SEXUAL FUNCTION AND QUALITY OF LIFE OF WOMEN USING MEDROXYPROGESTERONE ACETATE CONTRACEPTIVE IN NAKURU COUNTY REFERRAL HOSPITAL

BY

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DECLARATION

Declaration by the Student

"This is my original work and has not been presented for a degree in any other University".

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ACRONYMS AND ABBREVIATIONS

ANC   Ante Natal Care

BMI   Body Mass Index

DMPA   Depot Medroxyprogesterone Acetate

FP   Family Planning

FSFI Female Sexual Function Index

FSH   Follicle Stimulating Hormone

GBV   Gender Based Violence

HIV   Human Immunodeficiency Virus

IREC Institutional Research and Ethics Committee

IUD   Intra Uterine Contraceptive

KDHS   Kenya Demographic Health Survey

LH   Luteinizing Hormone

MCPR   Modern Method Contraceptive Prevalence

MOH   Ministry of Health

PNC   Post Natal Care

QoL   Quality of Life

SC   Subcutaneous

SDGs   Sustainable Development Goals

WHO   World Health Organisation

OPERATIONAL DEFINITIONS

Contraceptive behaviour: Refers to activities involved in the process of identifying and using a contraceptive method to prevent pregnancy to include initiation and continuation.

Family Planning: The practice of using a contraceptive for birth spacing or limiting.

Frequent Bleeding: More than five bleeding episodes per month

Irregular Bleeding: bleeding between 3 or 5 episodes with fewer than 3 bleeding free intervals of length 14 days

Maternal Death: Death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Modern Family Planning Method: Includes the pill, Intrauterine devices, male and female condoms, implants, injectables, emergency hormonal contraceptive, tubal ligation and vasectomy.

Post-Partum Period: The period of up-to six weeks or 42 days after the part of a child when the woman's uterus has returned to its pre- pregnancy state.

Prolonged Bleeding: One or more episodes lasting 14 days or more.

Quality of life: Individual's perception of physical and mental health over time.

Sexual dysfunction: Difficulty during any stage of the normal sexual activity which prevents the individual or couple from enjoying sexual activity.

Sexual Function: How the body reacts in different stages of sexual response cycle, or as a result of sexual dysfunction

Spotting: Bleeding which may not require the use of sanitary pad

Sexually Active: Engaging in regular sexual encounters with an available partner

Women with FP unmet Need: Women with a need for FP who are not using modern contraception.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Introduction: Sexual function is in the centre of women's quality of life. Depot medroxyprogesterone acetate (DMPA) contraceptive has a high discontinuation rate for reasons other than conception. Menstrual irregularities and reduced libido are the most cited reasons. Knowing the sexual function and quality of life of DMPA users enables healthcare providers to serve clients well.

Objective: To assess the sexual function, quality of life and describe the relationship between sexual function and quality of life among women using DMPA contraceptive.

Methodology: A cross sectional descriptive study was conducted in Nakuru County referral Hospital. A total of 130 DMPA users visiting family planning clinic were selected using systematic sampling technique. Questionnaires on demographic, female sexual function index and the short form 36 health survey were used for data collection. Data was analysed using SPSS version 23.0. Descriptive statistics used included frequencies, percentage, minimum, maximum, mean and standard deviation. The relationship between dependent and independent variables was tested using chi square. Logistic regression used to check for linear relationship and possible confounders. The p-value of less than 0.05 was considered statistically significant. Data were presented as figures such as bar graphs, histograms and tables.

Results: About half of participants 46% (52) had sexual dysfunction having scored below the cut off points of 26.5. A number of participants, 21% (23) never experience sexual desire. Sexual desire domain had the least mean, $3.27(\pm1.52)$ while sexual satisfaction domain had the highest mean of $5.12(\pm\mathbf{1.35})$. A significant relationship was seen between age and sexual arousal ($\chi2 =9.419$, df=2 and sig = 0.009).

On Quality of life, majority, 96.4% (108) scored above average (50%) with physical functioning having the highest mean of 95.80 (±14.41) and energy/fatigue having the lowest mean of 77.95 (±18.28). There was a significant relationship between DMPA contraceptive use and female sexual function (r=0.253, $\boldsymbol{\rho}<0.05$).

Conclusion: Female sexual function among DMPA users was found to be low. The most affected domain was sexual desire followed by sexual arousal. Participants enjoyed a favourable quality of life despite the sexual dysfunction.

Recommendations: Assessing of Female sexual function should be incorporated as part of comprehensive and holistic health care given to women of reproductive age using DMPA.

Sexuality counselling by service providers should be done in order for the women to make informed choice when opting for DMPA as a contraceptive method. Sexual concerns should be addressed routinely by service providers as part of care given to women using DMPA to enhance method continuation.

CHAPTER ONE

1.1 Introduction and Background

Depot medroxyprogesterone acetate (DMPA) is one of the progestin only injectable used by women throughout the world and marketed as Depo Provera in Kenya. It a highly effective and popular contraceptive method used by women in Sub-Saharan Africa. It has more advantages than other contraceptive methods which include; easy to use, private and longer efficacy(Chaudhuri, Giri, Yadav, & Giri, 2015). Other non-contraceptive benefits are reduced incidence of sickle cell crisis, iron deficiency anaemia, symptoms of endometriosis and reduction in risk of endometrial cancer.

DMPA is the leading contraceptive used by women of reproductive age in Kenya due to its advantages. About 50% of Kenyan women using modern contraceptive methods use DMPA(Health, 2015).

Women using DMPA do experience various side effects mostly related to suppression of the ovarian estradiol production. They include changes in menstrual bleeding, headache, dizziness, mood swings, decrease sex drive, acne, breast tenderness and weight changes. Lower sexual drive, reduced lubrication and increased pain in DMPA users have been documented (Kariman, Sheikhan, Simbar, & Bahgban, 2017). These side effects are reversible upon discontinuation of the method.

DMPA effectiveness however has been questioned in relation to the effect on bone mineral density which may be associated with early onset of osteoporosis if used by adolescents before attainment of peak bone mass(Lange, Manos, Gothard, Lynette, & Bonny, 2016). DMPA use has also been associated with increased HIV acquisition and

WHO has placed its use under category two of medical eligibility criteria(Byrne et al., 2017).

Health providers and users' experiences on DMPA associated a number of side effects with DMPA use. These included increased menstrual bleeding, amenorrhea, decreased libido, weight changes, headaches and dizziness. Heavier or prolonged bleeding and decreased libido could disrupt marital relations and work patterns, making them less tolerated than other side effects. Amenorrhea was seen to be advantageous to women using DMPA (Tolley, Mckenna, Mackenzie, Ngabo, & Munyambanza, 2014).

Acceptability of DMPA method is influenced by all these side effects. Irregular bleeding is the leading cause of discontinuation rate in the first 12 months of use(Chaudhuri et al., 2015). This discontinuation rate influenced by these side effects has led to the focus on contraceptive research with little attention on how these side effects affect the user's sexual function and quality of life. Measures of disease status alone cannot fully describe personal burden of illness but should include psychosocial factors such as; apprehension, diminish cognition, functional impairment, difficulty in fulfilling personal and family responsibilities and financial burden.

Contraceptive choices made by women may have effects on their daily life and satisfaction besides providing pregnancy protection.

1.2 Problem Statement.

DMPA use rate in Kenya is still low with a prevalence of 26.4 % and a high discontinuation rate of 14.4% within 12 months for other reasons than conception. Contraceptive side effects and other health concerns are the most cited reasons for discontinuation. Menstrual irregularities at 27% topped the list and reduced libido at 13.3% (KDHS, 2014). Heavier or prolonged bleeding and decreased libido could

disrupt marital relations and work patterns, making them less tolerated than other side effects.

In a study done by world health organization (WHO) on causes and consequences of contraceptive discontinuation, evidence from 60 demographic and health survey indicated that at three months discontinuation, 51% or more were at risk of conception in Kenya(Ali, 2012).

Women's contraceptive choices and use are largely affected by their satisfaction with the specific method. Impaired sexual function can have damaging effects on self-esteem, sense of wholeness and interpersonal relationships of the woman. This might lead to familial discord and divorce. Awareness of contraceptive methods on sexual function and quality of life is an important factor for contraceptive use by couples (Molouk Jaafarpouri , Ali Khani, 2013).

DMPA discontinuation is passive since the woman only need not to come for revisit injection.There is limited data on this in Nakuru County Referral hospital with women reporting that they stopped coming for injection due to side effects. Purposive sampling used to choose the hospital.

1.3 Justification

Couples can only realize their reproductive goals when they use contraceptive methods consistently and correctly. Personal perception of women on how a contraceptive might affect their sexual health or quality of life can influence contraceptive decision making in either a positive or negative way.

Sexual satisfaction plays an important role in increasing health and quality of life while sexual dissatisfaction causes disharmony between couples resulting in doubts, loss of sexual desire and persistence of relationship.

Consistent and correct use of DMPA will not only prevent unintended pregnancy but will also reduce the contributing factors of maternal morbidity and mortality, ultimately improving maternal and Neonatal health. Contraceptive discontinuation also has a significant implication on population growth and country's overall economic development.

This study will also be in line with achieving sustainable development goal 3.1 and 3.7 which seeks to reduce maternal mortality and universal access to sexual and reproductive services including FP.

By knowing how DMPA affects sexual function and quality of life will equip service providers with adequate correct knowledge to enable family planning clients make informed choices thus decreasing the likelihood of discontinuation.

In Kenya, there are only a few studies on DMPA use addressing their effects on women's sexual function and quality of life.

1.4 Research Questions

1. How is the sexual function of women using DMPA visiting Nakuru county referral hospital FP clinic

2. What is the quality of life of women using DMPA visiting Nakuru county referral hospital FP clinic

3. What is the relationship between sexual function and quality of life of women using DMPA?

1.5 Objective

1.5.1 Broad Objective

The objective of the study was to assess the sexual function and quality of life among women using DMPA for contraception in Nakuru County referral hospital.

1.5.2 Specific Objectives

1. To assess the sexual function of women using DMPA attending family planning clinic.

2. To assess the quality of life of women using DMPA attending Family planning clinic.

3. To describe the relationship between sexual function and quality of life of women using DMPA attending family planning clinic.

1.6 Significance.

On academic literature the findings of the study will theoretically contribute immensely into a currently unexplored area of contraceptives and sexual function in Kenya. It will provide updated information on sexual function and quality of life among women using DMPA contraceptive.The findings will also be used to develop related policy and information to be shared with family planning clients. All these will ultimately improve the quality of FP services in Kenya thus increasing the uptake and working towards achievement of Sustainable Development Goal (SDG) three.

1.7Scope

The study focused on women using DMPA as a contraceptive method visiting Nakuru County Referral Hospital FP clinic.

1.8 Theoretical framework

Biopsychosocial model proposed by George L.Engel in 1977 is a concept for understanding health and illness, addressing biology, psychology and social factors. He believed that to understand and responds adequately to clients 'concerns, health care providers must simultaneously address biological, psychological and social dimensions.

World Health Organization (WHO) defines sexual health as "a state of physical, emotional, mental and social well-being in relation to sexuality, it is not merely the absence of disease, dysfunction or infirmity''. Health related quality of life is a multi-dimensional concept that includes domains related to physical, mental, emotional and social functioning. It focuses on the impact health has on a person's ability to live a fulfilling life(WHO, 2011).

 A healthy and satisfying sex life is an important component of overall well-being and quality of life for many women of reproductive age including DMPA users. Studies have shown strong positive association between female sexual function and health related quality of life.Sexuality is experienced and express in thoughts, fantasies, desires, beliefs, values, behaviours, practices, roles and relationships. Although sexuality includes all these dimensions, not all of them are always experienced or expressed. Sexuality is influenced by interaction of biological, psychological and socio economic factors (Higgins & Hirsch, 2008).

Biopsychosocial approach was used to assess both sexual function and quality of life among DMPA users. It recognizes that biologic, psychological, interpersonal and socio cultural factors can all affect female sexual function and in turn quality of life. Biologic factors include hormonal changes as in women using DMPA that affect libido while psychological factors include mood symptoms like anxiety and depression which are

side effects from DMPA use. Interpersonal factors include satisfaction in the woman's relationship with her partner and socio economic factors include woman's attitude to DMPA use and aging as well as religion, cultural and other social values regarding sex. The role of a partner is of equal importance in terms of availability, duration and quality of relationship and the general and sexual health of the partner. Feelings and emotions of both partners are strong predictors of sexual health (Rzo, 2016)(Bień, Rzońca, Iwanowicz-palus, Lecyk, & Bojar, 2017).

The biological aspect of quality of life concerns the fundamental and biological constitution of humans. When the formula for becoming a person has been realized in the structure of the human organism, then life is characterized by order, biologically, psychologically, socially and religiously understood in broad sense as what we belief about life and reality. Physical health reflect the state of biological information system and the quality of life lies in the conformity between the actual life lived and the formula of being a person.

When a woman uses DMPA, the hormones in it will influence her biological state of fertility and its side effects will in turn affect their psychology and social life.Researchers and healthcare providers should consider overall sexual health to help women maintain a satisfying sex life and improved quality of care illustrated below with examples.

BIOPSYCHOSOCIAL MODEL	
BIOLOGY (e.g. physical health ,medical problems, hormonal changes, medication)	PSYCHOLOGY (e.g. anxiety, depressive symptoms, stress, abuse, body image and fatigue)
SOCIOCULTURAL (e.g. sexual activity and expectation. Religion, education)	INTERPERSONAL (e.g. partner relationship, income)

Biopsychosocial model of female sexual function.Adapted from Rosen RC, Barsky JL.Normal sexual response in women.Obstetrics and gynecology clinics of N.America. 2006.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Depot medroxyprogesterone acetate (DMPA) is a long-acting progestin only injectable contraceptive. It is currently used by over 90 million women worldwide to overcome the inconvenience of daily compliance of contraception. Globally, it accounts for 6% of modern method contraceptive prevalence (MCPR) among women who are married or in union , 43% of MCPR in sub-Saharan Africa, 46% in Southern Africa and 49% in Eastern Africa (Jacobstein, Polis, & Epidemiological, 2014). It is the leading contraceptive used in Kenya by women with a prevalence of 26.4 % (KDHS, 2014). Majority of postpartum women, 61% by 9 months uses depot medroxyprogesterone acetate (Achwoka et al., 2017).

2.2 Mechanism of Action of Depot Medroxyprogesterone Acetate.

DMPA is a highly effective contraceptive with a failure rate of 0.3% when perfectly used. It is easy to use and private, given every three months hence only four injections per year (WHO, 2011)(Chaudhuri et al., 2015)(P D Blumenthal & Voedisch, 2017). DMPA comes in an aqueous microcrystalline suspension of a synthetic progestin which is administered by deep intramuscular injection at a dose of 150 mg every 12 weeks and a special formulation DMPA- SC (subcutaneous) dose meant for subcutaneous injection (WHO, 2011). The subcutaneous preparation delivers a 30% lower total dose (104 mg) than the intramuscular preparation (150mg) but has been shown to suppress ovulation for at least 13 weeks, without being affected by body mass. Pharmacologically, active level of DMPA is achieved within 24 hours after injection, and serum concentrations of 1 mg/ml are maintained for three months (Halpern, Combes, Dorflinger, Weiner, & Archer, 2014). It acts by inhibiting ovulation

through suppression of follicle-stimulating hormone (FSH) and Luteinizing hormone (LH) levels thus eliminating the LH surge resulting in a hypo estrogenic state (WHO, 2011).

2.3 Benefits of DMPA

Established benefit for DMPA is amenorrhea or hypomenorrhoea and endometrial protection. It may improve conditions such as menorrhagia, dysmenorrhea, iron deficiency anaemia and may be of particular benefit for women with menstrual cycle related disorders, such as premenstrual syndrome or migraine headaches. Other possible benefits are reduction in sickle cell crises, epileptic seizures and endometriosis (Bakry, Merhi, Scalise, Mahmoud, & Fadiel, 2008)(Haider et al., 2009).

2.4 Side effects of DMPA

Sexual acceptability of depot medroxyprogesterone acetate is likely to vary according to the woman's experiences and tolerance for side effects. Irregular bleeding is the most commonly cited reason for discontinuation (Wanyonyi, Stones, & Sequeira, 2011a)(Chaudhuri et al., 2015). According to a study done by Ava on body weight and body composition 2014, irregular bleeding, spotting and longer duration of bleeding occurred within three months of use together with weight gain. Amenorrhea occurs in approximately 70% of DMPA user(Ava, Bahamondes, Bahamondes, Bottura, & Monteiro, 2014). The same was also found by Chaudhuri on acceptability of DMPA study (Chaudhuri et al., 2015). Several studies have documented a decrease in libido with Depoprovera use, breast tenderness and sexual pain (Wanyonyi, Stones, & Sequeira, 2011b)(Kariman et al., 2017)(Giti Ozgoli , Zohre Sheikhan , Mahrokh Dolatian , Masoumeh Simbar , Maryam Bakhtyari, 2015)(Chaudhuri et al., 2015).

Depoprovera has also been associated with negative changes in mood and weight gain (Wanyonyi et al., 2011a)(Chaudhuri et al., 2015), both of which could shape women's sexual well-being. Lack of sexual desire and sexual dysfunction was higher in DMPA users when compared to use of the copper IUD. Some studies have shown that progestin in DMPA decrease interest in sex(Desire & Contraception, 2017)(Device & Saptatangtrakul, 2016).

Reduced bone mineral density and early osteoporosis in adolescents has been associated with Depoprovera use. Although results are still not conclusive, it has been a major concern with clinicians(Modesto, Bahamondes, & Bahamondes, 2015)(Lange et al., 2016). It has also been associated with HIV acquisition especially in the burden Sub Saharan Africa from a recent randomized study (Walong, 2016).

Side effects are not experienced in isolation but rather as a constellation of factors including weight gain, changes in body image, unpredictable bleeding and emotionality. All these factors can bring changes in sexual desire or libido. When women engage in sexual activity they do so for other sexual, psychological, and relational reasons hence they want their contraceptives to align with these reasons and goals(P D Blumenthal & Voedisch, 2017).

2.5 Discontinuation of DMPA

Unintended pregnancy remains an alarming global public health problem, a personal and socioeconomic challenge for individuals, families and society (Paul D Blumenthal et al., 2013)(P D Blumenthal & Voedisch, 2017). Adequate counselling, informed choice of method, easy access and good follow up are found to be associated with continued use and method satisfaction (Jalang, Thuita, Barasa, &Njoroge, 2017). The critical issue for couples and service providers is how long do women continue to use a

method when faced with side effects or other related problem and how many women switch to another method or abandon contraception altogether and suffer consequences of unplanned pregnancy.

In a review of evidence from 60 demographic health surveys, method-related dissatisfaction was the most common reason for discontinuation for all methods. DMPA users reported the highest likelihood of discontinuing with 35% by the end of the first year and rising to 51% by the end of the second year. In Kenya, discontinuation at three months was 51% or more were at risk of conception(Ali, 2012). Contraceptive side effects and other health concerns are the most cited reasons for discontinuation with irregular bleeding topping in Kenya(KDHS, 2014)(Wanyonyi et al., 2011b). Increased risk of unintended pregnancy often follows contraceptive discontinuation especially when women who discontinue do not subsequently obtain another effective contraceptive method on time. In most countries around 40 % of women do switch to an alternative methods leaving a large proportion to be exposed to risks of unintended pregnancy(Ali, 2012).

One way of dealing with high rates of discontinuation is improving service quality especially counselling women on side-effects and reassuring them about their health concerns. Counselling helps women make informed choices about family planning methods. By providing evidence-based and up-to-date information to women they will be able to choose a contraceptive method that they will feel most comfortable with(Chaudhuri et al., 2015). Well informedwomen are more likely to be satisfied and continue longer with the method chosen. A current Kenya national guideline on FP emphasizes provision of counselling throughout the continuum of care which include; antenatal care (ANC), intrapartum, at each postnatal (PNC) visit and as integrated within HIV service provision (Health, 2015).

2.6 Factors affecting sexual function in women.

Female Sexual function varies between women and within the same woman. Sexual function is a common multi-dimensional problem affecting women and is associated with multiple biological, medical, psychological, socio cultural, political, economic and interpersonal factors. Increasing age in women, lower educational level, depression, menopause, presence of sexual dysfunction in partner and contraceptive use are associated with lower sexual function (Eriksson, Larsson, Skoog Svanberg, & Tydén, 2013)(Kingsberg, 2015)(Pfaus, Jones, Neurobiology, Flanagan-cato, & Blaustein, 2015).Psychosocial factors, symptoms and the menopausal transition affect women's sexual functioning especially during their mid-life years. Sexual responsiveness is the result of an interaction between psychosocial, physical and relationship factors. Psychological factors include the following among many; depression, anxiety, medications for their treatment while relationship factors include chronic stress or fatigue, gender or sexual identity issues (Molouk Jaafarpouri , Ali Khani, 2013).

There are multiple models describing a healthy sexual response with revised Kaplan model having three stages: desire, excitement and orgasm

Approximately 40% of women not on contraceptivesover the course of their life time experience some type of sexual problem with lack of sexual desire being the most prevalent dysfunction across all ages. These women may report little or no interest in sex despite existence of a good relationship with her partner. When these occurs, it will have major implications on woman's quality of life, sense of well- being and interpersonal relationships (Kingsberg, 2015).

On risk factors for individual domain, relationship factors had substantial impact on female sexual function. Women's lubrication problem and sexual pain were relatedpredominantly with biological. In others studies relationship factors was associated with low desire than age or menopause whereas physiological and psychological factors were more important than low genital arousal and low orgasmic function than relationship factors. Psychological and relationship factors were associated with sexual distress(Kingsberg,2015)(Pfaus,Jones, Neurobiology, Flanagan-cato, & Blaustein, 2015)

2.7 DMPA and Female Sexual Function

Sexual functioning is a complex of physical and emotional responses coordinated by neurologic, vascular and hormonal systems. It is one of the important components in family life and awareness of sexual function by the couple using DMPA contraceptive method is equally an important factor for contraceptive use. When sexual dysfunction occurs in an individual, devastating impact on mental health, self-esteem, social denial, interpersonal relationships and marriage problem often result (Umran, 2016).

Several factors including aging, health status, hormones, personal experience, stress, cultural condition, religious beliefs, and couple's relationship affects sexual functioning. A problem in one or more of the above factors may lead to sexual dysfunction. In family planning service delivery, the possible effects of contraceptive methods on sexual function and sexual life should be considered (Device & Saptatangtrakul, 2016).

The mechanism of action of DMPA is suppression of gonadotropin secretion. When this occur decrease in luteinizing hormone results in ovulation inhibition whereas the decrease in follicle stimulating hormone results in systemic hypo estrogenic state. This systemic hypo estrogenic effect of DMPA results in atrophic vaginal mucosa, vaginal

dryness and dyspareunia (Giti Ozgoli , Zohre Sheikhan , Mahrokh Dolatian , Masoumeh Simbar , Maryam Bakhtyari, 2015). Sexuality encompasses a wide range of experiences from a more immediate physiological functioning and sensation to a broader satisfaction with one's sexual self and life(Davis, 2015). More immediate aspects of sexual functioning in a woman include; wantedness or desire for sexual activity, her ability to begin and sustain arousal, sufficient lubrication, experience orgasm, enjoy the actual sensation of sexual activity and minimize sexual pain and discomfort. Acceptance and success rate of contraceptive use in women can be affected by sexual dysfunction. Difficulty experienced during any stage of the normal sexual activity prevents the individual or couple from enjoying sexual activity. The stages are; desire, arousal, and orgasm. Obesity, spotting and delay in return to fertility can psychologically affect women thus affecting sexual activity. A study done by Saptatangtrakul Y, et al. on Sexual Function in Women using DMPA Injection and Copper Intrauterine Device found no significant difference between DMPA and copper IUD users. When each individual domain of sexual function was considered in women using DMPA, the highest prevalence of sexual dysfunction was noted in sexual desire followed by arousal and orgasm(Device & Saptatangtrakul, 2016).

In a study done by Casey, the frequencies of sexual activity and sexual enjoyment were positively correlated with contraceptive satisfaction. Diminished sexual function perceived to be related to contraception may lead to none use of effective contraception thus leading to unintended pregnancy(Casey, Maclaughlin, Faubion, & Al, 2016). Acceptability of contraceptives today depends not only on limited or absent side effects but also on the quality of sexual life. Service providers need to openly discuss with women their sexual function(Casey et al., 2016). Women should be assisted to chose a contraceptive which is not only effective in preventing pregnancy but also emotionally

and sexually friendly with their lives (Kariman et al., 2017).

Sexual experience can be also affected indirectly by less sexual inhibition when the woman is protected from unintended pregnancy leading to sexual confidence and enjoyment (Kariman et al., 2017). Inhibition of ovulation by DMPA can improve painful gynaecologic conditions like endometriosis, dysmenorrhea, and ovarian cysts certainly leading to improved physical appearance and sexual functioning(Davis, 2015). Menstrual' changes can affect women's sexual expression either positively if bleeding is decreased or negatively with increased or unpredictable bleeding. Some women in some cultures or religions will avoid vaginal intercourse or other genital contact when they are bleeding or spotting(Burrows, Basha, & Goldstein, 2012). When this happens, will lead to reduced interest in sex and the only way is to discontinue the method. Those women who don't like sexual activity will take advantage of the situation.

Weight gain in DMPA users is likely to be attributed to their contraceptive method more than lifestyle factors and if woman not comfortable can distract her ability to feel desirable and enjoy sex(Ava et al., 2014). The woman's feelings on her body weight matters a lot and satisfaction with one's body is strongly associated with sexuality related outcomes than actual body size. Similarly negative sexual changes is likely to be attributed to the method more than relationship, life stress, health or other external factors(Davis, 2015).

One study of DMPA users found evidence of decreased libido in approximately 1 in 4 users returning for their second injection after three months(Desire & Contraception, 2017). In contrast, a study of Chinese women found that injectable contraceptive was not significantly related to sexual functioning or overall quality of life. Also a study done by Wanyonyi found no difference in quality of life and sexual function of DMPA users(Wanyonyi et al., 2011b). Other several studies have found sexual dysfunction on

DMPA users to be higher than other methods(Device & Saptatangtrakul, 2016)(Desire & Contraception, 2017)(Davis, 2015).

2.8 Factors affecting quality of life in women.

Quality of life is an individual perception of their position in life in context of the culture and value systems in which they live, in relation to their goals, expectations, standards and concerns. It's regarded by health professionals as a reflection of an individual health, comprising their physical, psychological and social well-being. Based on WHO definition, factors comprising of individual's quality of life are; physical health, psychological conditions, independence, relationship with others and the environment one lives (Rzo, 2016)(Bień, Rzońca, Iwanowicz-palus, Lecyk, & Bojar, 2017). It is a dynamic condition that responds to life events. A job loss, illness or other upheavals can change one's definition of quality of life rather quickly and dramatically.

A narrative review by Marcel found four broad dimensions in quality of life to include; physical health, mental health, social health and functional health which are frequently incorporated. Physical health include somatic sensation, disease symptoms and treatment of side effects while mental health ranges from a positive sense of wellbeing to non pathological forms of psychosocial distress. Assessment of both quantitative and qualitative aspect of social contacts and interactions done are all included in social health. Physical function includes self care, mobility and physical activity level, and social role functioning in relation to family and work. The Women's International Study revealed that women with hypoactive sexual desire disorder had decrements in their mental health' domain. These women were more likely to report feeling of frustration, anger, hopelessness, loss of feminity and decreased self-esteem (Kingsberg, 2015).

2.9 DMPA and Quality of Life.

Quality of life is an elusive concept approachable at varying levels of generality from the assessment of societal or community wellbeing to the specific evaluation of the situations of individuals or groups. Sexuality is an inseparable part of the human life and a healthy sexual life is one of the most important parameters of health and quality of life (Umran, 2016).

Decision and choice made by women to use hormonal contraception is largely affected by the method satisfaction. This method satisfaction is influenced by their subjective experience and impact on their quality of life' as well as female sexual function. The safety and efficacy of DMPA together with its non-contraceptive benefit provide a relaxed enjoyable sexual experience to the woman hence may improve the quality of life. Side effects like irregular bleeding , weight gain, reduced libido and delayed in fertility return will impact negatively on quality of life and relationship (Carlo et al., 2014).

When introducing hormonal contraceptive methods to women, emphasis on their adverse effects on sexual function should be done by service providers. This will, in addition to preventing negative outcomes such as unintended pregnancy, they can improve the quality of sexual relations and sexual satisfaction (Giti Ozgoli , Zohre Sheikhan , Mahrokh Dolatian , Masoumeh Simbar , Maryam Bakhtyari, 2015).

Sexual desire is at its peak between 20 and 40 years of age then declines beyond that. Decreased sexual desire is common among women of all ages and can have negative effects on overall wellbeing thus affecting their quality of life (Kingsberg, 2015).

CHAPTER THREE

METHODOLOGY

3.1 Overview

This chapter describes the research design, the study area, study population, target population, sample population, sampling procedure, data analysis, pilot study and data analysis.

3.2 Research Design

The study employed descriptive cross sectional design to assess the quality of life and sexual function among women using DMPA for contraception in Nakuru County referral hospital. In this type of design, the researcher gets detailed information with regard to quality of life and sexual function among DMPA users at a given time.

3.3 Study Area

The study was carried out at Nakuru County Referral Hospital formally known as Nakuru Provincial General Hospital FP clinic. Nakuru county hospital is the 4th largest government referral hospital serving most of the counties in south and central Rift Valley and neighbouring sub counties. The hospital serves a population of approximately 3.6 million and also serves as a teaching facilities for medical undergraduate and post graduate students. FP clinic operates five days in a week from Monday to Friday 8.00am to 5.00pm. On average about 2,000 DMPA users are attended to yearly (Hospital records)

3.4 Study Population

The study population consisted of women of reproductive age between 18- 49 years.

3.5 Target Population

The target population was made up women using Depoprovera contraceptive attending FP clinic in Nakuru county referral hospital

3.6 Eligibility Criteria

3.6.1 Inclusion Criteria

Women of reproductive age;

- i. 18-49 years
- ii. DMPA users of at least the last 6 months
- iii. Sexually active

3.6.2 Exclusion criteria

Women of reproductive age;

- i. Taking medication for any medical condition
- ii. Suffering from chronic illnesses

3.7 Sample Size

Sample size was determined using the Yamane's formula method when the target population (N) is known (Reid & Bore, 1991).

On average about 2000 DMPA users are seen yearly in Nakuru County Referral hospital FP clinic. Sample size for this population was calculated using monthly averages of 167 DMPA users to get the required sample size.

$$\frac{N}{1 + N(e)^2}$$

N is the known population and e is the standard error which is 0.05 (5%)

$$\underline{N1} \qquad \underline{167} \qquad = 118 + 12 (10\%) \quad = 130$$

$$1+ N1(e)^2 \qquad 1+167(0.05)^2$$

A total of 130 DMPA users participated in the study.

3.8 Data collection

Nakuru County referral hospital FP clinic operates 5days in a week

Data were collected for a period of one and half months which was 30 working days with an average of 5 participants per day. During data collection, between 4-6 participants filled the questionnaire per day enabling us to achieve our sample size of 130.Respondents took 30-45 minutes to complete the questionnaire.Data collection done between January and February 2019

3.9 Sampling Procedure

Systematic sampling method was employed for DMPA users visiting FP clinic. This ensured that equal chances of selecting respondents was observed and identification of eligible women to participate in the study. To identify the first client simple random sampling was used. A Kth factor of 2 was used and every second DMPA users visiting FP clinic were screened for inclusion into the study and if not meeting the criteria next was picked.This method was used until adequate sample size was achieved.

3.9.1 Data Collection Tools

The research tools were a three part questionnaire voluntarily and anonymously filled in by the respondents of the research. The questionnaire comprised a general part concerning socio-demographic conditions and a part dealing with Depoprovera duration and side effects. The second part dealt with self-evaluation inventories on the Female Sexual Function Index (FSFI) and finally on short form-36 health survey (SF-36)

Female Sexual Function Index (FSFI) is a multidimensional self-evaluation instrument for all spheres of female sexual functions. It evaluates areas of sexual desire, sexual arousal, orgasm and sexual satisfaction within the previous 4 weeks. In regard to validity, sensitivity, reliability, internal consistency, stability and test –retest reliability, FSFI has been used in diagnosis of disorders in female sexual function with a correlation of 0.83 and higher (Meston, 2003).Score range from 2 to 36 and a total score of 26.55 is a cut score for differentiating women with and without sexual dysfunction (Wiegel, Meston, & Rosen, 2005).

Short Form-36 Health Survey (SF-36) is a standard diagnostic tool evaluating various aspects of the quality of life connected with health over the previous 4 weeks also.

SF-36 has 36 questions grouped into 8 categories: general health, health change, physical functioning, role physical, role emotional, social functioning, bodily pain, vitality and mental health. These categories are grouped under two collective headings of physical health and mental health. Its usefulness has been approved in over 130 different clinical conditions. Validity, sensitivity, reliability, internal consistency and stability as well as test-retest reliability coefficient between 0.7 and 0.9 have been confirmed and documented(Carol Fawkes, 2013).Total score range from 0 to 100 and 50 is average.

3.9.2 Pilot study

Before data collection, the questionnaire was pretested on 13 DMPA users. The pilot study was conducted in Nakuru county referral hospital FP clinic before actual data collection. DMPA use has a return date of three months hence those who participated did not participate in main research. The investigatorassessed comprehension, acceptance and feasibility of the study. No changes made to data collection tools

3.10. Data Management

Data collected was checked and coded. Database was created using excel and exported to SPSS 23 computer software for analysis. Password used to restrict its access only to principle investigator. Data accuracy was maintained by double data entry into the excel database. The data was also saved in a flash drive for backup and hard copies kept under lock and key

3.11 Data Analysis

The collected data were checked, coded and entered into access database and exported to SPSS computer software. The descriptive statistics were used to include measures for central tendencies such as the range, the standard deviation, the mean, the mode and the median as appropriate. Relationship variables were tested using chi square and logistic regression. Chi square was used to check for the relationship between sexual function and quality of life among women using DMPA. The cut off points for sexual function was 26.55 while for quality of life was 50. Logistic regression was used to check for linear relationship and possible co-founders by use of linear regression and multivariate regression respectively. A p - value of < 0.05 was considered significant. Data were presented as figures such as bar graphs, histograms and tables.

3.12 Ethical Considerations

Permits: Ethical approval was obtained from the Institutional Research and Ethical Committee (IREC) of Moi University, Eldoret. Permission was also sought from Nakuru County Referral Hospital Training and Research committee.

Consent: Voluntary and informed consent was obtained from all the study participants. Only individuals who freely consented were allowed to participate in the study and no one was coerced to participate.

Confidentiality and Anonymity: The questionnaires were anonymous bearing only numbers. All data collected were kept in a locked file cabinet and only the researcher had access to it.

3.13 Dissemination plan

The results of this study will be presented to faculty members of Moi University for the study was a partial fulfilment of a master's degree. The administration of Nakuru County Referral Hospital will also get the study results to share with FP service providers. The results also will be presented in midwifery and Reproductive health conferences and will be published in midwifery journal

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the results of this study based on the objectives. The general purpose of the study was to assess the quality of life and sexual functions among women using DMPA in Nakuru county referral hospital FP clinic. This chapter presents the findings and analysis of the variables involved in the study.

4.2 Response Rate

Response rate is the quantity of individuals with whom semi-structured questionnaires were appropriately filledpartitioned by the aggregate number of individuals in the whole sample. Out of 130 questionnaires issued to respondents, 112 were completely filled. Participants cited time used to fill the questionnaire to be long. The response rate was 86.2%.

4.3 Demographic characteristics of the Respondents

Characteristics of respondent were as presented in table 4.1 below.

Table 4.1Demographicsof respondents

	Frequency	Percent
Age		
19-29	75	67
30-39	33	29.5
40-49	4	3.6
Level of education		
Primary	41	36.6
Secondary	50	44.6
College/university	21	18.8
Marital status		
Single	6	5.4
Married	106	94.6
Religion		
Protestant	84	75.0
Catholic	28	25.0
Source of income		
From employment	14	12.5
Remittance from kin	39	34.8
Business	59	52.7
BMI		
Underweight	4	3.6
Normal	63	56.3
Overweight	35	31.3
Obesity	10	8.9
Living children		
0	2	1.8
1	42	37.5
2	31	27.7
3	23	20.5
4	10	8.9
5	4	3.6

Concerning the number of miscarriages, most 98(87.5%) of the respondents had not experienced any, 12(10.7%) had one miscarriage while 2(1.8%) had two miscarriages. Respondents were also asked to state the number of children they would desire to add and the results shows that 29(25.9%) said none meaning they were satisfied with number of children they had, 68(60.7%) stated that they would increase between 1-3 children and 15(13.4%) would increase another 4 and more children.

4.4: Use of DMPA

On reasons for choosing DMPA, the study results shows that 59(52.7%) was because of convenience, 5(4.5%) efficacy, 3(2.7%) lack other preferred method, 4(3.6%) medical advice, 2(1.8%) peer advice, 37(33.0%) trial method and 2(1.8%) were spouse' choice as shown in figure 4. 1 below.
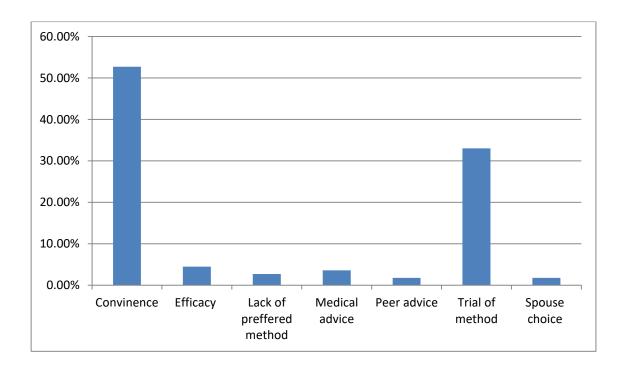

Figure 4.1: Reasons for choosing DMPA.

Respondents were also asked to state the undesirable side effects they have experience during the past 6-12 months and the results shows that 23(20.5%) had irregular menstruation and spotting, 10(8.9%) had reduced libido, 20(17.9%) had weight gains, 9(8%) felt arching joints and muscles, 4(3.6%) had nausea, 1(0.9%) had mood swings, 42(37.5%) had no effects and 3(2.7%) felt other effects not stated as shown in figure 4.2.
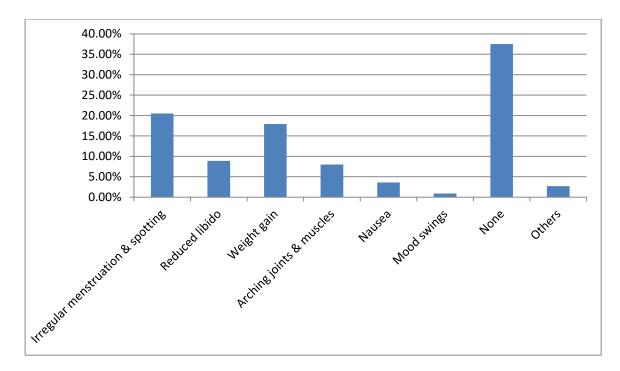

Figure 4.2: Side effects experienced by DMPA users

On othercontraceptives used before, 58(51.8%) used DMPAonly,,35(31.3%) had used combine oral and other methods as shown on figure 4.3 below.
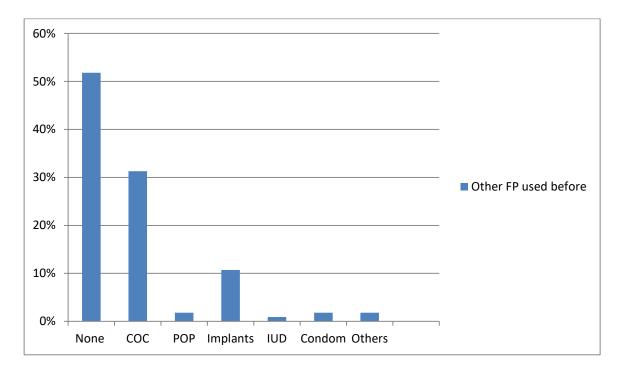

Figure 4.3 Othermethods of contraception used before by respondents
Majority of respondents,90(80.4%) were satisfied while 22(19.6%) were unsatisfied with DMPA use. On smoking only 2(1.8) smoked tobacco.

Specific objective one; To Assess theSexual Function of Women Using DMPA Attending Family Planning Clinic.

Concerning the number of times one has sexual intercourse per month, the study results shows that 41(36.6%) had sexual intercourse 1-5 times a month while 71(63.4%) had sexual intercourse more than 5 times per month.

Sexual Desire

With respect to how often do they feel sexual desire or interest over the past 4 weeks, the results showed that 23(20.5%) almost never or never had sexual desire, 24(21.4%)

had the desire a few times (less than half the time) and 33(29.5%) felt the desire almost always or always as shown on table 4.2

Table 4.2: Sexual desire.

	Frequency	Percent
Almost never or never	23	20.5
A few times (less than half the time)	24	21.4
Sometimes (about half the time)	18	16.1
Most times (more than half the time)	14	12.5
Almost always or always	33	29.5
Total	112	100.0

With reference to degree of sexual desire, 30(26.8%) respondents rated the level of desire as very low or none at all, 46(41.1%) moderate, 8(7.1%) low, 22(19.6%) high and 6(5.4%) rated the level of desire as very high.

Sexual Arousal

The study results on table 4.3 shows that, 21(18.8%) felt sexually aroused almost never or never over the past 4weeks, 22(19.6%) felt sexually aroused a few times (less than half time) and 35(31.3%) felt sexually aroused almost always or always over the past 4 weeks as shown in table 4.3

Table 4.3:Sexual Arousal.

	Frequency	Percent
Almost never or never	21	18.8
A few times (less than half the time)	22	19.6
Sometimes (about half the time)	29	25.9
Most times (more than half the time)	5	4.5
Almost always or always	35	31.3
Total	112	100.0

On rating sexual arousal, 23(20.5%) rated sexual arousal as very low or none at all, 19(17%) low, 42(37.5%) moderate, 17(15.2%) high and 11(9.8%) rated sexual arousal as very high during sexual activity. Respondents were also asked the level of confidence with sexual arousal and the results were as follows in table 4.4 below.

Table 4.4:Level of confidence with sexual arousal.

	Frequency	Percent
Very low or no confidence	11	9.8
Low confidence	15	13.4
Moderate confidence	35	31.3
High confidence	34	30.4
Very high confidence	17	15.2
Total	112	100.0

About arousal satisfaction, the study results shows that 15(13.4%) were satisfied almost never or never, 20(17.9%) were satisfied a few times (less than half the time), 33(29.5%) were satisfied sometimes, 10(8.9%) were satisfied most times (more than half the time) and 34(30.4%) were satisfied almost always or always over the past 4 weeks during sexual activity.

Sexual Lubrication

With respect to sexual lubrication, the study results shows that majority 54(48.2%) becomes wet almost always or always as shown on table 4.5

Table 4.5: Sexual lubrication.

	Frequency	Percent
Almost never or never	4	3.6
A few times (less than half the time)	13	11.6
Sometimes (about half the time)	32	28.6
Most times (more than half the time)	9	8.0
Almost always or always	54	48.2
Total	112	100.0

Respondents were also asked how difficult it was to become lubricated during sexual activity, the study results show that 7(6.3%) said it was very difficult to become lubricated, 14(12.5%) said it was difficult, 31(27.7%) commented that it was slightly difficult and 60(53.6%) said that it was not difficult to become lubricated. On maintaining their sexual lubrication, results showed that 14(12.5%) almost never or never, 10(8.9%) a few times (less than half the time), 28(25%) sometimes (about half the time), 10 (8.9%) most times(more than half the time) and 50(44.6%) of the respondents maintain their wetness often.

On how difficult it was to maintain their lubrication during sexual activity, the study results show that 2(1.8%) said it was extremely difficult or impossible, 4(3.6%) said it was very difficult, 13(11.6%) said it was difficult, 37(33%) said it was slightly difficult and 56(50%) said it was not difficult to maintain wetness until completion of sexual activity.

Orgasm

About reaching orgasm, 8(7.1%) of the respondents almost never or never reach orgasm, 21(18.8%) reach orgasm a few times (less than half the time), 34(30.4%) reach orgasm sometimes (about half the time), 7(6.3%) reach orgasm most times (more than half the time) and 42(37.5%) reach orgasm almost always or always as shown on table 4.6 below.

Table 4.6: How often did you reach orgasm?

	Frequency	Percent
Almost never or never	8	7.1
A few times (less than half the time)	21	18.8
Sometimes (about half the time)	34	30.4
Most times (more than half the time)	7	6.3
Almost always or always	42	37.5
Total	112	100.0

On how difficult it was reaching orgasm, 3(2.7%) were extremely difficult or impossible to reach orgasm, 8(7.1%) very difficult to reach orgasm, 9(8%) just difficult, 41(36.6%) slightly difficult and 51(45.5%) had no difficultyreaching orgasm.

On satisfaction with orgasm, 6(5.4%) of the respondents very dissatisfied, 12(10.7%) moderately dissatisfied, 7(6.3%) equally satisfied and dissatisfied, 38(33.9%) moderately satisfied and 49(43.8%) very satisfied with their ability to reach orgasm during sexual intercourse.

Satisfaction

Concerning the emotional closeness during sexual activity between them and their partners, the study results shows that 4(3.6%) were very dissatisfied, 12(10.7%) were moderately dissatisfied, 2(1.8) were about equally satisfied and dissatisfied, 21(18.8%) were moderately satisfied and 73(65.2%) were very satisfied.

On satisfaction with sexual partner and sexual life, the results were as follows in table 4.7 below.

Table 4.7: Satisfaction with sexual partner and sexual life

	Percent-sexual partner	Percent-sexual life
Very dissatisfied	7.1	5.4
Moderately dissatisfied	7.1	8.0
About equally satisfied and dissatisfied	0.9	3.6
Moderately satisfied	17.0	30.4
Very satisfied	67.9	52.7
Total	100	100.0

Pain

Concerning the discomfort or pain during vaginal penetration, 16(14.3%) of the respondents almost or always felt pain, 4(3.6%) felt pain most times (more than half the time), 35(31.3%) felt pain sometimes (about half the time), 8(7.1%) felt the pain a few times (less than half the time) and 49(43.8%) almost never or never felt the pain as shown on table4.8.

Table 4.8:Discomfort or pain during vaginal penetration

	Frequency	Percent
Almost always or always	16	14.3
Most times (more than half the time)	4	3.6
Sometimes (about half the time)	35	31.3
A few times (less than half the time)	8	7.1
Almost never or never	49	43.8
Total	112	100.0

On rating the level of discomfort or pain during or following vaginal penetration, 4(3.6%) rated very high, 3(2.7%) rated just high, 36(32.1%) rated moderate, 17(15.2%) rated low and 52(46.4%) of the respondents rated very low or none at all from the past 4 weeks .

Sexual function score

On scoring all the domains, the study findings revealed that female who were below cut off points 26.55 were 52(46.4%) and those who scored above 26.55 were 60(53.6%) as shown below on table 4.9

Table 4.9: Sexual Function scores

Cut off points-26.55		Frequency	Percent	Valid Percent	Cumulative Percent
	Below 26.55	52	46.4	46.4	46.4
Valid	Above 26.55	60	53.6	53.6	100.0
	Total	112	100.0	100.0	

As presented in Table 4.10 below, there was a significant relationship between age and arousal.

Table 4.10:Age and sexual function.

Age in years	18-29 Years N(%)	30-39 Years N(%)	40-49 Years N(%)	
DESIRE				
Dysfunction	44(39.30%)	26(23.20%)	3(2.70%)	χ2 =4.26, df=2 and sig =
Function	31(27.70%)	7(6.20%)	1(0.90%)	0.119
AROUSAL				
Dysfunction	38(33.90%)	27(24.10%)	2(1.80%)	χ2 =9.41, df=2 and sig =
Function	37(33.00%)	6(5.40%)	2(1.80%)	0.009
LUBRICATION				
Dysfunction	21(18.80%)	9(8.00%)	0(0.00%)	χ2 =1.52, df=2 and sig =
Function	54(48.20%)	24(21.40%)	4(3.60%)	0.467
ORGASM				
Dysfunction	20(17.90%)	3(2.70%)	1(0.90%)	χ2 =4.23, df=2 and sig =
Function	55(49.10%)	30(26.80%)	3(2.70%)	0.120
SATISFACTION				
Dysfunction	12(10.70%)	5(4.50%)	0(0.00%)	χ2 =0.75, df=2 and sig =
Function	63(56.20%)	28(25.00%)	4(3.60%)	0.686
PAIN				
Dysfunction	25(22.30%)	16(14.30%)	1(0.90%)	χ2 =2.52, df=2 and sig =
Function	50(44.60%)	17(15.20%)	3(2.70%)	0.283

Specific objective two; To Assess the Quality of Life of Women Using DMPA Attending Family Planning Clinic.

With respect to their health, respondents rated their general health as excellent at 14(12.5%), very good at 37(33%), good at 51(45.5%) and 10(8.9%) said their health was fair as shown on figure 4.4

Figure 4.4: Respondent's General health

Compared to a year ago, 28(25%) said that their health was much better, 2(1.8%) said it was somewhat better, 57(50.9%) said it was about the same and 25(22.3%) said it was somewhat worse.

The study results on table 4.11 shows how respondents were limited on their daily activities. Over 92% of respondents were not limited at all.

Table 4.11:Limitation of daily activities

		Yes, limited a lot	Yes, limited a little	No, not limited at all	Total
Vigorous activities, such as running, walking faster , lifting heavy objects, farm activities	F	2	4	106	112
	%	1.8	3.6	94.6	100
Moderate activities, such as washing clothes, cleaning the house	F	2	6	104	112
	%	1.8	5.4	92.9	100
Climbing several stairs or a small hill?	F	7	0	105	112
	%	6.3	0	93.8	100
Climbing one stair	F	6	0	106	112
	%	5.4	0	94.6	100
Bending or kneeling	F	2	5	105	112
	%	1.8	4.5	93.8	100
Walking more than a mile or for 30 minutes	F	2	6	104	112
	%	1.8	5.4	92.9	100

Concerning respondent's problem with their work or other regular daily activities as a result of their physical health, the following statements in the table 4.12were disagreed.

Table 4.12: Problems with work or other regular daily activities as a result of physical health

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?		Yes	No	Total
Cut down the amount of time you spent on work or other activities	F	4	108	112
	%	3.6	96.4	100
Accomplished less than you would like	F	7	105	112
	%	6.3	93.8	100
Were limited in the kind of work or other activities	F	4	108	112
	%	3.6	96.4	100
Had difficulty performing the work or other activities (for example, it took extra effort)	F	6	106	112
	%	5.4	94.6	100

On emotional problems (such as feeling depressed or anxious), 107(95.5%) said that their social activities were not interfered with as shown below on table 4.13.

Table 4.13: Physical health or emotional problems interfering with social activities

	Frequency	Percent
Not at all	107	95.5
Slightly	1	.9
Quite a bit	2	1.8
Extremely	2	1.8
Total	112	100.0

In relation to bodily pain, the study results on table below 4.14shows that 81(72.3) being the majority did not have any pain while5(4.5%) had very severe body pain.

Table 4.14: Bodily pain

	Frequency	Percent
None	81	72.3
Very mild	5	4.5
Mild	9	8.0
Moderate	10	8.9
Severe	5	4.5
Very severe	2	1.8
Total	112	100.0

Respondents were asked how they felt on the following areas and results are as shown in table 4.15 below.

Table 4.15:respondents' Feelings

How much of the time during the past 4 weeks		All of the time	Most of the time	A good bit of time	Some of the time	A little of the time	None of the time	Total
Did you feel full of energy?	F	32	52	20	6	2	0	112
	%	28.6	46.4	17.9	5.4	1.8	0	100
Have you been a very nervous person?	F	0	0	3	5	8	96	112
	%	0	0	2.7	4.5	7.1	85.7	100
Have you felt so down in the dumps that nothing could cheer you up?	F	0	0	2	5	6	99	112
	%	0	0	1.8	4.5	5.4	88.4	100
Have you felt downhearted and depressed?	F	0	2	1	14	9	86	112
	%	0	1.8	0.9	12.5	8	76.8	100
Have you felt calm and	F	11	85	10	0	2	4	112

peaceful?	%	9.8	75.9	8.9	0	1.8	3.6	100
Did you feel worn out/	F	2	0	24	7	11	68	112
exhausted?	%	1.8	0	21.4	6.3	9.8	60.7	100
Have you been a happy person?	F	13	85	10	4	0	0	112
	%	11.6	75.9	8.9	3.6	0	0	100
Did you feel tired?	F	0	2	26	11	15	58	112
	%	0	1.8	23.2	9.8	13.4	51.8	100

Respondents were also asked how true or false the following statements in table 4.16were.

Table 4.16:TRUE or FALSE

		Definitely true	Mostly true	Don't know	Mostly false	Definitely false	Total
I seem to get sick a little easier than other people	F	0	4	5	38	65	112
	%	0	3.6	4.5	33.9	58	100
I am as healthy as anybody I know.	F	28	78	4	2	0	112
	%	25	69.6	3.6	1.8	0	100
I expect my health to get worse	F	0	4	13	38	57	112
	%	0	3.6	11.6	33.9	50.9	100
My health is excellent	F	35	69	4	4	0	112
	%	31.3	61.6	3.6	3.6	0	100

Majority of the respondents' 104(92.9%) indicated that their partner/ spouse were aware on their DMPA use (7.1%) their partners were not aware. In general21(18.8%) of

the respondents had some tension concerning their relationship while 91(81.3%) had no

tension.

Quality of life scores

On quality of life, the study findings revealed that respondents who were below average

of 50 were 4(3.6%) and those above averages were 108(96.4%) as shown in table 4.17.

Table 4.17: Quality of life score

Average --50		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below average	4	3.6	3.6	3.6
	Above Average	108	96.4	96.4	100.0
	Total	112	100.0	100.0	

The mean and standard deviation of sexual function and quality of life are shown below intable 4.18

Table 4.18: Mean and Standard Deviation of sexual function and quality of life

	N	Minimum	Maximum	Mean	Std. Deviation
Desire	112	1.20	6.00	3.2679	1.52139
Arousal	112	1.20	6.00	3.7179	1.48307
Lubrication	112	1.80	6.00	4.8161	1.13030
Orgasm	112	1.60	6.00	4.6536	1.20299
Satisfaction	112	1.20	6.00	5.1179	1.35209
Pain	112	1.20	6.00	4.5286	1.40754
Physical functioning	112	30.00	100.00	95.8036	14.41898
Role limitation-physical	112	.00	100.00	95.3125	17.92478

Role limitation-emotional	112	.00	100.00	94.3452	22.76590
Energy/Fatigue	112	40.00	100.00	77.9464	18.27657
Emotional wellbeing	112	56.00	100.00	88.5357	8.87950
Social functioning	112	30.00	100.00	88.5045	17.23401
Bodily pain	112	.00	100.00	89.3527	20.78078
General health	112	25.00	100.00	78.4821	14.36085
Valid N (list wise)	112				

Specific objective three; To Describe the Relationship Between Sexual Function and Quality of Life of Women Using DMPA Attending Family Planning Clinic.

Sexual function was significantly associated with quality of life as shown in table 4.19 DMPA users who had sexual function above average were more likely to have quality life 60(55.6%) as compared to those who had sexual function below average (p<0.05).**Table 4.19:Relationship between quality of life and sexual function of women using DMPA**

Quality of life	below average	Above Average	Statistical Test
Sexual function			
below average	4(3.6%)	48(42.9%)	X^2=4.786, 1df, P=0.029
Above Average	0(0.0%)	60(55.6%)	

Correlation analysis was performed to determine the correlation between the study variables. Pearson's product –moment correlation (r) was used to determine the relationship between sexual function and quality of life to assess both the direction and strength. Each of independent variables and dependent variable where correlation

coefficient (r=between +1 and -1) measures the strength and direction of a linear relationship between each of independent variables and dependent variable.

Table 4.20 shows the correlations analysis between the sexual function and quality of life. It revealed that desire has a strong positively and statistically significant (r=0. 663, p<0.05) with arousal, desire has a weak positive and statistically significant relationship (r=0.273, p<0.05) with lubrication. Desire has a moderate positive and statistically significant relationship (r=0. 309, p<0.05) with satisfaction. Desire has a weak positive and statistically significant relationship (r=0. 294, p<0.05) with fatigue. Desire has a weak positive and statistically significant relationship (r=0. 244, p<0.05) with emotional well being. Desire has a weak positive and statistically significant relationship (r=0. 244, p<0.05) with Social functioning. Desire has a weak positive and statistically significant relationship (r=0. 244, p<0.05) with bodily pain. However, desire didn't have a statistically significant relationship (p>0.05) with orgasm, pain, role limitation, Role limitation-emotional and General health.

Table 4.20: Correlation between sexual function and quality of life

		DESIRE	AROUSAL	LUBRICATION	ORGASM	SATISFACTION	PAIN	Role limitation, physical	Role limitation, emotional	Energy /Fatigue	Emotional wellbeing	Social functioning	Bodily pain	General health
DESIRE	Pearson Correlation	1	.663**	.273**	.153	.309**	.140	.166	.155	.294**	.244**	.279**	.247**	.104
	Sig. (2-tailed)		.000	.004	.107	.001	.140	.081	.103	.002	.010	.003	.009	.276
AROUSAL	Pearson Correlation	.663**	1	.249**	.162	.296**	.146	.139	.178	.178	.222*	.196*	.125	.265**
	Sig. (2-tailed)	.000		.008	.089	.002	.125	.145	.061	.061	.018	.038	.190	.005
	N	11	112	112	11	112	112	112	112	112	112	11	11	112

		2		.249**		2							2	2
LUBRICATION	Pearson Correlation	.273**	.249**	1	.421**	.362**	.364**	.011	.027	.081	-.118	.112	.147	.013
	Sig. (2-tailed)	.004	.008		.000	.000	.000	.912	.777	.394	.214	.241	.123	.889
ORGASM	Pearson Correlation	.153	.162	.421**	1	.689**	.225*	.076	.094	.114	.101	.161	.152	.249**
	Sig. (2-tailed)	.107	.089	.000		.000	.017	.424	.326	.229	.291	.091	.110	.008
SATISFACTION	Pearson Correlation	.309**	.296**	.362**	.689**	1	.443**	.098	.114	.226*	.217*	.224*	.134	.251**
	Sig. (2-tailed)	.001	.002	.000	.000		.000	.304	.231	.017	.022	.017	.159	.008
PAIN	Pearson Correlation	.140	.146	.364**	.225*	.443**	1	.081	.159	.424**	.214*	.344**	.170	.144
	Sig. (2-tailed)	.140	.125	.000	.017	.000		.397	.093	.000	.024	.000	.074	.131
Role limitation-physical	Pearson Correlation	.166	.139	.011	.076	.098	.081	1	.946**	.324**	.514**	.708**	.568**	.541**
	Sig. (2-tailed)	.081	.145	.912	.424	.304	.397		.000	.000	.000	.000	.000	.000
Role limitation-emotional	Pearson Correlation	.155	.178	.027	.094	.114	.159	.946**	1	.293**	.550**	.627**	.524**	.515**
	Sig. (2-tailed)	.103	.061	.777	.326	.231	.093	.000		.002	.000	.000	.000	.000
Energy/Fatigue	Pearson Correlation	.294**	.178	.081	.114	.226*	.424**	.324**	.293**	1	.611**	.777**	.443**	.565**
	Sig. (2-tailed)	.002	.061	.394	.229	.017	.000	.000	.002		.000	.000	.000	.000
Emotional wellbeing	Pearson Correlation	.244**	.222*	-.118	.101	.217*	.214*	.514**	.550**	.611**	1	.556**	.476**	.580**
	Sig. (2-tailed)	.010	.008	.214	.291	.022	.024	.000	.000	.000		.000	.000	.000
	N	112	112	112	112	112	112	112	112	112	112	112	112	112
Social func	Pearson Correlation	.279**	.196*	.112	.161	.224*	.344**	.708**	.627**	.777**	.556**	1	.516**	.621**

tion	Sig. (2-tailed)	.003	.038	.241	.091	.017	.000	.000	.000	.000	.000		.000	.000
Bodily pain	Pearson Correlation	.247**	.125	.147	.152	.134	.170	.568**	.524**	.443**	.476**	.516**	1	.545**
	Sig. (2-tailed)	.009	.190	.123	.110	.159	.074	.000	.000	.000	.000	.000		.000
General health	Pearson Correlation	.104	.265**	.013	.249**	.251**	.144	.541**	.515**	.565**	.580**	.621**	.545**	1
	Sig. (2-tailed)	.276	.005	.889	.008	.008	.131	.000	.000	.000	.000	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlation analysis was performed to determine the correlation between use of DMPA, Sexual function and Quality of life. It was revealed that Use of DMPA has a weak positive and statistically significant relationship (r=0.253, p<0.05) with sexual function however, there was no significant relationship between Use of DMPA and Quality of life (p>0.05). It was also revealed that there was a weak positive and significant relationship between quality of life and sexual function (r=0.207, p<0.05) as shown in table 4.21

Table 4.21: Correlation between Use of DMPA, Sexual function and Quality of life

Correlations				
		Use of DMPA	Sexual function	Quality of life
Use of DMPA	Pearson Correlation	1	.253**	.062
	Sig. (2-tailed)		.007	.516
	N	112	112	112
Sexual function	Pearson Correlation	.253**	1	.207*
	Sig. (2-tailed)	.007		.029

		112	112	112
Quality of life	Pearson Correlation	.062	.207[*]	1
	Sig. (2-tailed)	.516	.029	
	N	112	112	112
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Linear Regression Analysis Results of sexual function and use of DMPA

In this section the study presents the results of linear regression analysis which was used to determine the linear statistical relationship between sexual function and use of use of DMPA. The study results were presented in table 4.22

Table 4.22:Linear Regression Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.253[a]	.064	.055	.97385

Model Summary

Model summary provides the coefficient of determination (R^2) which shows proportion of the variance in the dependent variable that is predictable from the independent variable and correlation coefficient (R) shows the degree of association between the dependent and independent variables. The results in table 4.22 indicated that R^2 value was 0.064 and R value was 0. 253. R value gives an indication that there was a weak linear relationship between sexual function and use of DMPA. The R^2 indicates that explanatory power of the independent variable was 0. 064. This implies that about 6.4%

of the variation in sexual function was explained by use of DMPA as indicated in the regression model while 93.6% was unexplained by the model.

Adjusted R^2 is a modified version of R^2 that has been adjusted for the number of predictors in the model by less than chance. The adjusted R^2 of 0.055which was slightly lower than the R^2 value was exact indicator of the relationship between sexual function and use of DMPA because it is sensitive to the addition of irrelevant variables. The adjusted R^2 indicates that 5.5% of the changes in sexual function are explained by use of DMPA. This implies that use of DMPA has a weak effect on sexual function.

Model fitness

Table 4.23 below presents results on F test which provides an overall test of significance of the fitted regression model. The F value indicates that the variable in the equation is important hence the overall regression is significant. The overall regression model was significant because F-statistics produced (F-computed=7.105>F-tabulated) was significant at (p<0.05) thus confirming the fitness of the model. Therefore, there was statistically significant relationship between sexual function and use of DMPA.

Table 4.23: ANOVA Results

	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.105	1	7.105	7.492	.007[b]
Residual	104.323	110	.948		
Total	111.429	111			

Coefficient

Table 4.24 presented study results on statistical significance of regression coefficient. The β coefficients were all significant to be used for linear regression as follows; use of DMPA(β_1=0.305, p<0.05) has significant relationship with sexual function. This gives an implication that a unit increase in use of DMPA caused 0.305 unit change in sexual function. Therefore the linear regression model equation was developed from the coefficient as shown in equation 4.1;

Y= 1.282+ 0. 305X$_1$…………………..Equation 4.1

Table 4.24:Regression Analysis Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	1.282	.303		4.231	.000
use of DMPA	.305	.112	.253	2.737	.007

Linear Regression Analysis and model summary of quality of life and use of DMPA

Study results are presented in table 4.25, R^2 value was 0.004and R value was 0. 062. The R^2 indicated that explanatory power of the independent variable was 0. 004. This implies that about 0.4% of the variation in quality of life was explained by use of DMPA .The adjusted R^2 of -0.005 which was lower than the R^2 value was exact indicator of the relationship between quality of life and use of DMPA because it is sensitive to the addition of irrelevant variables. The adjusted R^2 indicates that -0.5% of the changes in quality of life are explained by use of DMPA.

Table 4.25: Linear Regression Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.062[a]	.004	-.005	.37379

Model fitness

The overall regression model was significant because F-statistics produced (F-computed=0.426<F-tabulated) was not significant at (p<0.05) thus confirming that the model was not fit. Therefore, there was no statistically significant relationship between quality of life and use of DMPA as in table 4.26

Table 4.26: ANOVA Results

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.059	1	.059	.426	.516[b]
Residual	15.369	110	.140		
Total	15.429	111			

Coefficient

Table 4.27 shows that, use of DMPA (β_1=0. 028, p>0.05) has no significant relationship with quality of life.

Table 4.27: Regression Analysis Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.856	.116		24.568	.000
DMPA	.028	.043	.062	.652	.516

CHAPTER FIVE

DISCUSSION

5.1Introduction

This chapter will discuss the findings of the study. The purpose of the study was to assess the quality of life and sexual function among DMPA users in Nakuru County Referral Hospital. The discussion has been done in sections according to the objective of the study

5.2Demographic characteristics

Majority of our respondent (67%) were young adults of between 18-29 years who have been in the relationship for less than 5 years (59.8%). Our study considered all level s of education with highest percentage (44.6%) having attained secondary level and earned their living through business and remittance from kin (52.9% and 34.8% respectively). On body mass index, 31.3 % were overweight and 8.9% obese. Although some studies(Chaudhuri et al., 2015), have associated DMPA with weight gain, our study could not verify this.A study done by Ava on body weight and body composition 2014,found weight gain within three months of use (Ava, Bahamondes, Bahamondes, Bottura, & Monteiro, 2014).

On DMPA use, the method was mainly chosen for its convenience (52.9%) in that it is given every three months with some choosing it as a trial of method (33%). Majority of our respondents were contraceptive naïve and had used DMPA for less than one year. This results was in agreement with studies by Wanyonyi 2011 and Chaudhuri 2015 discontinuation (Wanyonyi, Stones, & Sequeira, 2011a)(Chaudhuri et al., 2015).

On cross tabulation of age and sexual function, our study found a significant relationship (p =0.009) between arousal and age of the respondents. Those between 18-40 years were more likely to have arousal disorder than those of 40 years and above.

Sexual desire which leads to arousal peaks between 20-40 years hence we attributed the significant relationship to use of DMPA. Aging can also affect sexual desire and previous studies have shown highest prevalence with middle aged women. Genital sensation may change requiring stronger and longer stimulation to achieve arousal as a result of low oestrogen levels. This was contrary to our study whereby majority of DMPA users with desire and arousal dysfunction were of young age of between 18-29 years.

5.3 Female sexual function

The first objective of the study was to assess the sexual function of women using DMPA attending family planning clinic. Sexual function was evaluated in terms of the six domains which include: sexual Desire, Arousal, Lubrication, Orgasm, Satisfaction and Pain. Sexual functioning is an important component in family life. Immediate aspect of sexual functioning includes a woman's desire for sexual activity, her ability to begin and sustain arousal, produce sufficient vaginal lubrication, experience orgasm, enjoy the actual sensation of sexual activity and minimize discomfort or sexual pain.

This study noted that desire domain had the lowest mean score followed by arousal with mean score 3.3 ± 1.5 and 3.7 ± 1.5 respectively. This figure was the lowest mean scores of individual domains which are desire and arousal. Two items in FSFI questionnaire, frequency and degree of sexual desire over the past 4 weeks are assessed. In order to get a score of 3, the woman should feel sexual desire about half of time and have moderate degree of sexual desire. There are no cross sectional studies done in Kenya to compare with, there are only few prospective studies about sexual function in DMPA (Wanyonyiet 2011) and quite a number globally.

Forty twopercent of the respondents almost never or a few times felt sexual desire and when asked to rate the degree 67.9% rated sexual desire to be very low or moderate. Absent or low desire represents an important problem that has major implications for women quality of life, sense of well-being and interpersonal relationship. This finding poses a major concern and implies that, DMPA could affect the sexual function of women. This findings agrees with that of Device and Saptatangtrakul (2016) who observe that when each individual domain of sexual function was considered in women using DMPA, the highest prevalence of sexual dysfunction was noted in sexual desire followed by arousal and orgasm.This view is also in line withKariman et al., (2017) who recommended that women should be assisted to choose a contraceptive which is not only effective in preventing pregnancy but also emotionally and sexually friendly with their lives.

Arousal was the second lowest domain whereby 18.8% reported that they never felt sexually aroused and 19.6% having felt sexually aroused only few times. This view could be attributed to the effect of the DMPA on sex hormone. This finding concur with studies by Device and Saptatangtrakul (2016) who have shown that progestin in DMPA decrease interest in sex.

This study found that majority of women using DMPA, (37.5 %) were not receiving their menses while 34.8% skipped some months. This could have affected their sexual desire or sexual enjoyment through unexpected bleeding. This was similar to studies done by Wanyonyi et.al 2011.

Stressor of life such as financial hardships, career related pressure and familial obligations can also contribute to decreased sexual desire. In our study majority of the women (52.7%) earned their living from business and 34.8% dependent on their kin's

remittance. Relationship with the partner can also affect desire and arousal; however, 81.3% of our respondents had no tension in their relationship.

As regards to lubrication, orgasm, satisfaction and pain, this study found these domains to be favourable to DMPA users similar to other studies.

The highest score was in satisfaction domain with a mean of 5.1 ± 1.4. Despite lower sexual desire and arousal, women in this study had good satisfaction in sexual function.We attributed this to relax mind of the respondent on prevention of unwanted pregnancies contrary to Saptatangtrakul and Molouk who attributed this to culture and lifestyle. Several studies are in agreement with our findings.(Kariman et al., 2017)(Giti Ozgoli , Zohre Sheikhan , Mahrokh Dolatian , Masoumeh Simbar , Maryam Bakhtyari, 2015)(Device & Saptatangtrakul, 2016).

We also attributed this to Kenyan cultural and religious beliefs whereby sexual activities are not discussed but assumed. Sixty eight percent of the women reported being satisfied with the sexual relationship with the partner. In a qualitative study by Elizabeth (2014) on preferences for injection (DMPA) in Kenya and Rwanda, women reported that side effects were acceptable as long as they did not last a long time or disrupt daily activities.

The possible effect of DMPA on sexual function and sexual life in FP service should be considered. In our study 46.4% of the respondents scored below the cut-off points of sexual function classifying them as having female sexual dysfunction. This result also is in agreement with the study done by Molouk (2013) on female sexual dysfunction prevalence and risk factors whereby 46.2% had sexual dysfunction with sexual desire having the least score. A study done by Kariman (2017) on sexual dysfunction in COC and DMPA, found 39.2% of DMPA users having sexual dysfunction. They noted that

sexual dysfunction prevalence was higher in DMPA users than COC users and attributed this to sex hormones which have a modifying effect on sexual function.

This finding is also supported by a study done by Fataneh (2013) on sexual function of Iranian women whereby his results showed that sexual dysfunction was associated with DMPA method of contraception. Ozgoli (2014) in a study comparing sexual dysfunction in women using DMPA and Cyclofem also related this with the mechanism of hormonal contraceptive which is to suppress or prevent the release of luteinizing hormone (LH) and follicle stimulating hormone (FSH) from pituitary gland.

There are neither trainings nor provision of information on female sexual function, making it a concern of Kenyan women. Women have the rights to experience a safe and enjoyable sexual relationship according to reproductive rights.

5.3 Quality of life

Health related quality of life is a multi-factorial construct involving health status, socio demographic factors and social factors. DMPA prevent unwanted pregnancies and thus reduce their complications hence having a significant effect on women's general health and quality of life. Women's quality of life is considered an important health marker.

The study found that women using DMPA reported a very high health related quality of life above average. The top was physical functioning with a mean of 95.8% $\pm$ 17.9 and least being energy/fatigue at a mean of 77.95% $\pm$ 18.28. We concluded this to the effectiveness of DMPA in preventing unwanted pregnancies. However, there are no cross sectional studies in Kenya to compare this, but globally, this is in line with a study done by Williams (2012) on association between recent use of contraceptive and quality of life. They found out that women who use any form of contraception mayhave

an improved quality of life. A study done by Behri (2016) on the relationship between contraception methods and QOL also found physical functioning to be high among women using DMPA.

Wanyonyi (2011) on health related quality of life among DMPA users support our finding in that they found an improvement in health related QOL. This reflects the fact that besides its contraceptive benefit, DMPA could possess other non-contraceptive benefit that improves QOL.

Even though majority of the DMPA users experience irregular bleeding as a major undesirable side effect (20.5%), and 37.5 % had amenorrhea, it didn't affect their quality of life. Amenorrhea can be an added advantage in terms of cost of sanitary pads. This shows that the above side effects do not influence the quality of life of women at all. A qualitative research by Elizabeth (2014) on perspectives of injectables, women reported that they were not worried about side effects so long as it was not taking long or affecting their daily activities.

In our study majority of women missed their menses and some skipped some months which could have contributed to their improved quality of life. This is reflected in their response towards satisfaction with DMPA whereby 80.4% reported that they are satisfied with DMPA.

The least domain was on vitality with a mean of 77.95 $\pm$18,28 .This could be due to the type of work the women were doing to earn their living. Majority of the respondents were business women, and when asked what the cause was, they mention that sometimes they get tired because of the work they do.

5.4 Relationship between sexual function and Quality of life

Sexual behaviour and functioning is an important aspect of quality of life. Our study revealed that there was a weak positive and significant relationship between quality of life and sexual function (r=0.207, p<0.05). DMPA users who had sexual function above 26.55 were more likely to have favourable quality of life as compared to those who had sexual dysfunction.

On further analysis on the relationship, it revealed that desire had a strong positively and statistically significant (r=0. 663, p<0.05) relationship with arousal but weak positive and statistically significant relationship (r=0.273, p<0.05) with lubrication, moderate positive and statistically significant relationship (r=0. 309, p<0.05) with satisfaction, weak positive and statistically significant relationship (r=0. 294, p<0.05) with fatigue, weak positive and statistically significant relationship (r=0. 244, p<0.05) with emotional well-being. Desire also had a weak positive and statistically significant relationship (r=0. 244, p<0.05) with Social functioning, weak positive and statistically significant relationship (r=0. 244, p<0.05) with general pain. However, desire didn't had a statistically significant relationship (p>0.05) with orgasm, sexual pain, role limitation, Role limitation-emotional and General health. This study demonstrated how desire is key in sexual function and quality of life.

In this study, use of DMPA had a weak positive and statistically significant relationship (r=0.253, p<0.05) with sexual function however, there was no significant relationship between use of DMPA and Quality of life (p>0.05). While there are few similar studies to compare with, Wanyonyi (2011) found an improvement in quality of life and sexual function of DMPA users. This was contrary to a study by Behri (2016) whereby he found no association between contraceptives which included DPMA with quality of life.

The DMPA contraceptive method satisfaction reported by majority (80.4%) of DMPA may have contributed to reliability of this particular contraceptive in prevention of unwanted pregnancies. This might reduce psychological stress and enhance sexual enjoyment leading to improved quality of life.

5.5 Limitation

Some participants did not complete their questionnaires.Secondly spouse's sexual function and quality of life was not assessed which could otherwise have effect on female sexual function and quality of life. However our study had some strength in that validated generic tools were used for our study population making the results comparable to other quality of life and sexual function study results.

CHAPTER SIX

CONCLUSION

The following conclusion and recommendations were drawn from this study:

6.1Conclusion

> ➤ Majority (53.6%) of respondents enjoyed good sexual function

> ➤ The commonest sexual disorder was in sexual desire domain

> ➤ Almost all (96.4%) of respondents enjoyed high quality of life

> ➤ Respondents who had sexual function above average were more likely to have quality of life.

6.2 Recommendation

For DMPA users to continue having good sexual function and quality of life, the researcher recommends the following;

> ➤ Family planning policy makers should ensure that sexual function information is incorporated in FP counselling checklist to enable client make an informed choice

> ➤ Service providers should address the sexual concerns of DMPA users in every visit

> ➤ Non contraceptive benefits of DMPA should be reinforced by service providers during counselling

Future Research

Determine the prevalence and associated risk factors of female sexual dysfunction among Kenyan women.

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APPENDICES

APPENDIXI: SELF ADMINISTERED QUESTIONNAIRE

Serial number _____

''Quality of life and sexual function among women using Depoprovera and those not on method in Nakuru County Referral Hospital''

Part A: Demographic Data

1. Age (years) _____

2. What is your religion?

   a. Protestant ☐   b. Catholic ☐   c. Muslim ☐

Other (specify)………….

3. Highest level of education

   a. None ☐   c.Secondary ☐

   b. Primary ☐   d.College/university ☐

4. Marital status

   a. Single ☐   d. Separated ☐

   b. Married ☐   e. Divorced ☐

   c. Widowed ☐

     Other (specify) --------------------

5. Age at marriage, if married--------------------------

6. How long have you been married/in a relationship if not married?

   a. Years ☐   b. Months ☐

7. What is your main source of income?

   a. From employment ☐   d. Business ☐

   b. Remittance from kin ☐   e. Others (specify) -----------------

   c. Farming ☐

8. Number of living children --------------------

9. Number of miscarriages ------------------------

10. Ages of living children ----------------------

11. How many more children do you desire to have?

   a. None ☐

   b. 1-3 ☐

   c. 4 and above ☐

12. Body Mass Index (BMI)……………………

Method Related Questions

14. How long have you used injection (DMPA?) ....Years..........Months

15. What was your reason/s for choosing injection (DMPA)

    a. Convenience ☐   e. Peer advice ☐
    b. Efficacy ☐   f. Trial of method ☐
    c. Lack of preferred method ☐   g. Spouse choice ☐
    d. Medical advice ☐   h. Other   (specify)………….

16. How often do you receive your menstrual period?

    a. Monthly ☐   c. No menses ☐
    b. Skips some months ☐

17. Which of the following undesirable side effects have you experience during the past 6 to 12 months?

    a. Irregular menstruation and spotting ☐   f. Insomnia ☐
                               g. Nausea ☐
    b. Reduced libido ☐   h. Mood swings ☐
    c. Weight gains ☐   i. None ☐
    d. Arching joints and muscles ☐   j. Other (specify)……………….
    e. Hair loss ☐

18. Are satisfied with injection (Depoprovera)? Yes ☐   No ☐

19. If yes to Q.18, what are your reasons for Satisfaction?

    a. Convenience ☐   f. Privacy ☐
    b. Amenorrhea ☐   g. Frequent visit to clinic ☐
    c. Ease of administration ☐   h. Smooth skin ☐
    d. Effectiveness ☐   i. Nothing ☐
    e. Lack of undesirable side effects ☐   j. Other (specify)……… …….

20. If No to Q.18, what are the reasons for dissatisfaction? Specify...........................

21. Apart from injection (Depoprovera) which other family planning method have you used before?

    a. None ☐   e. Implants ☐
    b. Combine oral pills ☐   f. IUD ☐
    c. Natural fertility awareness method ☐   g. Patch ☐
                               h. Condom ☐
    d. Progestin only pill ☐   i. Others (specify)…… ………

22. On average how often do you have sexual intercourse per month?

a.1-5 times per month ☐   b. More than 5 times per month ☐

23. Do you smoke cigarette? a. Yes ☐   b. No ☐

PART B

INSTRUCTIONS: These questions ask about your sexual feelings and responses during the past 4 weeks. Please answer the following questions as honestly and clearly as possible. Your responses will be kept completely confidential. In answering these questions the following definitions apply:

Sexual activity can include caressing, foreplay, masturbation and vaginal intercourse.
Sexual intercourse is defined as penile penetration (entry) of the vagina.
Sexual stimulation includes situations like foreplay with a partner, self-stimulation (masturbation), or sexual fantasy.
CHECK ONLY ONE BOX PER QUESTION.

Sexual desire or interest is a feeling that includes wanting to have a sexual experience, feeling receptive to a partner's sexual initiation, and thinking or fantasizing about having sex.

1. Over the past 4 weeks, how **often** did you feel sexual desire or interest?

a. Almost always or always
b. Most times (more than half the time)
c. Sometimes (about half the time)
d. A few times (less than half the time)
e. Almost never or never

2. Over the past 4 weeks, how would you rate your **level** (degree) of sexual desire or interest?

a. Very high
b. High
c. Moderate
d. Low
e. Very low or none at all

Sexual arousal is a feeling that includes both physical and mental aspects of sexual excitement. It may include feelings of warmth or tingling in the genitals, lubrication (wetness), or muscle contractions.

3. Over the past 4 weeks, how **often** did you feel sexually aroused ("turned on") during sexual activity or intercourse?

a. No sexual activity
b. Almost always or always
c. Most times (more than half the time)
d. Sometimes (about half the time)
e. A few times (less than half the time)
f. Almost never or never

4. Over the past 4 weeks, how would you rate your **level** of sexual arousal ("turn on") during sexual activity or intercourse?

a. No sexual activity
b. Very high
c. High
d. Moderate
e. Low
f. Very low or none at all

5. Over the past 4 weeks, how **confident** were you about becoming sexually aroused during sexual activity or intercourse?

a. No sexual activity
b. Very high confidence
c. High confidence
d. Moderate confidence
e. Low confidence
f. Very low or no confidence

6. Over the past 4 weeks, how **often** have you been satisfied with your arousal (excitement) during sexual activity or intercourse?

a. No sexual activity

b. Almost always or always

c. Most times (more than half the time)

d. Sometimes (about half the time)

e. A few times (less than half the time)

f. Almost never or never

What could be your reason/s for the arousal behaviour you have mention above

7. Over the past 4 weeks, how **often** did you become lubricated ("wet") during sexual activity or intercourse?

a. No sexual activity

b. Almost always or always

c. Most times (more than half the time)

d. Sometimes (about half the time)

e. A few times (less than half the time)

f. Almost never or never

8. Over the past 4 weeks, how **difficult** was it to become lubricated ("wet") during sexual activity or intercourse?

a. No sexual activity

b. Extremely difficult or impossible

c. Very difficult

d. Difficult

e. Slightly difficult

f. Not difficult

9. Over the past 4 weeks, how often did you **maintain** your lubrication ("wetness") until completion of sexual activity or intercourse?

a. No sexual activity

b. Almost always or always

c. Most times (more than half the time)

d. Sometimes (about half the time)

e. A few times (less than half the time)

f. Almost never or never

10. Over the past 4 weeks, how **difficult** was it to maintain your lubrication ("wetness") until completion of sexual activity or intercourse?

a. No sexual activity

b. Extremely difficult or impossible

c. Very difficult

d. Difficult

e. Slightly difficult

f. Not difficult

11. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **often** did you reach orgasm (climax)?

a. No sexual activity

b. Almost always or always

c. Most times (more than half the time)

d. Sometimes (about half the time)

e. A few times (less than half the time)

f. Almost never or never

12. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **difficult** was it for you to reach orgasm (climax)?

a. No sexual activity

b. Extremely difficult or impossible

c. Very difficult

d. Difficult

e. Slightly difficult

f. Not difficult

13. Over the past 4 weeks, how **satisfied** were you with your ability to reach orgasm (climax) during sexual activity or intercourse?

a. No sexual activity
b. Very satisfied
c. Moderately satisfied

d. About equally satisfied and dissatisfied
e. Moderately dissatisfied
f. Verydissatisfied

14. Over the past 4 weeks, how **satisfied** have you been with the amount of emotional closeness during sexual activity between you and your partner?

a. No sexual activity
b. Very satisfied
c. Moderately satisfied

d. About equally satisfied and dissatisfied
e. Moderately dissatisfied
f. Very dissatisfied

15. Over the past 4 weeks, how **satisfied** have you been with your sexual relationship with your partner?

a. Very satisfied
b. Moderately satisfied
c. About equally satisfied and dissatisfied

d. Moderately dissatisfied
e. Very dissatisfied

16. Over the past 4 weeks, how **satisfied** have you been with your overall sexual life?

a. Very satisfied
b. Moderately satisfied
c. About equally satisfied and dissatisfied

d. Moderately dissatisfied
e. Verydissatisfied

17. Over the past 4 weeks, how **often** did you experience discomfort or pain during vaginal penetration?

a. Did not attempt intercourse
b. Almost always or always
c. Most times (more than half the time)

d. Sometimes (about half the time)
e. A few times (less than half the time)
f. Almost never or never

18. Over the past 4 weeks, how **often** did you experience discomfort or pain following vaginal penetration?

a. Did not attempt intercourse
b. Almost always or always
c. Most times (more than half the time)

d. Sometimes (about half the time)
e. A few times (less than half the time)
f. Almost never or never

19. Over the past 4 weeks, how would you rate your **level** (degree) of discomfort or pain during or following vaginal penetration?

a. Did not attempt intercourse
b. Very high
c. High

d. Moderate
e. Low
f. Very low or none at all

PART C

INSTRUCTION; This section asks for your views about your health. Answer every question by marking the appropriate box. If you are unsure about how to answer a question, please give the best answer you can.

1. In general, would you say your health is;
   a. Excellent ☐   d. Fair ☐
   b. Very good ☐   e. Poor ☐
   c. Good ☐

2. **Compared to one year ago**, how would you rate your health in general **now**?

   a. Much better now than one year ago ☐   d. Somewhat worse now than one year ago ☐
   b. Somewhat better now than one year ago ☐
   c. About the same ☐   e. Much worse now than one year ago ☐

3. The following items are about activities you might do during a typical day. Does **your health now limit you** in these activities? If so, how much?

Activities	Yes, limited a lot	Yes, limited a little	No, not limited at all
a. **Vigorous activities**, such as running, walking faster, lifting heavy objects, farm activities			
b. **Moderate activities**, such as washing clothes, cleaning the house			
C. Lifting or carrying light objects			
d..Climbingseveral stairs or a small hill?			
e. Climbing one stair			
f. Bending or kneeling			
g. Walking more than a mile or for 30 minutes			
h. Walking for long distance, or for 1 hour			
i. Walking for 15 minutes			
j. Bathing or dressing yourself			

4.During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities **as a result of your physical health**?

	Yes	No
a. Cut down the **amount of time** you spent on work or other activities		
b. **Accomplished less** than you would like		
c. Were limited in the **kind** of work or other activities		
d. Had **difficulty** performing the work or other activities (for example, it took extra effort)		

5.During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities **as a result of any emotional problems** (such as feeling depressed or anxious)?

	Y e s	N o
a. Cut down the **amount of time** you spent on work or other activities		
b Accomplished less than you would like .		
c Didn't do work or other activities as **carefully** as usual.		

6. During the **past 4 weeks**, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

a. Not at all   d. Quite a bit

b. Slightly   e. Extremely

c. Moderately

7. How much **bodily** pain have you had during the **past 4 weeks**?

a. None   d. Moderate

b. Very mild   e. Severe

c. Mild   f. Very severe

8. During the **past 4 weeks**, how much did **pain** interfere with your normal work (including both work outside the home and housework)?

a. Not at all ☐	d. Quite a bit ☐
b. A little bit ☐	e. Extremely ☐
c. Moderately ☐	

9. These questions are about how you feel and how things have been with you **during the past 4 weeks**. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the **past 4 weeks**...

	All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
a. Did you feel full of energy?.						
b. Have you been a very nervous person?						
c Have you felt so down in the dumps that nothing could cheer you up?.						
d. Have you felt calm and peaceful?						
e. Did you have a lot of energy?						
f. Have you felt downhearted and depressed?						
g. Did you feel worn out/ exhausted?						
h. Have you been a happy person?						
i Did you feel tired?.						

10. How TRUE or FALSE is **each** of the following statements for you.

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a. I seem to get sick a little easier than other people					
b I am as healthy as anybody I know.					
c. I expect my health to get worse					
d. My health is excellent					

11. Is your partner/ spouse aware of the FP injection you are using?

a. Yes ☐   b. No ☐

12. In general, how would you describe your relationship?

a. A lot of tension ☐   b. Some tension ☐   c. No tension ☐

13. Do you and your partner work out arguments with:

a. Great difficulty ☐   b. Some difficulty ☐   c. No difficulty ☐

Thank you for completing this questionnaire

APPENDIX II: BUDGET

Items	Quantity	Unit Price (K.shs)	Total (K.shs)
Stationery & Equipment			
Printing Papers	5 batches	500	2,500
Printing cartridges	4	1400	5,600
Writing Pens	10	20	200
Flash Discs	2	1,000	2,000
Box Files	5	500	2,500
Document Wallets	5	200	1,000
Stapler	2	500	1000
Staples	1	1	500
Subtotal			**15,300**
Research Proposal Development			
Printing drafts & final proposal	1	700	700
Photocopies of final proposal	6	500	3,000
Binding of copies of Proposal	6	60	360
Subtotal			**4,060**
Principal researcher			
Fuel (Mileage)			6,000
Meals			5,000
Communication			2,000
Subtotal			**13,000**
Personnel			
Biostastician	1	15,000	15,000

Hiring Research assistants	2	10,000	20,000
Training research assistants	1 day	3,000	3,000
Data entry, coding, cleaning and analysis	Once	15,000	15,000
Sub total			**53,000**
Thesis Development			
Printing of drafts and final thesis	3	1,500	4,500
Photocopy of final thesis	4	1500	6,500
Binding of thesis	1	1,000	1,000
Publications by objectives	3	10,000	30,000
Sub total			**42,000**
Miscellaneous Expenditure (10% of Total)			**13,000**
Grand Total			**140,360**

APPENDIX III: TIMELINE

	October 2017	Nov. 2017	Dec. 2017	January 2018	April 2018	May 2018	June 2018	July 2018	August 2018	September	October 2018	Nov. 2018	Dec.2018
Developing proposal(Introduction, Literature review & Methodology)	■												
Presenting proposal to supervisors		■											
Developing data collection tools			■										
Proposal Submission to IREC				■									
Piloting data collection tools					■								
Finalization of data collection tools						■							
Data collection							■						
Data entry, coding and cleaning								■					
Interim analysis									■				
Final Analysis										■			
Thesis write up(results, discussion)											■		
Notice of intent to submit											■		
Mock defense												■	
Submission of Thesis for Examination													■
Thesis defense													■
Graduation													■

APPENDIX IV; INFORMED CONSENT.

INFORMED CONSENT FORM

Serial number…………………………..

Title; QUALITY OF LIFE AND SEXUAL FUNCTION OF WOMEN USING DEPOT MEDROXYPROGESTERONE ACETATE (DMPA) IN NAKURU COUNTY REFFERAL HOSPITAL.

I Lilian Chepngetich Sigei, student of master of Nursing at Moi University, Eldoret would like to invite you to participate in the above study.

The purpose of this study is to assess the quality of life and sexual function among women using Depo provera for contraception in Nakuru County referral hospital. Data collected will provide information to health care providers on the effects of DMPA on quality of life and sexual function hence finding ways of improving their counselling towards informed choice of contraceptive. In order to achieve the objectives of this study, information will be collected from selected women attending family planning clinic at Nakuru county referral hospital. Some of the information sought is highly personal.

Your participation is voluntary, and whatever information you give shall be handled with high confidentiality. There are no direct benefits from the study. You are allowed to ask any question you may have freely. Interview will take approximately 30 minutes.

Feedback on findings

The findings of this study will be communicated to IREC, County director of health and the Medical superintendent Nakuru county referral hospital.

Participant's consent

I have read the foregoing information/ the information has been read to me. I have had the opportunity to ask questions and received satisfactory responses. I hereby volunteer to participate in the study.

Date ………………………………..

Signature/ thumb print of respondent……………………………………………………………

Name of research staff…………………………………………………………………………...

Signature of research staff……………………………………………………………………….

Appendix V: IREC Approval

MU/MTRH-INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471//2/3

MOI UNIVERSITY
COLLEGE OF HEALTH SCIENCES
P.O. BOX 4606
ELDORET

Reference: IREC/2018/156

17th December, 2018

Approval Number: 0003180

Ms. Lilian Sigei
Moi University,
School of Nursing
P.O. Box 4606-30100,
ELDORET-KENYA.

INSTITUTIONAL RESEARCH &
ETHICS COMMITTEE
1 7 DEC 2013
APPROVED
P. O. Box 4606-30100 ELDORET

Dear Ms. Sigei,

RE: FORMAL APPROVAL

The MU/MTRH- Institutional Research and Ethics Committee has reviewed your research proposal titled: -

"Quality of Life and Sexual Function of Women using Medroxyprogesterone Acetate Contraceptive in Nakuru County Referral Hospital".

Your proposal has been granted a Formal Approval Number: *FAN: IREC 3180* on 17th December, 2018. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; hence will expire on 15th December, 2019. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date. You will be required to submit progress report(s) on application for continuation, at the end of the study and any other times as may be recommended by the Committee.

Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. You will also be required to seek further clearance from any other regulatory body/authority that may be appropriate and applicable to the conduct of this study.

Sincerely,

DR. S. NYABERA
DEPUTY-CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc	CEO	-	MTRH	Dean	-	SOP	Dean	-	SOM
	Principal	-	CHS	Dean	-	SON	Dean	-	SOD

Appendix VI: Hospital Approval

LILIAN CHEPNGETICH SIGEI

P.O BOX 1214-20100

NAKURU

DATE: 21ST DECEMBER 2018

TO

THE MEDICAL SUPERINTENDENT,

NAKURU COUNTY REFERRAL HOSPITAL,

P.O BOX 71- 20100.

NAKURU.

Dear Sir/Madam,

RE: REQUEST FOR PERMISSION TO CARRY OUT A STUDY IN NAKURU COUNTY REFERRAL HOSPITAL

I'm humbly requesting to carry out a study in the facility on "**Quality of life and sexual function of women using Medroxyprogesterone Acetate contraceptive in Nakuru County referral hospital**".

I'm registered nurse based in Nakuru county, MOH Office and currently undertaking a Master's Degree in Nursing (Maternal and Neonatal Health) at Moi University, Eldoret.

Attached is a copy of my formal approval from the institution research and ethics committee Moi university and a copy of my proposal.

I look forward to your positive response.

Yours faithfully

2 1 DEC 2018

LILIAN CHEPNGETICH SIGEI

<table>
<tr><td colspan="2">RIFT VALLEY PGH</td></tr>
<tr><td colspan="2">P.O BOX 05171 NAKURU</td></tr>
<tr><td colspan="2">TEL: 254 51 2215560/4</td></tr>
<tr><td colspan="2">WEBSITE: www.nakuru.go.ke</td></tr>
<tr><td colspan="2">EMAIL: rvpghnakuru@yahoo.com</td></tr>
<tr><td colspan="2">OFFICIAL RECEIPT</td></tr>
<tr><td colspan="2">*217335*</td></tr>
<tr><td colspan="2">DATE:21/12/2018   TIME:1:30 PM
RECEIPT NO: 217335   DEPT: ATTACHMENT
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<tr><td colspan="2">PATIENT NAME: LILIAN CHEPNGETICH SIGEI</td></tr>
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<tr><td colspan="2">SYSTEM NO: PGH-91392</td></tr>
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INSTITUTIONS</td><td>1 × 3000   3,000.00</td></tr>
<tr><td>TOTAL</td><td>3,000.00</td></tr>
<tr><td>TOTAL AMOUNT BILLED</td><td>3,000.00</td></tr>
<tr><td>AMOUNT PAID IN CASH</td><td>3,000.00</td></tr>
<tr><td colspan="2">WE WISH YOU QUICK RECOVERY,
SUBMITTED BY JOYLINE,
POSTED BY JOYLINE,</td></tr>
</table>

Appendix VII:Map of the study Area