0.649).

4.3. Institutional factors in relation to provision of long acting reversible contraceptives to female soldiers

The key informants were asked to comment on the uptake status of long acting reversible contraceptives among female soldiers at Bombo military barracks. The result shows two in the three of the participants reported that the hospital has family planning services. However, the uptake is still low. The key informants noted that despite the UPDF policy that prescribes all female soldiers cannot reproduce until after serving for four years in service, women still produce before finishing four years.

One of the key informants' said

"..Mzee Kaguta has given these women too much freedom hence they produce day and night……as a result they are always on pass leave….we have even failed to implement the policies.

The key informants were also asked about existing policies or guidelines are available on provision of family planning services to the military officers especially females.

The result on the above shows that the key informant was not sure of any policy or guideline but said, the UPDF female soldiers are not supposed to get pregnant until serving four years from date of entry in the army.

The second key informant said that the policy exists and it provides that female soldiers upon enrolment are not supposed to get married, pregnant till one attains four years. In addition, the policy is meant for females to study the environment and adopt as they also participate in several courses. The key informant reported that the UPDF has "Standing orders of UPDF Vol, 1 (2005) and another one is Schedule of Work Vol. 1, (1990).

Another key informant reported that the policies are there except the women's right at times prevent the implementation of some of the policies especially the one on reproduction. In some situations, a female soldier gets pregnant for a general and in that case, it's challenging to implement the policy.

Availability of the long acting reversible contraceptives

The key informants said the contraceptives are available but noted that female soldiers are not aware. Leaders need to ensure hospital staff-educate the female soldiers on the LARC. In addition, two of the key informants said the clinic is there but there is low use of the services.

The key informants were asked to share about the challenges regarding LARC.

The first key informant said; ‘

> *I don’t know but I believe family planning clinic face same challenges like other clinics in the facility of lack of enough human resource, space, and over waiting time for patients*.

The second key informant said **‘***There is no education on the availability of the methods’*
One of the key informants said *‘Challenges could be there or they don’t have knowledge to teach or have no time or they are just lazy’*

Key informants were asked to provide recommendation regarding uptake of LARC

The first KI recommended that in-charge for family planning clinic should educate female soldiers on different family planning methods available and all activities that take place in the clinic.

The second key informant strongly recommend Director Women Affairs (DIWA)DIWA and Director Nursing to have programmes that take female combatants reproductive life issues of like family planning, marriage, divorce, leave, and in case of more problems, then the high command be notified in writing.

The third key informant recommends that commanders resume Kipindi (sanitizations) Baraza (meeting) then DIWA to program for this ladies and Mzee (KAGUTA) should question his commanders on failing the policies.

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

This chapter presents the discussion, conclusion and recommendation of the study findings based on the specific objectives which were to establish the uptake of Long acting revisable contraceptives among female soldiers, the individual factors influencing uptake of long-acting reversible contraceptives among women soldiers aged 18 to 45 years , assessing service provider factors influencing uptake of long-acting reversible contraceptives among women soldiers aged 18 to 45 years, as well as assessing institutional factors in regards to uptake of long acting reversible contraceptive among female soldiers at Bombo Military Barracks.

5.2. Discussion of findings

The findings obtained in this study were compared with prior studies to ascertain whether they support, contradict or are unique in the scholarly world. The discussion is presented in an objective by objective manner in the following subsections hereunder.

5.2.1. Uptake of long-acting reversible contraceptives among women soldiers

The study revealed that uptake of LARCs among women soldiers was low with a prevalence of 48.8% and has a bearing on the socio-demographic factors of women. In particular, the study revealed that women's age, education attainment, marital status and parity were predictive of the women's intent to use LARCs. For instance, the study affirmed that military women aged 20-30 years were two times more likely to use LARC compared to those aged 41 and above and in addition, having age 31-40 years contributed to 1.8% uptake of LARC among military women.

This kind of association is related to the fact these age brackets comprise of women who are at the peak of their reproductive age and require LARCs to space their children. In support of this finding, a study by Olalekan*et al.*, (2011), had also observed that a woman's age is very important in explaining the variations in uptake of long-acting reversible contraceptives. In addition, Kavanaugh*et al.*, (2013), also indicated in their study that women above the age 35 were more likely to use LARCs. However, these findings contradict other scholars. Notably, Roumi's (2010) study in Ethiopia among 200 respondents revealed that majority of women

adopting long-acting contraceptives with 49% were those in the age group of 25 to 35 years. Besides, Rob *et al.*, (2007), also found out that younger women aged 20-29 years were more associated with use of long-acting reversible contraceptives than older women. Despite these varying findings, it can be concluded in this study that age of women is a significant factor contributing to the uptake of LARCs because each age group has its own preferences with respect to marriage expectations, explaining why women with higher ages are more likely to use LARCs than their young counterparts.

Similarly, as per the study, education attainment plays a critical role in promoting the use of LARCs among women aged 18-45 years. It was observed that having certificate academic papers contributed to 1.8% uptake of LARC among the military women, there was no difference in the uptake of LARC among those who had Diploma papers with women who had masters paper and it emerged having degrees papers among military women contributed to 9.8 % uptake of LARC, meaning that that women who had higher education qualifications of degree and above were more likely to be utilizing LARCs than their colleagues with lower academic levels of certificate and diploma holders.

The influence of education qualification in women's uptake of LARCs was also emphasized by Asiimwe*et al*., (2013) who noted that education is a key factor explaining the variations in the uptake of long-acting reversible contraceptive among women. A study by Wanjiku (2013) among 372 women of reproductive age in Msambweni constituency, Kwale County-Kenya, also noted that the majority of women using contraceptives had post primary education, while the least users of long-acting contraceptives were those who had no formal education. The influence of education is attributed to the fact that uneducated women cannot convince their spouses to regularly adopt any contraception either because of illiteracy or low education levels, which is not the case of educated women who always share their family planning ambitions with their husbands. Similar findings were also reported by Nazar-Beutelspacher*et al.*, (2009), as well as Wablembo and Doctor (2013) emphasizing the fact that the number of women not using LARCs is higher among women with primary education but the proportion decreases among those with secondary or higher education qualifications. Therefore, it can be observed in this study that there is a strong link between increasing utilization of long-acting

reversible contraceptives among relatively well-educated, middle-class population in both developed and developing counties.

Moreover, the study revealed that marital status is positively associated with higher uptake of LARCs. In this study, women who were married had better use of LARCs than those who were either singles, separated or widowed. This linkage is attributed to the increasing sexual activity among married couples than singles. More so, the use of contraceptives is aimed at helping married couples to space children and prevents unwanted pregnancy which is not the case for singles.

Consistent with these findings, Gudaynhe*et al.*, (2014), observed that the positive influence of marital status on the likelihood of using LARCs is attributed to the fact that couples might decide to postpone raising children by resorting to use of family planning services. As such, the value of the marginal effect simply means that married women are more likely to use long-acting contraceptives than single women. By contrast, singles and unmarried women or those not in the union have the laxity to use LARCs due to unsteady partnership dynamics and the knowledge gap concerning proper usage.

The study also revealed that parity of women is critical in the uptake of LARCs with the prevalence of utilization common among women having two or more children compared to their colleagues with fewer than two children. This finding is supported by Nonvignon and Novignon (2014) who had earlier noted that women with higher number of living children are more likely to use LARCs than their colleagues with fewer living children. However, contrary to prior studies by Hall, Stephenson and Juvekar (2008); Sonia *et al.*, (2011), that indicate that variations in the use of LARCs could be explained by religion affiliations, this study did not establish a significant association between religion and uptake of LARCs.

In addition to the above, this finding is also in line with a study conducted among military women in the United Sates which revealed that the prevalence of contraceptive use was low with rising rates of LARC insertion, driven by increasing implant use and service women who not married and had no children were less likely to initiate use of LARC (Erickson *et al*., 2017).

5.2.2. Individual factors influencing uptake of long-acting reversible contraceptives among women soldiers aged 18 to 45 years

Findings under this objective revealed that knowledge about usage, spouse consent, fear of side effects as well as knowledge about benefits were the most cited individual factors influencing the uptake of LARCs among women soldiers in the study area. Consistent with these findings, Ochako*et al.*, (2016), also emphasized in their study that knowledge of use, awareness of the benefits and associated side effects as well as husband's approval are relevant in influencing women towards utilization of LARCs. More specific findings were reported by Anguzu*et al.*, (2014), who suggested that knowledge about contraceptives and their benefits is the foremost factor that encourages women to use the methods. This is because knowledge promotes information sharing, confidence building among users and an understanding of the contraceptive features including the known side effects, length of use, risks (if any) and this in turn promotes higher usage among women. Likewise, having adequate knowledge helps women to know alternate methods, and which ones are more effective and appropriate to use in their family planning decisions. This explains in this study why women who were knowledgeable had higher chances of adopting LARCs than their counterparts.

Similar findings were reported by Shabiby*et al.*, (2015), among 185 postpartum women in Kenya who indicated that respondents with prior knowledge of contraceptive implants were three times more likely to accept implants insertion compared to those who had no prior knowledge. Consistent with this view, Jabeen and Umbreen's (2016) study in Lahore also reported similar findings indicating that women's knowledge is a significant predictor in the women's decision to use contraceptives. With regard to fear of side effects, Paul *et al.*, (2011), the perception about side effects of some contraceptives determine the type of choices individuals would opt for.

For instance, in rural India village, women said the use of IUDs often causes heavier, longer and more frequent menses, which is not healthy to them and consequently limit LARCs use among potential family planning users.

Additionally, Anguzu*et al.,* (2012), reported that approximately half of the respondents based on the consent of their partners to use contraceptives while in Malaysia, husband's disapproval of contraceptive methods created a substantial barrier to continuing with modern contraceptive methods. In the Malaysian study, Najafi, Rahman and Juni (2011) mentioned that respondents' husbands disapproved the use of contraceptive methods in family planning and would not like allow the use of condoms as well. The same view was shared by Aryeetey,KotohandHindin (2010) in Ghana when they established that 48% of respondents in their study to explore factors limiting the use of LARCs was linked their partners' disapproval. This confirms the relevance of individual factors in explaining the uptake of LARCs among women.

5.2.3. Service provider factors influencing uptake of long-acting reversible contraceptives among women soldiers aged 18 to 45 years

Other than the socio-demographic and individual factors, this study has established that usage of LARCs is also influenced by service provider factors. Notably, the findings revealed that uptake is contingent on availability of effective contraceptive methods from which couples can choose, counselling and encouragement from medical practitioners, availability of information about family planning and timeliness of services. These findings are in agreement with several scholars on both the local and international levels. For instance, Weston *et al.,* (2012), noted that service provider factors have been linked to the uptake of LARCs because they are the final point of contact in diagnosing clients' medical needs.

Likewise, Baxter *et al.,* (2011), also noted that a positive attitude towards patients featuring support, interaction, consultation and empathy encourages interested users to seek for LARCs to manage their family planning issues while negative attitude by health workers is a barrier that contributes to the minimum use and failure to adhere to family planning. Igbodekwe*et al.,* (2014), also emphasized similar findings emphasizing that a positive relationship between medical workers and family planning users featuring counselling, support and encouragement is pivotal in promoting usage of LARCs.

Brou*et al.*, (2009), reiterated the same observation indicating that support and friendliness of medical staff have a marginal effect implying that the likelihood of respondents using LARCs is higher if hospital staffs are friendly than when they are rude and un co-operative to clients. The significance of this determinant is explained by the fact that provision of certain types of LARCs requires performance of some procedures in a patient's private parts by the person administering the services. Therefore, if the staff members are not friendly, it complicates the smooth process of administering the contraceptive and this could prove a barrier. Likewise, the interaction between the service provider and users of LARCs define the quality with which the services are perceived. Thus, Bertrand *et al.*, (2015), supplemented by indicating that the probability of a woman consistently using LARCs is higher for women who perceive the services to be of high quality than for those who perceive otherwise. The positive impact of quality could be attributed to the fact that in the process of making a decision on using family planning services, perceived quality of the service is given a high consideration as supported by theory whereby taste and preference of women form an important factor in making demand decision among seekers for LARCs.

Furthermore, the study affirmed that availability of LARCs is predictive of the women's intent in the uptake of these contraceptives because providers are most likely to counsel clients on methods available in their facility, and that clients can only use what is available. Therefore, accessibility can be hampered in cases where there are limited ranges of contraceptive choices. Indeed, a study by Ross and Stoverb (2013) supports these findings by noting that there is significant potential to increase contraceptive use by expanding access to existing methods and by making new or modified methods widely available. Relatedly, a study by Rubin *et al.*, (2013), in New York City, also found that unavailability of LARC commodities in the clinics was the main barrier to offering the services on IUD and implant to those who needed them. Soriano *et al.*, (2014), also echoed similar findings indicating that limited range of contraceptives available on the market and supply chain issues causing frequent stock outs were the main factors influencing non-use of contraceptives in several countries.

However, the findings on availability contradict an earlier study by Winner *et al.*, (2012), who revealed that availability and affordability are not limiting factors to the use of long-acting reversible contraceptives because of the fact that most governments in developing countries have implemented cost sharing arrangements in which some of the contraceptive services are offered free of charge. This gives room for other factors. Indeed, a recent study by John *et al.*, (2016), in Chicago revealed that uptake of LARCs was constrained by barriers such as inadequate insurance coverage, difficulty scheduling appointments, limited clinic hours, referral requirements, long waiting times and inadequate provider training. Besides, Hall *et al.*, (2008), had earlier noted that lack of public transportation and privacy were limiting willingness of women to access those resources within resource constrained settings in rural India.

While there are variations in findings, it can be concluded in this study that availability of LARCs is a significant predictor for the uptake of LARCs among female soldiers.

5.2.4. Institutional factorsassociated with the uptake of long acting reversible contraceptives among women soldiers aged 18-45 years

The result among key informants at Bombo Military Barracks indicates that there are policies for the Uganda People's Defence Forces (UPDF). They are "Standing orders of UPDF Vol, 1 (2005) and another one is Schedule of Work Vol. 1, (1990). The policy in regards to reproduction directs that any female who joins the army is expected to serve for the first four (4) years before getting pregnant. This implies that with compliance to the policy, many female soldiers would avoid pregnancy. However, with various factors that interact into play, some of the female soldiers do get pregnant even before making 2-3 years.

5.3. Conclusion

From the study findings, it can be concluded that there was low uptake of LARCs among female soldiers as the majority of women who participated in the study reported non usage. The study has revealed several factors influencing this trend. Firstly, socio-demographic factors of age, education attainment, marital status and parity are important attributes in explaining the uptake of LARCs. Thus, the study emphasises that socio-demographic factors should be taken care of by policy makers if improvement in utilization of LARCs is to improve among women soldiers.

Similarly, the study has affirmed that individual factors such as women's knowledge about usage of LARC, spouse consent, fear of side effects and knowledge about benefits were the most cited individual factors influencing the uptake of LARCs among women soldiers in the study area. This is because in every clinical intervention, the individual person takes centre stage in implementing strategies that can improve their state of heath. Thus, it is not surprising that aspects of knowledge, consent from partner and fear of side effects have been revealed as central in influencing uptake of LARCs among female soldiers. Consequently, individual related factors should be emphasized in clinical settings for increased uptake of LARCs.

Moreover, it can be concluded in this study that health services, irrespective of whether they are provided in small or big health facilities as well as the medical team offering those services have a role to play in promoting the uptake of LARCs among women soldiers. This conclusion is derived from the attributes that have been revealed in this study as the fulcrum for effective uptake of LARCs among women soldiers.

The institutional policies also were found to be influencing the uptake of LARCs among woman soldiers as evidenced by the key informants statements of standing orders of the UPDF.

These include; availability of effective contraceptive methods from which couples can choose, counselling and encouragement from medical practitioners, availability of information about family planning and timeliness of services. Therefore, if LARCs are available coupled with counselling and encouragement from medical practitioners, this stimulates more women to utilize the services.

5.4. Recommendations

In light of the research findings, the following recommendations are forwarded; The UPDF leadership through directorate of health services should revive and put more efforts on improving knowledge and attitude of female soldiers and their partners about LARC so as to increase the uptake of LARC.at both household and community level that targets the woman and her partner. This could be achieved through fallen/ Baraza (Monday meetings) and market places as well as newsletters and posters. This will improve knowledge of mothers and their awareness about usage of LARCs.

With regard to service providers, medical staff should improve the quality of provider interaction while handling clients and this can be achieved by retraining the providers to boost their knowledge and understanding of the methods and procedures. In the same way, printed materials should be made available to interested clients improve information sharing between service providers and users of LARC at military health facilities.

Similarly, partner approval has been identified as an independent determinant for uptake of LARCs among women soldiers. Therefore, emphasis should be given on improving the norm of partner communication and training of men since they are the direct point of contact for the long and acting reversible contraceptives.

There is need for the leadership in the directorate of medical services in Ministry of Defence to ensure female soldiers are educated on various family planning methods including LARC and make the services readily available.

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APPENDIX I: WORK PLAN

Activity	**July 2017**				**August 2017**				**September** 2017				**October 2017**				**November 2017**			
	W 1	**W 2**	**W 3**	**W 4**	**W 1**	**W 2**	**W 3**	**W 4**	**W 1**	**W 2**	**W 3**	**W 4**	**W 1**	**W 2**	**W 3**	**W 4**	**W 1**	**W 2**	**W 3**	**W 4**
Proposal Writing																				
Designing data collection Instruments																				
Pre-testing Questionnaire																				
Data Collection																				
Data Analysis and interpretation																				
Presentation of first draft																				
Adjustments on dissertation																				
Submission of final Report																				

APPENDIX II: PROPOSED BUDGET

S/NO	Item	Quantity	Unit Cost (Shillings)	Total Cost (Shillings)
1	Stationary	4 Reams	14,000	56,000
2	Photocopying	2 Copies	40,000	80,000
3	Flash Disk	1 Pc	30,000	30,000
4	Printing	6 Copies	30,000	180,000
5	Data collection			600,000
6	Transport			100,000
7	Data Processing and Analysis			900,000
8	Final Report Binding	3	30,000	100,000
	TOTAL			**2,046,000**

APPENDIX III: CONSENT FORM FOR FEMALE SOLDIERS

Dear Respondent,

My name is Alupo Josephine, a student of Uganda Martyrs University. I am carrying outreach aiming at examining the uptake of long acting reversible contraceptives and associated factors among female soldiers aged between 18 and 45 years within Bombo Military Barracks.

You have been identified as a resourceful person given your experience. You are therefore kindly requested to complete and return the attached questionnaire.

Your assistance is greatly appreciated. Section A of the questionnaire consists of biographical and organizational specific questions while for the rest of the questionnaire you are required to indicate the extent to which you agree or disagree with the various statements.

This information is required for partial fulfilment for the award of Master of public health degree in population and reproductive health of Uganda Martyrs University, Nkozi. Therefore, the information sought is purely for academic purposes and responses will be treated with utmost confidentiality. Your assistance is greatly appreciated.

Sign: …….. Date: ……./……./……..

APPENDIX IV: STURCUTED QUESTIONNAIRE

SECTION A: Socio-Demographic Characteristics of Respondents

Please Tick the option that best describes you.

Q1. Age bracket

20 – 30 years	31 –40 years	41 – 50 years	51 &above
1	2	3	4

Q2. Education status

Certificate	Diploma	Degree	Masters& above
1	2	3	4

Q3. For how long have served within Bombo Military Barracks?

Less than 5 years	6-10 years	11 years & above
1	2	3

Q4. What is your marital status?

Single	Married	Separated/Divorced	Widowed
1	2	3	4

Q5. Indicate the number of children (parity)

One child/primigravida	Two & above/multi gravida
1	2

Q6. Indicate your religion

Catholic	Protestant	Muslim	Born again
1	2	3	4

Section B: Uptake of LARCs

Q7. Have you ever used LARCs? Yes ☐ No ☐

Q8. If yes to Q5 above, which LARC have ever used?

IUDs ☐ Implants ☐ None ☐

Q9. Do you have any side effects that you have ever experienced as a result of using LARCs?

Yes ☐ No ☐

Q10. If yes to Q9, which side effects? Tick as many as you can

Irregular bleeding ☐

Loss of weight ☐

Headache and dizziness ☐

Pain/cramps during menstruation ☐

None ☐

Section C: Statements on factors influencing uptake of LARCs

Under this section, you are required to indicate the extent to which you agree or disagree with the statement given by ticking the best option that describes your choice. You are required to use the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree.

STATEMENTS		**SD**	**D**	**NS**	**A**	**SA**
ID F0	**Knowledge, awareness, fear of side effects, husband's approval and beliefs**					
ID 1	I have knowledge on usage of long-term reversible contraceptives	1	2	3	4	5
ID 2	I discuss with my husband issues of family planning	1	2	3	4	5
ID 3	My spouse is aware of the contraceptive choice I am currently using	1	2	3	4	5
ID 4	There is no need to visit provider frequently for re-supply of long acting reversible contraceptives	1	2	3	4	5
ID 5	I find long term contraceptives easy and convenient to use	1	2	3	4	5
ID 6	Of late, I have ever faced inter-menstrual bleeding/ spotting	1	2	3	4	5
ID 7	Long term contraceptives have helped me space my children	1	2	3	4	5
ID 8	There are numerous benefits associated with proper use of long acting reversible contraceptives	1	2	3	4	5
ID 9	Failure to adhere to long term contraceptives will lead to a larger family not easy to manage	1	2	3	4	5
ID	I have ever experienced increased pain/cramps during	1	2	3	4	5

10	menstruation					
ID 11	I am aware of the side effects of long acting reversible contraceptives	1	2	3	4	5
ID 12	Traditional methods of birth control are more effective than long acting reversible contraceptives	1	2	3	4	5
ID 13	It is against my religious practices to use contraceptives as a family planning method	1	2	3	4	5
SERVICE PROVIDER FACTORS						
SPF0	**Service provider factors and uptake of IUDs**					
SP 1	Within Bombo Military hospital, there are a wide range of contraceptives available for couples	1	2	3	4	5
SP 2	Medical staff counsel us on family planning choices	1	2	3	4	5
SP 3	I often get encouraged to use long term contraceptives in my family planning decisions	1	2	3	4	5
SP 4	Information about family planning is readily available	1	2	3	4	5
SP 5	Medical staff encourage couples to seek for advice in case of complications arising from uptake of contraceptives	1	2	3	4	5
SP 6	Medical services are timely within Bombo military hospital	1	2	3	4	5
SP 7	Contraceptives services are provided free of charge	1	2	3	4	5
SP 8	Staff are competent and skillful in handling family planning issues among couples	1	2	3	4	5
SP 9	Qualified are readily available within Bombo military hospital	1	2	3	4	5

SP 10	The benefits of long contraceptives are known to me	1	2	3	4	5
SP 11	Some couples seeking for contraceptive services return unattended to	1	2	3	4	5
SP 12	Of late, some complaints have been raised by couples on the quality of family planning services	1	2	3	4	5

Thanks a lot for taking your time to participate in the study!

APPENDIX V: CONSENT FOR KEY INFORMANTS AT BOMBO MILITARY BARRACKS

Background

Good morning/Good afternoon, my name is Alupo Josephine Akol, a Master's student of Public Health-Population and Reproductive Health at Uganda Martyrs University. As part of my study, I am required to collect qualitative data to triangulate the quantitative data of my study.

Purpose of the study: factors influencing the uptake of long acting reversible contraceptives among female soldiers aged between 18 and 45 years in Bombo militarybarracks.

Your participation in this research is voluntary and you are free to withdraw at any time from it and please feel free to decline to answer any of the questions askedany time to. The interview will may be tape-recorded and will be used to effect transcription of the responses. All the information you provide will be kept confidential and your name will not be linked with the study report.

Risks and benefits

There are no risks or direct benefits to you, associated with your participation in this study. However, we feel that your participation will contribute in providing information on any available policies or guidelines in regards to provision of family planning services to female soldiers, status on availability of the commodities and modalities of service provision during service.

Questions and Clarifications

In case you wish to ask or have clarification regarding this study. Are tou ready to participate? YES…….NO…….

Participant

I have been adequately informed about the purpose, procedure, risks and benefits of this study and agreed to participate.

Participant

Signature: _____Date: _____ Mob.

Contact:_____

Interviewer

Name: _____Signature: _____Date: _____

APPENDIX VI: KEY INFORMANT INTERVIEW GUIDE; BOMBO MILITARY BARRACKS

Date: _____

Age: _____

Gender: Male ☐ **Female** ☐

Position of respondent: _____

Questions

1. What can you say generally say about use of long acting reversible contraceptive (LARC) among female soldiers at Bombo Military Hospital?
2. What policies or guidelines are available on provision of family planning services to the military officers especially females?
3. Please tell me about provision of family planning services especially LARC at Bombo Military Hospital. What can you say about LARC provision while on service out of Bombo Military barracks? Probe for availability of the commodities/services and quality
4. What challenges do the hospital and or military medical system face in regards to provision of family planning services especially long acting reversible contraceptives at Bombo Military hospital?
5. What recommendations do you provide in order to ensure efficient and effective delivery of long acting reversible contraceptives for the female soldiers?

APPENDIX VII: LETTER OF INTRODUCTION FROM THE UNIVERSITY

Uganda
Martyrs
University

Making a difference

Faculty of Health Sciences
Email: health@umu.ac.ug
21st March, 2018

TO WHOM IT MAY CONCERN

RE: INTRODUCING MS. AKOL JOSEPHINE ALUPO W.

This is to introduce to you Ms. Akol Josephine Alupo W. REG NO: 2015-M272-20004 as a bona fide student of Uganda Martyrs University. She is pursuing a programme leading to the award of Master of Public Health-Population and Reproductive Health. She will be collecting data to complete writing of her dissertation title **'Factors Related to Uptake of long acting reversible contraceptives among female soldiers aged 18-45yrs in Bombo military barracks**

The relevant university authorities have approved the topic and protocol.

Any assistance rendered to her in this respect will be highly appreciated by the university

Yours sincerely,

DR. Miisa Nanyingi

Faculty of Health Sciences,
Uganda Martyrs University

Authority has been granted

Admin Directorate Of Women Affairs
General Headquarters
Uganda Peoples' Defence Forces

Uganda Martyrs University P.O. Box 5498 – Kampala – Uganda
Tel: (+256)038-410611 Fax: (+256) 038-410100 E-mail: umu@umu.ac.ug

APPENDIX VIII: LETTER OF AUTHORIZATION

RESTRICTED

UGANDA PEOPLES' DEFENCE FORCES

Directorate of Women Affairs
General Headquarters Mbuya
P.O. BOX 3798
KAMPALA
Tel: +256-414 356 488
+256-718-643106/7

UPDF/DWA/A2

12 Apirl 2018

RA/128674 S/SGT AKOL JOSEPHINES ALUPO

01. The above soldier belongs to 3Div and she is working as the PNO of Rubonge Military hospital.

02. She is pursuing a programme leading to the award of Masters in Public health population and Reproductive Health at Uganda Marty's University.

03. Authority has been granted by this office to allow her collect data's from female combatants to complete her dissertation **Titled "Factors Related to uptakes of acting reversible contraceptives among female soldiers age 18-45years in Bombo Military Barracks".**

for AK KAAHWA
Maj
Admin Officer

Admin Directorate of Women Affairs
General Headquarters
Uganda Peoples' Defence Forces

RESTRICTED

APPENDIX IX: MAP OF UGANDA