PREMATURE REMOVAL OF JADELLE IMPLANT AMONG WOMEN OF CHILDBEARING AGE IN NDOLA DISTRICT, ZAMBIA

BY

AGNES CHIPULU MWAFULIRWA

(RN/RM/ BSc. NURSING)

A Dissertation submitted in partial fulfillment of the requirements for the award of

Degree of Master of Science in Nursing, Maternal and Child Health.

The University of Zambia

Lusaka

2020

DECLARATION

I, **Agnes C. Mwafulirwa**, declare that the work presented in this Dissertation for the award of a Master of Science Degree in Nursing, Maternal and Child Health Major, to the University of Zambia is entirely my work and has not been presented wholly or partially for any other qualification or to any other institution. I further declare that all the sources of information quoted in this work have been dully cited and appear on the list of references.

Signature……

Date……

NOTICE OF COPYRIGHT

CERTIFICATE OF APPROVAL

This Dissertation entitled "**Premature Removal of Jadelle Implant among Women of Child Bearing Age in Ndola District**" by **Agnes C. Mwafulirwa** has been approved in partial fulfillment of the requirements for the award of a Master of Science Degree in Nursing, Maternal and Child Health, by the University of Zambia.

Examiner I

Signature……....Date……

Examiner II

Signature.……Date……..

Examiner III

Signature.……Date…….

Chairperson – Board of Examiners

Signature ……. Date …….

CERTIFICATE OF COMPLETION OF DISSERTATION

I, **Professor Margaret C. Maimbolwa,** having supervised and read through this dissertation, am satisfied that this is the original work of the author under whose name it is presented. I confirm that the work has been completed satisfactorily and approve it for final submission.

Supervisors' Name ……

Supervisor's Signature…….

Date…….…..…….

Dean of the School

School of Nursing Sciences, University of Zambia.

Name ……..……

Signature……..…….Date…….……..……

To my children; Andrew, Jane, Ray and Faith Mwafulirwa 'The Pillars of My life'

To my husband Boston Mwafulirwa "God bless you for your support'

ABSTRACT

Many women do not fully utilize the Jadelle contraceptive implant, despite it being available in most health institutions. In Ndola District, there had been reports of Jadelle users going back for premature removals. Records analyzed from health facilities from 2009 to 2012, revealed a high number of users going back for premature removal of Jadelle implant. During the period under review, records revealed that 2,650 clients out of 9,439 insertions went back for premature removal of the implant. Statistics from the District health office also showed an increase in the number of unplanned pregnancies, indicating the need for contraception. This study, therefore, aimed at determining the factors contributing to premature removals among its users in Ndola District.

The study used a cross section format based in six health centers, namely, Chifubu, Chipulukusu, Kawama, Kabushi, Lubuto and New Masala. These were purposively selected. It was conducted between the months of June- August 2016. A total of 303 Jadelle users who were selected by Systematic sampling method were interviewed. A structured interview schedule was employed for data collection. SPSS software version 23 on windows 8 was used to analyze the said variables and cross tabulations. Chi-square and fisher exact tests were then used to determine the association between the independent variables and the outcome variable. Significance level was set at 0.05 and Binary logistic regression model was used as it adjusts for confounders.

The findings showed that, majority (71.6%) of the respondents had Jadelle removed before the end of five-year period. Binary logistic regression analysis indicated; that the age groups, 15 – 34 to 35 – 44, impacted significantly on the outcome variable ($p = 0.003$), Adjusted odds ratio = 0.320, 95% CI = [0.151, 0.677]). Similarly, changes in parity from two children and below to three children and above contributed significantly to the model outcome ($p = 0.047$), Adjusted odds ratio = 0.500, 95% CI = [0.252, 0.992]).

Jadelle users who were between 15 and 34 years and those who had two or more children were the predictors of premature removal of Jadelle. Clients in the predictive variables should be properly counselled to determine their reproductive goals.

Key words: Factors, Premature removal, Jadelle implant Users.

This dissertation is dedicated to all women in the reproductive age in Zambia.

ACKNOWLEDGEMENT

I would like to acknowledge, the almighty God for his grace and mercy that made it possible for me to go through this work and bring it to completion. I am grateful to the following individuals and institutions:

- My supervisors: Prof. M. Maimbolwa and Mrs. M. Makoleka who laboured to ensure that this document is molded to the required standard.
- Various Authors whose work I made reference to in order to bring up an evidence-based document.
- My respondents who provided the data for this study.
- Ndola Teaching hospital Management and Ndola District Health Office for their financial support and for providing the clients for the study respectively.
- Mr. Ndawa Chibesa the Statistician for his expertise to analyze the research
- Mr. Andrew Chikontwe, the Bemba expert who laboured to translate some parts of this study.

Finally, my gratitude also goes to my family specifically my children who gave me support and encouragement.

TABLE OF CONTENTS

Content **Page number**

LIST OF TABLES

LIST OF FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CARMA	Centre for Adverse Reactions Monitoring
CARMMA	Campaign for Accelerated Reduction of Maternal Mortality in Africa
CD4	Cluster of differentiation 4
MCDMCH	Ministry of Community Development Mother and Child Health
CSO	Central Statistics Office
DHMT	District Health Management Team
GATHER	Greet, Ask tell, Help, Explain and Review
GNC	General Nursing Council
HBM	Health Belief Model
HIMS	Health Information Management System
HIV	Human Immune Virus
IUCD	Intra uterine Device
IEC	Information Communication and Education
IPPF	International Planned Parenthood
JHPIEGO	Johns Hopkins Program for International Education in Gynecology and Obstetrics
LAM	Lactational Amenorrhoea
LARC	Long-Acting Reversible Contraceptive
LARCH	Long-Acting Reversible Contraceptive Hormone
MOESTVE	Ministry of Education, Science, Vocational Training and Early Education
MoH	Ministry of Health

NHSP National Health Strategic Plan

NGO Non-Governmental Organisation

RCOG Royal College of Obstetricians and Gynaecologists

SCUFP Scaling Up Family Planning

SDM Standard Days Method

SPSS Statistical Package for the Social Sciences

TB Tuberculosis

TFR Total Fertility Rate

UN United Nations

UNICEF United Nations Children's Fund

UNFPA United Nations Population Fund

UNZABREC University of Zambia Biomedical Research Ethics Committee

UNZA University of Zambia

USA United States of America

USAID United States Aid for International Development

WHO World Health Organisation

ZCTA Zambia Communications Technology Authority

ZNBC Zambia National Broadcasting Corporation

CHAPTER ONE

1.0 Background Information

Family planning is the ability for a woman to make appropriate choices to space pregnancies and plan for their children (Seller, 2013). Family planning has been in existence since the creation of man and most of the methods used then, were traditional methods, such as withdrawal and periodic abstinence (Thompson, 2013). Unfortunately, these traditional methods often failed the users. However, in the past decades, there have been many improvements in technology; modern methods of family planning have been introduced; the long-term reversible methods like contraceptive implants. These contraceptive implants were first introduced in 1995 in the United States of America (USA). Today, the most commonly used implants are the Implanon and Jadelle. Implanon is a single rod made of ethylene and contains only progesterone hormone. This implant provides contraception for 3 years (Bhatia et al., 2011). Jadelle was initially made to work up to two years; it was then later, in 2000, modified to provide contraception for a period of five years.

Jadelle is a flexible plastic rod, about the size of a matchstick that is placed under the skin of the upper less active arm to provide contraception for a maximum period of 5 years. While majority of contraceptives contain both eostrogen and progesterone, Jadelle contains only progesterone hormone. Jadelle is made up of two (2) rods containing levonorgestrel, as its active ingredient, to provide contraception. However, just like any other artificial contraceptives, Jadelle also causes side effects which include acne, vaginal bleeding and weight gain and in some cases this weight gained may affect the effectiveness of Jadelle (Glasier and Gebbie, 2017).

Family planning methods have been in existence in the Zambian health sector for several years now. Since the introduction of modern family methods in Zambia, there has been significant progress in the provision of family planning services. According to Ministry of Community Development Mother and Child (MCDMCH), the contraceptive prevalence rate for modern family planning methods been estimated to have had increased from 33% to 45% and unmet need

reducing from 27% to 21% in 2007 and 2013, respectively (MCDMCH 2012). One of the key strategies in family planning provision, is to increase availability and utilization of family planning methods especially the Long Acting Reversible Contraceptives (LARC) such as Jadelle. Additionally, in trying to achieve provision of family planning effectively, the Zambian government has made it possible for implants to be available in all health institutions. To address this, the Ministry of Finance has since 2013 increased its expenditure on family planning by 70%, because of its commitment to family planning services. In 2014, the Zambian government approved it's first-ever budget line for reproductive health supplies, including contraceptive implants (Jadelle). The government had in that regard allocated US$9.3 million for the fiscal year 2014 towards contraceptive supplies. In human resource improvement, there was training of community health assistants in 27 of the 72 districts of the country in Jadelle insertion and counseling that year. This meant that the number of health providers was increased ensuring not just increased provision but also efficient usage (United States Agency for International Development [USAID], 2014).

To attain their objectives, Zambia also begun working with chiefs and traditional leaders in order to increase demand and sensitization. This sensitization is being achieved by working with community volunteers such as community-based distributors, who are not only distributing contraceptives but are providing the correct family planning information to their communities. In the future, the government is planning to come up with a model of working with religious leaders to help dispel some myths and misconceptions surrounding family planning and possible provision of services to their members, if a system is developed. It was hoped that this could increase uptake and retention of family planning methods (MCDMCH, 2012).

Jadelle was introduced in 2005 as a pilot in 320 facilities of the 72 districts in Zambia. These facilities were chosen from Ndola, Lusaka and Chipata. In Ndola town, the facilities targeted were in Lubuto, Chipulukusu and Kabushi. The programme was later scaled up so that, about 15,000 Jadelle insertions had been done by 2009 (USAID, 2016). According to MCDMCH (2012) the goal of the government was to make Jadelle available to more than 50% of the women in

the childbearing age group. In 2012 there were approximately 680,818 women in the childbearing age group (CSO et al., 2015) which translated into 5.2% of the whole population of women who were expected to receive this long-term method of family planning in the country. This, therefore, meant that the goal was to provide this service to about 340,409 women out of 680,818 in the mentioned age group. However, the Ministry's goal was not achieved as in some areas like Ndola District some users were not fully utilizing the Jadelle implant. This report, therefore, provides a detail on a study conducted in Ndola District on premature removal of Jadelle implant. The report concludes with implications on the nursing profession and recommendations.

1.1 Statement of the Problem

Despite all the previously stated efforts by the Zambian government to increase coverage of family planning, in 2009, the number of premature removals (i.e. before the end of five years.) of Jadelle started to increase in Ndola district. This was observed in a period of three years; 2009- 2012 (Table 1). According to Sergison et al., (2017), this could have been attributed to; side effects of the Jadelle, myths and misconceptions amongst its users such as uterine fibroids, loss of fertility, and cervical cancers as related to the use of Jadelle. The above factors are thought to affect the users negatively and prompt premature removal (Russo et al., 2013). This suggested that since users were going back to the health facilities to request for removal before the end of five years, the programme was likely to fail if nothing was done (Asaye et al., 2016)

Available statistics from some health centers in Ndola showed that about 2,650 out of a total of 9,439 of Jadelle insertions, were untimely removed at almost the same period. Moreover, there was an increase of point 7 percent between 2011 and 2012 premature removals as compared to the increase of 1 percent point rise in the previous period (Table 1). Premature removal implies that there are higher chances of users having unplanned pregnancies.

Empirical evidence shows that many women terminate unplanned pregnancies which may lead to high maternal mortality rates suggesting premature removal may consequently increase mortality (Yaya et al., 2018). Early removal also increases burden on health services delivery as these former Jadelle users must frequent the health centers more often than if they had Jadelle (Bakibinga et al., 2019). Furthermore, premature removals have other consequences such as increased fertility and hence high population growth.

According to Zambia Demographic Health Survey (ZDHS), in 2018 the fertility rate has declined from 6.5 to 4.7 per woman (CSO et. al, 2019). However, this rate is still high as we look at the at the annual population growth which was at 2.9% in the same year (CSO et al., 2019). The high population growth in the country puts a strain on the available support systems and social services. Ndola District caters for 23% of the total population of the country; therefore, providing good and effective family planning methods would have significant impact on overall population growth (CSO et al., 2019).

Several strategies to provide quality Jadelle service provision are in place in Ndola district. There is pre insertional counseling for this service and it is provided by trained personnel in most health centres (Bakibinga et al., 2019). Users are thereafter advised to report back to the health providers if they experience any problem with the implant. The health centres where this service is provided are operational 24 hours daily, meaning that a user can go back any time to seek for help if there are problems with the implant. The problem of premature removals will only be solved when many users are able to retain the Jadelle implant for the recommended period.

Table 1: Premature Removals and Insertions of Jadelle in Ndola District from 2009- 2012

Year	**2009**	**2010**	**2011**	**2012**
Insertions	**1,382**	2,321	2,578	3,158
Removals	**347**	574	680	1,049
Percentage Removal	**25%**	**24.7%**	**26%**	**33%**

Source: Ndola District HMIS registers, 2014.

1.2 Theoretical Framework

1.2.1: The Health Belief Model (HBM)

The Health Belief Model (HBM) is the theoretical model that will guided this study. It is a model that was used to understand people's behaviour on health prevention and adherence to treatment. It therefore helped to explain why some women, when they had the Jadelle inserted, managed to stay with it for five years while others had it removed much earlier with no medical indication. The model was very useful at analysis level as it was used to analyze the findings and explain how the dependent variable was related to the independent variables, in order to explain the negative health behaviour of the Jadelle users.

1.2.2: General idea and history of HBM

The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the United States Public Health Services. According to Abraham & Sheeran (2015) the model was developed in response to the failure of a free tuberculosis (TB) health screening program. It has now been modified by addition of modifying factors and cues to action and used by several researchers. The model addresses the relationship between a person's beliefs and behaviour. It is a cognitive, interpersonal framework that views humans as rational beings who use a multidimensional approach to decision-making regarding whether to perform health behaviour or not. The major concept in this model is that, health behaviour is determined by personal beliefs or perceptions. There are four major concepts that determine health behaviour; these are

perceived barriers, perceived seriousness, perceived benefits and perceived susceptibility. Each of these perceptions contribute either individually or in combination to explain health behaviour. Other perceptions that have been recently added are cues to action, modifying factors and self-efficacy.

1.2.3: Major concepts of HBM

a) Perceived seriousness: This is the perceived problem or complication a health problem may bring, such as if one has a stroke the seriousness of this could be inability to perform normal human functions. It explains how much one's lifestyle will be affected by a health problem such as inability to do physical work.

b) **Perceived susceptibility**: This is the perceived threat of an illness or a health problem e.g. if there is risk of a condition in the family such as history of coronary disease. This is mainly based on medical information or knowledge, it may also come from beliefs of a person has, about a disease or treatment.

c) **Perceived benefits**: This concept addresses the gain from a positive behaviour. It addresses whether the proposed action will be effective in reducing the health risk. It mainly emphasis on the importance of the person's beliefs, rather than factual evidence. The way a person has been socialized is likely to influence what the person believes as health benefits in adopting new health behaviour. Culture has a strong influence on behaviour modification especially in Africa. This means that certain health behaviors may not be of benefit depending on one's culture.

d) **Perceived barriers:** Based on the fact that, change is not something that comes easily to most people; this concept of HBM addresses the issue of perceived barriers to change. This is an individual's own evaluation of the obstacles in the way of him/her adopting a new behaviour. Of all assumptions, perceived barriers are the most significant in determining behaviour change [Janz and Becker (1984), cited in Jones

and Bartlett, 2011]. The individual may have to compare the benefits of adopting new behaviour to the costs or embarrassment or even the pain involved in adopting the new behaviour. If the barrier outweighs the benefits, then it will be very difficult to adopt a new behaviour.

e) **Modifying variables:** The four above factors can be modified by other variables such as culture, educational level, past experiences, skill, motivation and many others. These are individual characteristics that influence personal perceptions. For example, a person who has been involved in a road traffic accident due to reduced attention while driving will change the behaviour on the road because of experience.

f) **Cues to action:** HBM furthermore, suggest that, health behaviour is also influenced by cues to action. Cues to action are events, people or things that move people to change their behaviour such as illness in the family, media reports and advice from people. For example, if a church mate reports of having a bad experience with a certain product, all the listeners will avoid that product. An advert on the television of a certain product of how good it is and the benefits, it will make people purchase that product. A report of one house in the street being attacked by armed robberies will make everyone in that street become security conscious and consequently employ stringent measures towards security because of the reported event.

g) **Self-efficacy:** In addition to the above factors HBM also believes that behaviour is influenced by self-efficacy. This is the belief in one's own ability to do something. For example, if woman believes that she cannot cook a certain meal, she will always not want to try because of fear of being laughed at or being disappointed. A student will refuse to perform a certain skill for fear of not being able to perform correctly.

Theoretical Framework

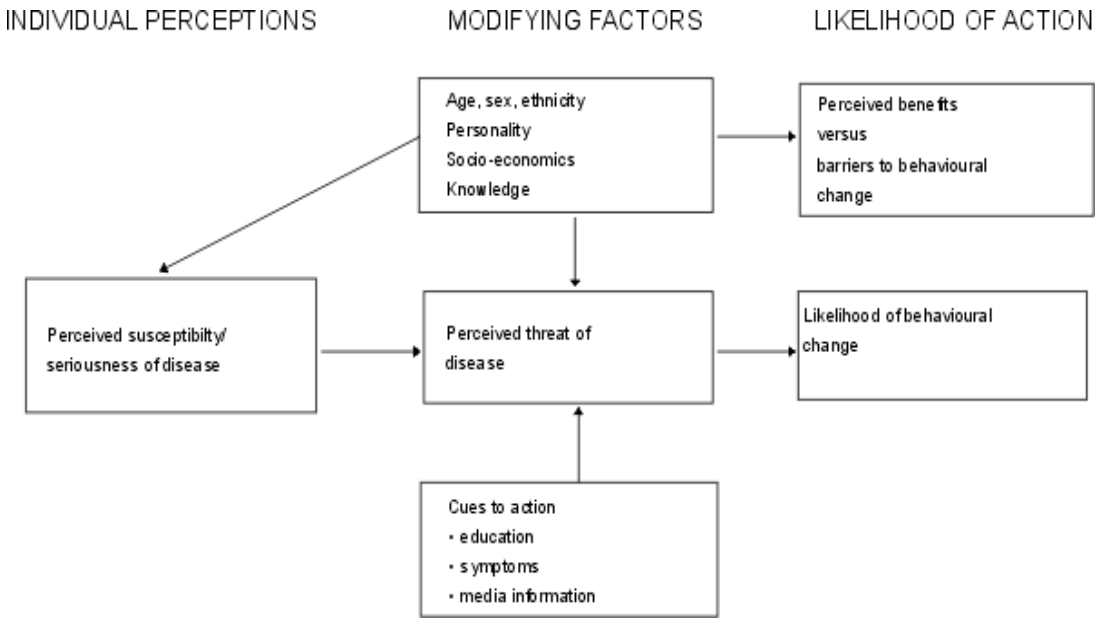


Figure 1: Showing the Health belief Model (Glanz et al., 2002)

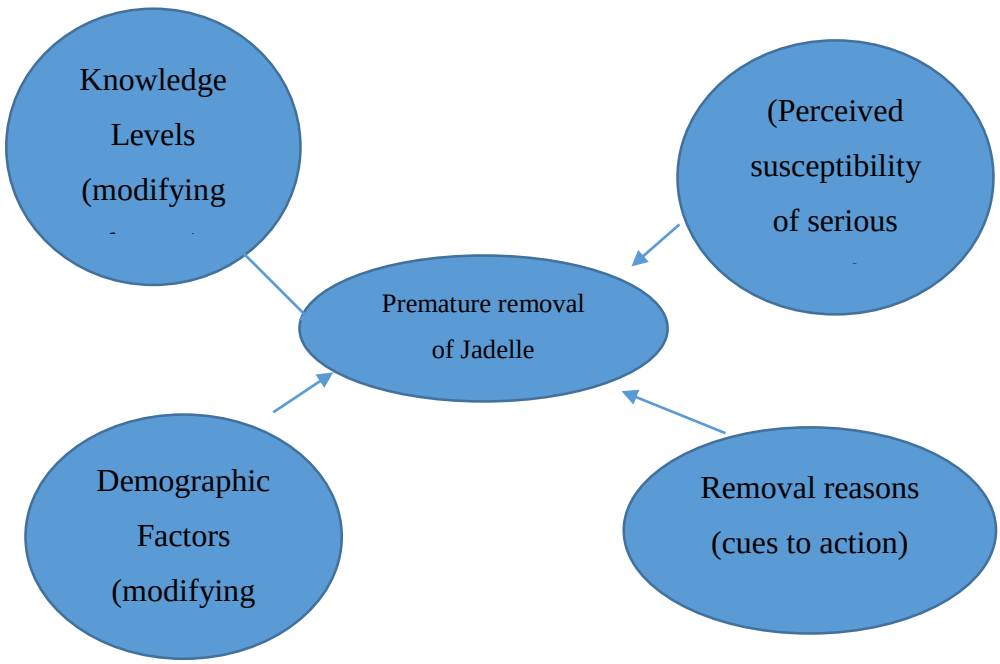


Figure 2: Diagram showing the relationship of the variables as adopted from health belief model (Glanz et al.,2002).

1.2.4: Application of the model

a) Demographic factors (Modifying factors).

Experience of an individual affects the utilization of medicine because, it will determine how well one tolerates medication and inevitably how long they will use it (Gonzalez et al., 2018). Mubarak et al. (2016) in their study found that experience was a determinant to continuation of Jadelle use. Also, age can contribute to tolerance of family planning, that is, the older women are more likely to stay with Jadelle for a longer period because they better understand it. This has correlated with the findings in the current study. The culture of an individual contributes to one's tolerance, in some cultures certain forms of family planning are not acceptable (Armstrong, 2018).

b) Removal reasons (Cues to Action)

The main cues to action are the common side effects that most Jadelle users experience, such as vaginal bleeding and weight gain (Sellers, 2013). This is likely to influence most users to have the Jadelle implant removed. Additionally, the other cue is desire to have a child, sometimes it may relatives or the husband who persuades the user to have Jadelle removed or when users see a colleague who has conceived it is possible to admire and aspire to conceive (Hubacher, 2012). In this current study these were the main cues to users being influenced to go for premature removal of Jadelle.

c) Perceived susceptibility and of seriousness (myths and misconceptions)

False interpretations and wrong explanations of certain outcomes of Jadelle may lead to the perceptions of users being liable to these outcomes, this may as well may lead to users have premature removal (Odongo et al., 2014). Due to the latter, perceived seriousness of bad outcomes may persuade users to go for premature outcomes. Although these factors played a part in this study, they were not major contributing factors to the vice.

d) **Knowledge levels (Modifying factor)**

Acquisition of knowledge is a major modifying factor in health positive behaviour.

If the educational level of users is very high, it could help them understand Jadelle in full and reduce on early removals, however, if their education level is low and hence their knowledge levels are low they may have high chances of premature removal (Hailemariam and Elías, 2015). However, knowledge levels of most respondents in the current study were very high hence it did not contribute to premature removal of Jadelle. The other factor is that past experiences increase knowledge levels which could influence the utilization of Jadelle.

Conclusion

The HBM framework suggests a list of perceptions such as benefits to continuity of health adoption of behavior, seriousness of non-compliance, susceptibility of not adopting a positive behavior and barriers towards positive health behavior. Most of these were well applied, in that, in this study it was established that demographic and obstetric variables were the determinants of premature removal of Jadelle. These are modifying factors of an individual that can alter the course of action. The study also established that most of early removals were as result of side effects and wanting to have a child soon. These were obstacles to the use of Jadelle. They were the driving forces to one having early removal of Jadelle. Therefore, most of the components of the framework were applicable and very helpful as they formed the basis of determining some factors that were associated with premature removal of Jadelle implant.

1.3 Justification of the Study

Family planning is a reproductive right which every woman in the reproductive age must enjoy and therefore providing appropriate family planning methods which are well utilised is one way to ensure one has the number of children as desired. Unfortunately, some methods are not properly utilised like the contraceptive implant (Jadelle), users have them removed early. Globally premature removal of Jadelle is a common phenomenon. This has attracted a lot of studies to find solutions. In Zambia, the premature removal of Jadelle is becoming increasing becoming

common among its users. Studies have shown that 47% and 63% of women discontinuing implant may have an unmet need for Family Planning (USAID, 2019). In Zambia, the unmet need for modern family planning is at. 21% (USAID, 2016). There was therefore a need to conduct this study so that the results could potentially aid in the augmentation of the Jadelle services provided. The findings from the study could also reduce on the unfulfilled requirements of the family planning methods in maternal health institutions particularly in Ndola district as its practitioners will be well informed and hence provide quality services. In addition, there was limited literature available on this given topic. It was hoped that the factors identified and outlined in this study could help authorities put in place interventions to correct the formerly stated issue and develop sustainable policies that will benefit the country at large.

1.4 Research Question

What are the factors contributing to premature removal of Jadelle among the users in Ndola District?

1.5: Study Objectives

1.5.1: General Objective

The main objective of this study was to assess the factors contributing to the premature removal of Jadelle implant among women of childbearing age in Ndola District.

1.5.2: Specific Objectives

1. To determine the extent of premature removals amongst its users.
2. To identify the demographic characteristics, knowledge levels, reasons for removal, myths and misconceptions among Jadelle users.
3. To determine the association between premature removal of Jadelle and socio-demographic characteristics, reasons for removal, knowledge about Jadelle, myths and misconceptions among Jadelle users.

1.6: Hypothesis

1.6.1: Null Hypothesis

There is no significant association between premature removal of Jadelle and demographic variables, knowledge levels, myths and misconceptions of its users.

1.7: Conceptual Definitions

Hormonal implant: This is a drug or chemical that is artificially prepared which contains hormones such as progesterone to prevent conception in a woman once administered (Sellers, 2013)

Knowledge: Awareness, total sum of philosophical truth, familiarity gained by experience on specific subject (Davidson et al., 2014).

Misconception: Is a wrong explanation of how events are related (Davidson et al., 2014).

Myth: This is a false belief (Davidson et al., 2014).

Premature removal of Jadelle; Removal of the Jadelle implant from the site of implantation any time before the end of five years from the time of insertion with no medical reason (Sellers, 2013)

Mature removal of Jadelle; This is the removal of Jadelle implant from site on insertion after a maximum of five years period (WHO, 2018).

1.8: Operational Definitions of Terms

For the purpose of this study, the following terms shall mean**:**

Knowledge; Awareness, of mode of action, duration and bad effects of Jadelle implant

Misconception is a wrong explanation of how certain experiences or events are related to Jadelle implant

Myth is a false belief of what the Jadelle implant can produce.

Premature removal of Jadelle- is the removal of the two rods of Jadelle contraceptive implants inserted into the upper arm before the end of 5 years from the date of insertion by a health Professional.

Vaginal bleeding: Is the loss of blood through the vaginal introitus.

Mature removal of Jadelle – This is the removal of the two rods of Jadelle implant from the site of insertion when the stipulated period of use is over.

Table 2: Variables and Cut-off points

Variable	Indicator	Cut- off points	Type of variable	Q. No.
DEPENDENT VARIABLE				
Premature removal of Jadelle	Yes	Clients comes for removal of Jadelle before end of 5 years	Categorical	8
	No	Client comes for removal after 5 years	Categorical	8
INDEPENDENT VARIABLES				
Variable	**Indicator**	**Cut off points**	**Type of variable**	**Q. No.**
Reasons for Removal	Medical (Because of side effects such as vaginal bleeding.	-	Categorical	9
	Non -medical (Others like wanting more children, improving career.	-	Categorical	9
Decision to have Jadelle removed Influenced by		Personal	Categorical	10 - 11
		Husband or Relative	Categorical	10- 11
Knowledge	High	Clients have scored 50% and above on any of the issues of knowledge.	Categorical	12- 19
	Low	Clients have scored 50% and below on any of the issues of knowledge.	Categorical	

Myths	Yes	Client scored 75% and above on questions on myths	Categorical	20-22
	No	Client scored a 75% and below out on questions on myths	Categorical	
Misconceptions	Yes	Client scored 50% and above of the questions on misconceptions	Categorical	23-24
	No	Client scored 50% and below on the questions on misconceptions	Categorical	

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter covers literature on the studies conducted pertaining to the variables in the study. These include premature removals of Jadelle, the demographic variables such as age, marital status, and number of children, employment status and religion. It also includes studies done on other variables such as reasons for premature removal, knowledge of users on Jadelle, and myths and misconceptions on Jadelle.

The sources include published articles from computerized database such as Google scholars and PubMed. Other sources include; WHO publications and some Midwifery textbooks. The major search terms were premature removal of Jadelle implant, reasons for premature removals, knowledge on Jadelle implant, myths and misconceptions on Jadelle and demographic characteristics of the users of Jadelle implant.

Globally, there are a lot of researches that have been done on Jadelle implant in relation to its discontinuation. However, this literature only discusses that which is concerned with the variables in the study. It is arranged in such a way that; it initially gives a highlight on general provision of Jadelle and the dependent variable. Lastly, individual independent variables. It ends with a conclusion.

2.1 Jadelle Implant Provision

When women are not ready for pregnancy, they may look out for options of termination. It is, therefore, important that women are not denied their right to access family planning to avoid unplanned pregnancies, which may sometimes lead to death (WHO, 2018). Contraceptives can minimize a lot of unplanned pregnancies especially if effective methods like implants are used. Research has shown that only one unintended pregnancy occurs among every 2,000 implant users in the first year of use (Jacobstein, 2013). In contrast, failure rates in the first year of typical use of the commonly used resupply methods are considerably high;180 unintended pregnancies per 1,000 users of male condoms, 90 unintended pregnancies per 1,000

users of pills, and 60 unintended pregnancies per 1,000 users of the progestin-only injectable (Jacobstein, 2013). Provision of modern family planning worldwide, is by an integrative system; however, the provision of the Jadelle implant method is usually done in separation as it must be done only by trained personnel. The insertion is a minor surgical procedure which is executed by trained professionals. The incision is painless, as this is done under local anesthetic and no stitches are needed (International Planned Parenthood Federation [IPPF], 2012). It takes about 2.5 minutes for the procedure to be completed. The incision site is painful only for a few days.

The Jadelle implant, apart from providing contraception, has also shown to greatly reduce the risks of ectopic pregnancies and pelvic inflammatory diseases. In the United States of America (USA), the rate of ectopic pregnancies amongst women who are not using contraceptives methods is 650 ectopic pregnancies per 100,000 women per year while, those using implants, have 6 ectopic pregnancies per 100,000 women annually (Bayer, 2016). This is because the uterine lining which has been bleeding periodically is not conducive to receive the conceptus. Jadelle as well helps in reducing iron deficiency anemia (IPPF, 2012). Other benefits of using Jadelle include for example, women who are HIV positive, a pregnancy means physiological reduction in their Cluster of Differentiation 4 (CD4) count and consequently delayed progression into AIDS (Akinbami et al., 2015).

In Zambia, Jadelle also offers a vital option for users who want to delay or space children, due to stock outs of short term contraceptives being common (Ashraf et al., 2014) and the use of Jadelle reduces the time one has to keep spending going back to the Centre for the same service (Kamara et al., 2015). The provision of this service is better at health Institutions, however in some areas this service is provided by outreach system which has proved to be a success (USAID, 2018). The advantage to this is improved access to the service as this makes the services accessible, especially for rural areas. In Zambia, this is not practiced because of limitation of resources (USAID, 2016).

2.2 Premature Removal of Jadelle among users

Jadelle implant is prepared to last for a maximum period of five years. However, if the user desires that it be removed, the reasons for the request for early implant removal should be discussed with each individual woman and supportive management should be offered to those experiencing problems with the implant. According to Rowland and Searle (2014) in their study this approach has been beneficial to the users. Access to implant removal at term or whenever a woman requests removal is a central element of quality family planning service provision and is necessary for voluntary programs (USAID, 2016).

When a client approaches a health care provider for early removal of Jadelle, if the supportive management fails, then the implant is removed by qualified personnel at a health facility. Normally the clinician will remove the implants very gently. This procedure will take more time than insertion. Implants sometimes may be nicked, cut, or broken during removal. The position of the patient and the need for aseptic technique are the same as for insertion. After the procedure is complete, the clinician will close and bandage the incision. The patient is then instructed to keep the upper arm dry for a few days. Nonetheless, sometimes there are removal difficulties such as damage to the implants, about 7.5% of the times a removal is conducted (USAID, 2019). In studies carried out in United States, it was found that injury was caused during removal because the implant was placed too deep into the arm (Ramadhan et al., 2018). If removal of the implant(s) proves difficult, then the incision is closed and bandage the wound, and have the patient return for another visit. The remaining implant(s) will be easier to remove after the area is healed. As a health practitioner, it may be appropriate to seek consultation or provide a referral for patients in whom initial attempts at implant removal prove difficult. The patient is advised to use a non-hormonal method of contraception until both implants are completely removed. Following removal, provided the woman does not desire pregnancy, she should immediately initiate a new contraceptive method (Sellers, 2013).

If the patient wishes to continue using the same method, a new set of Jadelle implants can be inserted through the same incision. The removal procedures can be a danger to some clients as evidenced by above data. It could therefore good to keep the implant as per recommended period. The other issue that was discussed in the above data is in an event where the client does not find a trained person to have it removed it means that this service will not be provided. This is why in some areas there is provision of this service at outreach levels so that the removals are performed by trained personnel and the service is accessible (USAID, 2016).

However, premature removals shave been observed in many settings, for example studies done in Ethiopia indicated that the early removals were at 65% (Asaye et al., 2016). Another study done in Kenya they were at 74.5% (Gicheru 2016), while in other studies it showed a very low rate; 23. 4% in Ethiopia (Nageso and Gebretsadik, 2018). It can therefore be assumed that this is a common problem among Jadelle users.

2.3: Socio-Demographic characteristics of users

The demographic characteristics of an individual determines how they respond to treatment and much more how they behave towards such treatments (Tesfaye, 2019). Some of the important demographics that have been considered in analyzing utilization of implants include age. Age is a very important determinant in the use of contraception as it linked to the length of one's fertility. According to WHO (2018) the reproductive age is between 15- 49 years. In other countries, particularly in developing countries like Zambia, in many instances' girls have been married off at a younger age than that recommended by WHO (Index mundi, 2018). This means that the women have a longer time in which to bear children in their lifetime and if measures are not taken, the population growth may become unbearable.

Among the modern methods of family planning, Jadelle is particularly accepted by young people, because most young persons who have used Jadelle implant acknowledge its usefulness as it allows them to be pregnant free and go through to secondary school or college without constraint Sandle and Touhy (2017) and Hubacher (2012). Another study

done in 2000, in 41 countries of sub-Sahara; reported that, there was some reduction in the premature removals (about 7.4%) among implants users compared to those that were using injectable and oral contraceptives (Hubacher, 2012). This was a study conducted among the young and educated women done over a period of 18 months on the utilization of Jadelle.

On the contrary, Rowlands and Searle, (2014) from their study on Jadelle utilization reported that, young people described vaginal bleeding as the 'tipping point' beyond which they could tolerate and hence requested for early removal. The young people could not tolerate the irregular vaginal bleeding as it was an inconvenience to them. This implies that even though young people want to use Jadelle they have difficulties with the increased vaginal bleeding. The above studies suggest that young women are more likely to have Jadelle removed prematurely. Most of these young people gave the reason of excessive bleeding as their main reason for premature removals. However, there were gaps in the studies because most of them were not age specific, seeing as they did not indicate the duration Jadelle was kept for most of the premature removals and they didn't as well explore other factors such as marital status.

It is a well-known fact that, women who are married are sexually active and therefore, are most likely to seek for contraceptives; though even those who are single may be sexually active and equally need the service. This is because not everyone who has had sexual intercourse intends to conceive (Witwer et al., 2018). Several studies have been done to find out the relationship between marital status and full utilization of contraceptives implants. Some studies have shown that marital status has a bearing while others have not.

Marriage is recognized as an important institution worldwide, especially in Africa. Therefore, decisions that are made in this institution are usually stronger than single handed decisions especially those pertaining to family planning. Elias & Hailemariam (2015) reported from their study that, married women who had reported to their husbands about the Jadelle implants had higher (55%) chances of keeping the implant than those who did not. Another study done in Zambia, between 2013- 2014, revealed that married women were more likely to use contraceptives for longer periods than single women (CSO et al.,

2014). However, the study did not specify type of singleness because even those who are divorced, separated, or widowed are also included in the group. An alternative study done on knowledge, attitude and utilization of sub-dermal birth control implants among married rural women of Pakistan, reported that women who were married for a long time were more likely to keep the implants for a longer time than those who had just gotten married (Mubarik et al., 2016). One reason indicated in this study was that these users were satisfied parity and therefore were able to keep the implant for the recommended time.

The number of children one has is another characteristic reported to have an influence on Jadelle use in terms of duration. Parity determines the reproductive goal of a woman or couple (Fraser and Cooper, 2010). The reproductive goal is precondition to the type of family planning one chooses and that women have the right to have access to contraceptive methods of their choice so that they can have children as when it is right and convenient for them (WHO, 2018). Limiting the number of children one has or spacing them has several advantages including reducing the risks of maternal deaths. WHO (2018) indicated that, in allowing women to limit their size of families it can help reduce mortalities, as women who have more than four (4) children are at higher risk of maternal mortality.

However, for most women, once they have a lot of children usually recognize the need to use contraceptives. A study done in Ethiopia on implant use reported that those with more children were more likely to use and keep Jadelle implant for longer time than those with fewer children (Elias and Hailemariam, 2015). This implies that the higher the parity the higher the chances of proper utilization of family planning methods particularly the implants because they are of long duration. Besides, in a study done to find the association between discontinuations of implant and related factors in Ethiopia, it was reported that the odds of discontinuing implant use early among women with no children were two times more likely than those who had living children (Asaye et al., 2016). Asaye et al. (2016) concluded that this was related to the fact that women with no living children might intend to have children and discontinue the implant early.

It can therefore be assumed that the more children one has the less likely the chances of early removal of the implant. However, most of these studies did not indicate whether the users had children who were living or not. Other than that, it was important to consider the type of children if physically able or not as this is also an important determinant in reproductive goal. Above all it could be important also to consider the level of education of users, as education is a powerful covariate for many reproductive outcomes, including adoption of contraception (Gicheru, 2016).

The duration of Jadelle implant utilization has been reported to have some link to the users' educational level, while in other studies it has shown not to have any effect. Simmons et al. (2019) in her study reported that, the more women are educated, the less likely the chances of having Jadelle removed prematurely. Gicheru (2016) also had similar findings in his study; he reported that, highly educated women were less likely to have Jadelle implant removed prematurely.

Identically, a study conducted in Ghana revealed that highly educated women are less likely to have their implants removed prematurely (USAID, 2019). This is because these women have time to read further on the implants than the less educated and hence have a better understanding. In contrast, a similar study done in Northwest Ethiopia to determine the discontinuation of implants reported that they did not find a relationship between education of users and discontinuation of the implant (Asaye et al., 2016).

Most of the studies analyzed did not aim at determining the relationship between education of users and early removals of Jadelle so it is hard for one to say that education was or was not a factor for early removal. Analyzing that most of these studies that were reviewed were conducted in the rural areas, where access to schools is likely to be a problem, it is hard to know what high education is and what low education is in those areas. Although, there is some evidence that education can alter the health behavior of an individual, in some instances the religious beliefs also provides a course in health behaviour particularly in contraceptive implants (Ijeoma and Wekere, 2020).

Witwer et al. (2011) acknowledges that contraceptive use is common among all women of different religious beliefs, though the denomination that one belongs to, may hinder or promote continuation of some contraceptives such as implants. For example, the Catholics do not believe in using the chemical type of contraception particularly the intrauterine device inserted into the uterus, this is against their faith (Sacred heart, 2018). In Zambia this may be different because 75% of its population are Protestants while only 21% are Catholics and 4% is distributed among the Hindus and Muslims (Index Mundi, 2018). This implies that, religion may not affect the utilization of Jadelle much in Zambia because the percentage of those who have negative beliefs towards it is small.

2.4: Decision to remove Jadelle.

The power of decision making is an individual's cognitive ability (Dietrich, 2010). However, on matters of family planning, decisions are either made by couple in union (Mosha et al.,2013) or singular by husbands, this is more evident in long term family planning like the Jadelle implant (Kamara et al., 2015). Most studies on family planning show that men are often the primary decision-makers on family size and their partner's use of Family planning methods (Mosha et al., 2013).However, sometimes decisions made on behalf of users may show negative behaviors in the user, hence premature removals may be common. On the other hand, if the user makes a decision alone, it is possible that if her husband is not consulted it could influence early removal (Kamara et al., 2015). Furthermore, Gicheru (2016) in his study on contraceptive implants utilisation found that the reasons for engaging spouses in such decisions included: mutual respect for relationship, joint responsibility for current and future children and fears about potential undesirable consequences of contraceptives.

2.5 Reasons for Jadelle removals

When users of the Jadelle implant have it inserted they are given the freedom to go back to the health care providers and have it removed any time they feel uncomfortable with it. Many users have gone back to the providers to request for removal before five years citing many different reasons. There are factors that have been reported to be linked to this vice as Jadelle like any other progesterone – only contraceptives cause menstrual bleeding changes such as irregular, prolonged or other menstrual problems (Fraser and

Cooper,2010). Menstrual irregularities and other side effects like headaches, abdominal pains and breast tenderness are very common during the first year of Jadelle use (Fraser and Cooper, 2010). These normally go away within the first year of use (IPPF, 2012). This could be a more common reason for early removal in the first year compared to subsequent years of use. Centre for Adverse Reactions Monitoring (CARMA) (2017) in the USA in their report had results consistent with these findings.

The other factors that have been reported to be linked to this problem are myths and misconceptions about Jadelle, some socio-demographic factors of users such as age, desire to conceive in the near future, husbands or relative's persuasions, location, education and marital status. These factors have been reported, some of them to a small extent to be linked to the vice, others in combination to a great extent. For example, a study was done in New Zealand on Jadelle user's satisfaction levels and reasons for early removals (Roke et al., 2016). Roke et al. (2016) reported that many users who had Jadelle removed prematurely were young and had Jadelle removed within one year of use. Although this study had positive finding on age as determinant, this study only assessed the age and did not consider other demographic factors which together could contribute to early removals.

Contrary to the above, some users have had the Jadelle removed based on expiration and hence have them reinserted. Oranu and Ojule (2018), in their retrospective study in Nigeria, found that slightly over half (56.9%) of the Jadelle users only went back for removal after it was expired and only 10.3% went back to have it prematurely removed for reasons of side effects or complications. This implies that it is possible that Jadelle can be used as prescribed and attain full benefits even with menstrual irregularities. Furthermore, some researchers, Pam (2016) have shown that Jadelle can be used up to five years regardless of some of the problem's users are experiencing. The findings in these studies imply that if measures are put in place to manage the side effects experienced or provide solutions to the factors that prompt early removals, many users could be discouraged to go for early removals. This is evidenced by findings in the Pam (2016) study. However, it suffices to indicate that, Jadelle can be removed prematurely for medical reasons. Some medical reasons for removal include users who have been commenced on Rifampicin. This is because Rifampicin reduces the efficacy of Jadelle (CARMA, 2017). Others may

be those who develop hypertension, gall bladder problems, thrombophlebitis, jaundice and depression. These should not use this implant because it precipitates these conditions (Sellers, 2013).

2.6 Knowledge levels of Jadelle users

Knowledge about a method of family planning is part of the components in the counselling process provided before a contraceptive method is provided. This helps in adherence and compliance. Users of Jadelle are expected to know about how it works, duration of use, chemical components, care of the insertion site and the danger signs of it. Several studies have been conducted in relation to Jadelle utilisation and the knowledge levels of its users.

A study done in Malawi , Blantyre on the perceptions of Jadelle among couples, reported that participants acknowledged knowing the benefits of Jadelle (such as less visits to the clinic and more time to have sexual intercourse with a free mind), because the users were given information during pre-insertional counselling (Kamara et al., 2015), thus reducing on premature removals. A study conducted in USA, Zambia and Nigeria on knowledge of family planning, women reported that effective counselling before the insertion of the implant increased the acceptance levels of Jadelle and consequential reduction in discontinuation rates (Lopez et al., 2013).

Some studies have as well reported on how low knowledge on Jadelle leads to discontinuations. A survey done in San Francisco on implant continuation revealed that; many women could not continue with the implant because of side effects such as irregular or prolonged uterine bleeding, headaches, mood swings, weight gain and others. It was found in this study that users did not have enough knowledge on Jadelle implant particularly on chemical components and how it works (Darney and Meckstroth n.d).

Another study was done in Queensland in Australia as an internal quality assurance project. In this study, the aim was to examine the continuation rate of the contraceptive implant and

the reasons for discontinuation. It was revealed that, most users of the implant had the implant removed at one year because of the side effects, such as heavy bleeding. The study showed that, the knowledge on Jadelle in terms of side effects was inadequate (Adal et al., 2017). This finding is consistent with findings from a review of evidence from real use settings in the United Kingdom and Europe which concluded that 20-25% and up to 44% of women could discontinue within one year and 2 years respectively of implant use, because of low knowledge on what Jadelle is (WHO, 2012). Similar studies to the above were conducted in Chipata, Zambia among married women to determine utilization of contraception, particularly Jadelle implants. These revealed that; women, who had adequate knowledge especially on side effects of the Jadelle, had minimum discontinuation of the implant.

In contrary some studies have reported that even Jadelle users who have high knowledge have had Jadelle removed prematurely (Kamara et al., 2015). In their report Kamara et al. (2015) concluded that the users in their study had it removed because of desire to have more children but they had high level of knowledge. In conclusion, medicines have both benefits and side effects and many times the length of use will depend on the balance between the two. Provision of information on both benefits and side effects could be beneficial to the users. Despite all the above studies on Jadelle, it has a lot of benefits, the major one being contraception, then less time of going back to the providers and more time to have sexual intercourse with a free mind.

2.7: Myths about Jadelle among users

Myths about Jadelle are an important attribute to continuation of Jadelle of use. There have been a lot of reports as to how this can affect the continued usage of Jadelle. For example; IPPF (2012), in their report on Sexual and reproductive rights reported that Jadelle users had a lot of myths such as it causes abortions, its insertions can cause cancers, that the Jadelle implant once inserted in the arm could travel around the body to other parts and can cause problems and also that Jadelle is meant for young women or those who do not have children. Others believed that blood would build up in the uterus or cause reduced libido. These reports are consistent with Machiyama et al. (2018) who reported that, most discontinuations of Jadelle were due to some myths and misconceptions

such as implants can cause cancer and blood pooling in the uterus. Despite that, Machiyama et al. (2018) found that these were dispelled by the providers as there was no scientific evidence.These studies were conducted in Bangladeshi and Kenya. Additionally, Russo et al. (2013), in a study done by American Obstetricians and Gynecologists and society of family planning reported that, in California, United States of America, women had a lot of myths about contraceptive implants which led to premature removals of implant.

Some of the myths included, Jadelle being able to cause cervical cancer, breast, hair loss and osteoporosis. The experts said that there was no scientific evidence to show that Jadelle implant can cause the above medical problems and therefore these were just myths. The purpose of the study was to discuss myths and misconceptions among the users of implants, this was a prospective study done between 2000 and 2008. The survey therefore concluded that, there was great need to give adequate information to the clients to dispel all these myths that many times had led to premature removal of Jadelle.

It can therefore be assumed that many women who have been on Jadelle implants and discontinued it, may have done so based on myths such as the implant could cause abortions as it interferes with the pregnancy once one conceives. This is not possible because available literature indicates that, this implant contains the hormone progesterone. Progesterone hormone is not only a prerequisite for conception but also for implantation of the pregnancy (Fraser and Cooper, 2010). The other myth is that; it can lead to complications in the arm where it has been inserted and that the insertion itself is very painful. This is contrary because the insertion procedure which requires use of lignocaine which anaesthetizes the area to be inserted on, meaning that there is no pain during the insertion procedure (Fraser and Cooper, 2010).

2.8 Misconceptions on Jadelle among its users

Misconceptions have been reported among Jadelle users indicating some misunderstandings on the Jadelle implant. These have been reported to have some influence on the continuation of use of Jadelle. A study done in Pakistan found a strong

association between misconceptions and discontinuation of implants. This was a study done to determine knowledge levels among family planning users (Mustafa et al., 2015). This implies that without adequate knowledge it's possible for Jadelle implant users to have wrong explanations for any unexpected outcome of Jadelle. Another study done in Pacific Island on acceptability of implants reported that most users had misconceptions on the implant which caused them to have it removed prematurely (Edward et al., 2016). Kamara et al., (2015) also reported in his study done in Blantyre, that some men whose wives were using Jadelle said, 'Jadelle makes the semen weak hence no conception'. Even so, the fact is that, Jadelle makes the cervical mucus strong and does not allow the sperm to pass hence this is a misconception (Fraser & Cooper, 2010). Similarly, a Non-Governmental Organization (NGO) - Scaling up family planning in Zambia (SCUFP) observed that the non-use of contraceptives especially implants by women in Kaputa District of Zambia is because of misconceptions such as, it causes infertility. This suggests that, there could be a relationship between misconceptions of Jadelle and its premature removal, although the report is just from one district out of the ninety- five in the country.

2.9: Conclusion

The above literature revealed that premature removals are becoming increasingly common globally. This has also been observed at national level. In this literature review it has been shown that premature removal are common and in some instances the rate is very high. It has also shown that demographic characteristic such as age, parity and education have contributed more to premature removals while, employment, religion only to a small extent. Knowledge about Jadelle implant has been indicated to be a major factor in influencing the removal of Jadelle and much more linked to educational level and locality of the users.

There is also evidence in this literature that most users were going back for removal because of side effects, wanting to have another child or change of method. On the decision of who makes the decision, there is evidence that personal decision to have the Jadelle removed was much evident that being influenced by other people.

Finally, myths and misconceptions which are either linked to religion, or culture have also been indicated to some extent to contribute to the vice especially in areas of low education. Yet, it is not clear as to what information users are given on the implant or how strong is the association between all the above factors to premature removals. It has additionally not been stated at which point during usage are there many premature removals, also the profiles of the users of the premature removals are not detailed. It is therefore imperative that factors leading to this vice be identified.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter describes, the study design, study setting, study population, sample selection methods and sample size. The data collection technique, data collection tool as well as validity and reliability and ethical and cultural consideration for the study are also discussed in this chapter.

3.1 Study design

A descriptive study design was used, which took the form of a cross section. It was a facility based cross sectional study. The study allowed the researcher to get information from Jadelle users from selected health centers without manipulating the study environment. It was meant to assess the frequency and distribution of certain characteristics of the said set variables. The researcher chose this design because it was cheap as it was done within the limited academic time and resources. It also helped the researchers to observe all multiple variables at once and make inferences about possible relationships among them.

3.2 Study setting

In this study, the following sites were used: Chipulukusu, Kawama, Chifubu, Lubuto, Masala and Kabushi from Ndola District. Ndola District is the Provincial headquarters for Copperbelt Province. It has 18 government operated health centers (Ndola DHMT, 2014). Some of these operate 24 hours while others do not. These sites were selected because; they are operational 24 hours daily and have both maternal health and curative services. The provision of family planning is done as integrative on daily basis. However, over the weekend, there are special family planning clinics which run from 08 hours to 16 hours. During this time, most insertion of Jadelle and removals are done, at the same time counseling sessions on family planning are carried out and usually done as couple counseling.

3.3 Target population

The target population was all women of childbearing at the six selected health centers in Ndola district. The total population of women in this category by 2014 was at 47,993 (Ndola DHMT, 2014).

3.4 Accessible population

The accessible population was all women of childbearing age who had Jadelle implant inserted and were coming back for removal at the six selected sites in Ndola District during the period of study.

3.5 Sample selection

Data was collected from the selected sample that were all in the reproductive age with similar problems of either premature or mature removal of Jadelle. Purposive sampling method was used to select the sites and systematic sampling method was used to select the participants for interviews to reduce on researcher bias. The first participant was randomly picked for each site. This was to reduce on bias. This was obtained by dividing the population size by the sample size as shown below; ‘

Population size in 3 months / sample size $= {}^{1800}/_{303} = 6$

Therefore, every 6^{th} client who came for removal of Jadelle was interviewed over a period of three months. The 1,800 is the total number of users who were accessible population in the six sites. This was based on the calculated sample size.

3.6.1: Inclusion criteria

To be eligible for the study, the participants had to be woman who chose to discontinue using the implant as their contraceptive method and had no medical indication and were willing and able to give an informed consent. It also included those who came for removal after five years of use.

3.6.2: Exclusion criteria

The study excluded Jadelle users who came for removal of Jadelle but had medical problems or did not consent or mentally unstable. It also excluded Jadelle users coming for removal from outside the catchment areas under study.

3.7: Sample size

The sample population was calculated by the prevalence formula as this was a descriptive study. It was calculated from a total population of 47,993 of women in the given selected sites, a prevalence rate of 27% with standard error of 0.05. This gave a total of 303 participants. The prevalence rate was calculated from the prevalence of premature removals of Jadelle in Ndola district between 2009 and 2012 (Ndola DHMT, 2014).

Formula: $N = \frac{Z^2 \times P(1-P)}{D^2}$

Where N= Sample required

Z= statistic 1.96

P= Expected prevalence

D= Acceptable accuracy range ± 0.05

The sample size was be calculated based on a total population of 47,993 with a prevalence rate of 27%.

$N= Z^2 \times P\ (1- P)/D^2$

$= (1.96)^2 \times 0.27\ (1- 0.27) / (0.05)^2$

$= 3.8416 \times 0.1971/0.0025= 0.7571936/0.0025= 302.8717$

≈ 303

Interpretation: Based on the expected 27% prevalence of premature removal of Jadelle in childbearing women, the study will need to enroll 303 participants in order to identify the true prevalence with precision of +/-5% or 95% confidence interval.

The following are the proportions of samples in the sites where Jadelle services are being provided.

1. 8 745 × 303 /47 993 = 55.2 ≈ 55 for Chipulukusu clinic

2. 10 756 × 303/ 47 993 = 67.9 ≈ 68 for Chifubu government clinic

3. 11 715 × 303 / 47 993 = 73.96 ≈74 for Lubuto clinic

4. 6 966 × 303/47 993 = 43.979 ≈44 for new Masala clinic

5. 5 367 × 303/ 47 993 = 33.88 ≈ 34 for Kabushi clinic

6. 4 444 × 303 /47 993 = 28.056 ≈ 28 for Kawama clinic

3.8 Data collection tools

A semi- structured interview schedule was used to interview participants. This is because; literacy levels were low among most of the study population. This tool permitted clarification of questions from the participants as the tool was being administered. Questions were written in English then, translated into Bemba for those who did not understand English so that biasness could reduce. The tool had four (4) major sections; Part A had Socio demographic characteristics of the users which had 7 items. This included the age, location, and Parity, Religion, Educational level and Employment status. Part B had the duration of use of Jadelle. It had 4 items which included length of usage of the Jadelle, reasons for removal and the decision maker. Part C had 8 items on knowledge on the Jadelle which included mode of action, benefits, knowledge on duration, chemical components, if review date was important or not, importance of review dates, and dangers signs while using Jadelle, and the last Part D had 4 items on myths and misconceptions.

3.9 Validity

Validity was ensured by covering all the important variables under study in the interview schedule. The questions were clearly constructed with clear instructions and explanations and these questions addressed all the research objectives. The same questions were asked to each participant in the same sequence and participants were not coerced into responding in a certain way to the questions. Simple language was used in the questionnaires for easy understanding and to avoid wrong interpretations.

3.10 Reliability

In this study the researcher used experts to review the instruments before going ahead to administer it. The questions were simple, concise, gave no room for guessing and brief to further ensure reliability and the subjects were exposed to the tool only once. A pilot study was also conducted which also helped to measure reliability. After the pilot study, the following amendments were made to the tool; On the consent form respondents were asked not to be putting full names but initials, on question number 3 of the questionnaire, a fourth option of widowed was added which was missing, and on question number 8, the question was rephrased from how many years to how long have you stayed with the Jadelle implant so that it could room to respondents to give specific number. The environmental factors for interviewing remained the same throughout data collection period. The interviews were within acceptable limits for all the participants so that they were not bored. Anonymity was insured by not putting names, addresses of clients but numbers and codes respectively.

3.11 Data collection technique

A semi-structured interview schedule was administered in a private room identified at each study site. Confidentiality was ensured with the use of unique identification codes and not names. Each site had a trained interviewer. This together with the principal investigator made two interviewers at any given point of interview. The interviewers began by getting permission from the staff member in-charge of the clinic, and then introduced themselves to the participant, thereafter; explain the purpose of the visit and the actual study. Then, explain and obtain both verbal and written the consent from the participant. Upon giving consent, the

participant was interviewed accordingly between 30 minutes to an hour. Two to three participants were interviewed per day so that they were not kept waiting for a long time. Once the interview was over, the participant was thanked and given a drink as a token of appreciation and then allowed to go. After the interview, the interviewers would then document the interview before the next participant to avoid missing on relevant data. The data collection period was between June, and August 2016. This was after the proposal had gone through the ethics committee, the pilot study was done and analyzed and approval from the targeted sites was received.

3.12 Cultural and ethical considerations

The proposal was approved by the ethics committee; UNZA Biomedical Research Ethics Committee (UNZABREC) for authority before conducting the study. Authority was also granted for the sites from the Ndola District health Director. Both verbal and written consents were obtained from the participants. The participants were informed that participation in the study was purely on voluntary basis and no form of payment or incentives were to be provided. The users were interviewed one at a time in a private room for them to feel secure and free and be able to answer sincerely without any feeling of intimidation. Cultural factors were ensured by abiding to the acceptable standards of the given society (greetings, respect and language). Also, a deliberate referencing system was created for those participants who needed to be referred for further counseling and care.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.0 Introduction

This chapter describes the findings and data analysis procedure. It first outlines the data editing, then the data analysis procedures and finally, presents the results obtained. Upon data collection, the interview schedule was checked for completeness, legibility, uniformity, accuracy and consistency to ensure good quality and reliable data. Open ended questions were grouped together and coded for easy entry and analysis.

4.1 Data Analysis

The coded data were entered onto SPSS version 23 for cleaning and analysis. Data cleaning was done by displaying entered numerical data in ascending/descending orders to easily observe extreme values which were wrongly entered and were corrected by referring to the hard copy (questionnaire). Both descriptive and analytical statistical procedures were utilized.

The data analysis first considered descriptive statistics which were presented using frequency tables, pie charts and bar graphs. This allowed for easy comprehension of the findings. The final database had both categorical and continuous variables. Categorical variables were summarized using frequency and percentage distributions while continuous ones such as, age were recorded into relevant categories for easy interpretation then summarized the same way. Cross tabulations using Chi – square and fisher exact tests were then used in order to understand the association between the dependent variable, which was premature removal, and the independent variables (i.e. reasons for removal, demographic characteristics, knowledge on Jadelle by users and myths and misconceptions on Jadelle by the users).

Finally, binary logistic regression results was run to establish the variables statistically significantly determining premature removal of Jadelle. Factors that yielded p-values equal or less than 0.05 were deemed significant.

SECTION A: DEMOGRAPHIC DATA OF THE RESPONDENTS

This section contains information on the socio demographic characteristics of the respondents. It includes the location / sites where the study was done, respondent's characteristics such as the age, marital status, parity, educational level, occupation and religion. The section shows the frequencies of these characteristics and their percentages.

Table 3: Socio- Demographic Characteristics of Jadelle users (n=303)

Variable		Frequency	Percentage
Clinic	New Masala	44	14.5
	Chifubu	68	22.4
	Kawama	28	9.2
	Chipulukusu	55	18.2
	Lubuto	74	24.4
	Kabushi	34	11.2
	Total	**303**	**100.0**
Location	Within catchment area	260	85.8
	Outside Catchment area	43	14.2
	Total	**303**	**100.0**
Age	15 - 34 years	234	77.2
	35 - 44 years	56	18.5
	45 - 55 years	13	4.3
	Total	**303**	**100.0**
Marital status	Single	36	11.9
	Married	251	82.8
	Divorced	13	4.3
	Widowed	3	1.0
	Total	**303**	**100.0**
No. of children	One	87	28.7
	Two	72	23.8
	Three-Four	102	33.7
	Five or More	41	13.5
	None	1	.3
	Total	**303**	**100.0**
Education level	Primary	127	41.9
	Secondary	145	47.9
	College	11	3.6
	University	4	1.3
	None	16	5.3
	Total	**303**	**100.0**
Occupation	Housewife	162	53.5
	Self employed	92	30.4
	Employer	7	2.3
	Employed by an organization	31	10.2
	None	11	3.6
	Total	**303**	**100.0**
Religion	Christian	293	96.7
	Other Religions (Muslims, Buddha)	10	3.3
	Total	**303**	**100.0**

Table 3 shows that most of the respondents (77.2%) were aged between 15 and 34 years, about 33.7% (102) of the respondents had three to four children. Slightly below half (47.9%) had an educational level of up to Secondary school. Majority of the respondents (96.7%) identify as Christian.

SECTION B – PREMATURE REMOVAL OF JADELLE

This section has data on the duration of usage of Jadelle, reasons for the premature removal, person who made the decision to have it removed. The data in this section is presented in different formats, tables and pie charts.

Table 4: Premature removal of Jadelle (n= 303)

Premature removal of Jadelle	Frequency	Percentage
Yes	217	71.6
No	86	28.4
Total	303	100.0

Table 4 shows that majority, 71.6% (217) of the respondents, had Jadelle removed prematurely, while only about 28.4 % (86) had Jadelle removed after five years.

Table 5: Reasons for Removal of the Jadelle (n= 217)

Reasons for removal	Frequency	Percentage
Side effects such as Vaginal bleeding and backache	125	57.6
Wanting to have another child.	92	42.4
Total	217	100.0

Of all the 217 who came for removal of Jadelle prematurely, slightly above half 57.6%, (125) cited side effects while, 42.4% (92) cited wanting to have a child as the reasons for premature removal (removal before the end of five years) of Jadelle among the users.

Table 6: Decision to have Jadelle removed (n=217)

Decisions to have Jadelle removal influenced by:	Frequency	Percentage
Personal	249	82.2
Husband	43	14.2
Relative	11	3.7
Total	303	100

Table 6 above shows that 82.2% (249) of the respondents made the decision to have the Jadelle implant removed, 14.2 % (43) indicated the decision was made by their husbands and only about 3.7% (11) were influenced by their relatives.

SECTION C: KNOWLEDGE ABOUT JADELLE

This section has data on the knowledge levels of the respondents. It includes; knowledge on how the Jadelle works, the benefits of Jadelle, chemical components that makes it prevent conception, care of the insertion site , whether review date is important to keep or not and why it is important to have a review at the health institution. Furthermore, it has data on dangers signs and symptoms of Jadelle and has aggregated information on knowledge levels of Jadelle users.

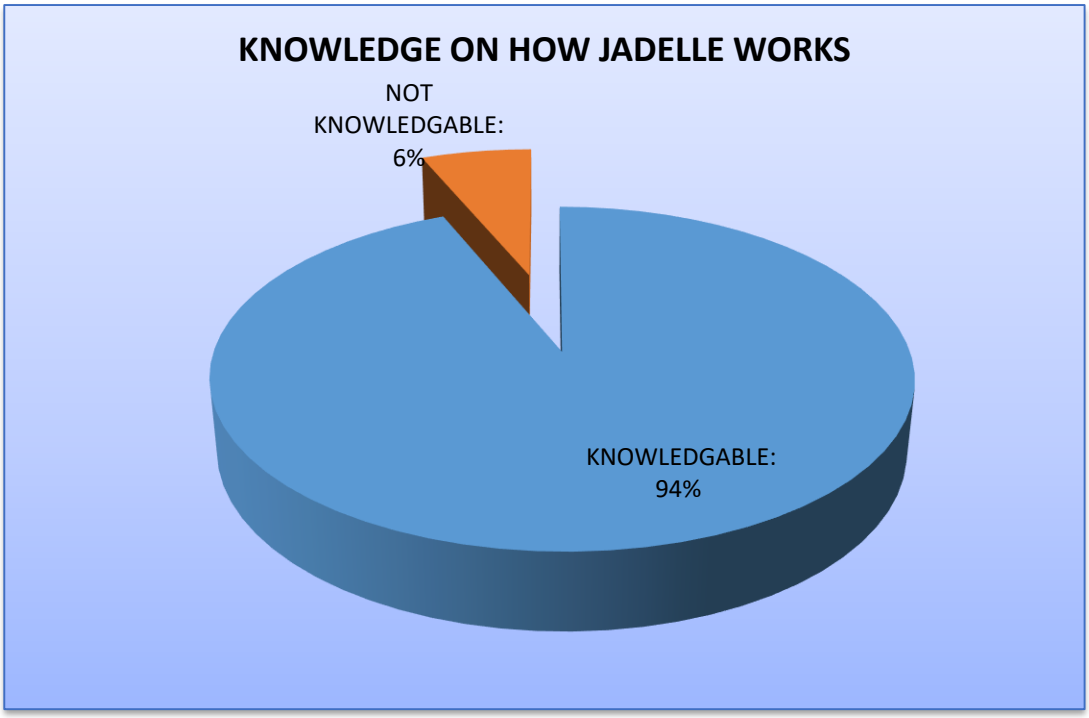


Figure 3: Knowledge on how Jadelle works (n= 303).

Figure 3 shows that majority, 94% (283) of the respondents, were knowledgeable on action of Jadelle and how Jadelle works, while 6% (20) were not knowledgeable.

Table 7: Benefits of Jadelle (n=303)

Benefits of Jadelle	Frequency	Percentage
Less visits to the clinic, able to delay pregnancy for a longer time than when one uses contraceptive pill.	273	90.1
Has no benefits	30	9.9
Total	303	100.0

In the table above, majority, 90.1%, (273) of the respondents, indicated that the use of Jadelle has benefits such as less visits to the clinic and delaying pregnancy for a longer period while, 9.9% (30) responded that it has no benefits.

Table 8: Knowledge on duration of Jadelle use (n= 303)

Knowledge on duration of Jadelle	Frequency	Percentage
One year	1	.3
Two years	2	.7
Three years	30	9.9
Four years	1	.3
Five years	269	88.8
Total	303	100.0

Majority 88.8%, (269) of respondents said Jadelle should be kept for five years, while very few 11.2% (34) said Jadelle should be kept for less than five years.

Table 9: Knowledge on chemical components of Jadelle (n=303)

Chemical components found in Jadelle	Frequency	Percentage
Yes	41	13.5
No	262	86.5
Total	303	100.0

Table 9 shows that the majority, 86.5%, (262), did not know the chemical components found in Jadelle, only about 13.5% knew that it contains hormones to prevent contraception.

Table 10: Care of Jadelle insertion Site (n= 303)

Care of Jadelle insertion site.	Frequency	Percentage
Respondents said no lifting heavy things, no putting water on the site and not removing the bandage less than three days of insertion	302	99.7
Did not know	1	.3
Total	303	100.0

Table 10 shows that almost all 99.7% (302) of the respondents knew how to take care of the insertion site on the arm immediately after insertion of Jadelle.

Table 11: Importance of Review dates when on Jadelle (n=303)

Importance of review date	Frequency	Percentage
For follow up care	241	79.5
Did not know	62	20.5
Total	303	100.0

Table 11 above shows that most respondents, 79.5 % (241), indicated that review is important for woman for follow up care, that is ; checking if the insertion site was healing well while 20.5% (62) respondents did not know whether review date was important or not.

Table 12: Danger signs and symptoms of Jadelle to observe for when a woman is on Jadelle (n= 303)

Danger signs of Jadelle	Frequency	Percentage
Does not know	86	28.4
Vaginal bleeding and severe headache	217	71.6
Total	303	100.0

Table 12 shows that most of the respondents, 71.6% (217), indicated that the danger signs to look out for when a woman is using Jadelle as a family planning method are; vaginal bleeding and severe headache while, 28.4% (86) did not know of any.

Table13: Respondents Overall knowledge about Jadelle (n=303)

Knowledge on Jadelle	frequency	Percentage
High Knowledge	271	89.4%
Low Knowledge	32	10.6%
Total	**303**	**100.0**

Table 13 shows that majority 89.4% (271) of the respondents had high knowledge on Jadelle, while 10.6% (32) had low knowledge.

SECTION D: MYTHS AND MISCONCEPTIONS ON JADELLE

This section presents data on myths and misconception on Jadelle by the respondents. It includes data on whether users have myths or not and the type of myths they have. Furthermore, it has data on whether users have misconceptions on Jadelle or not and the types of misconceptions. The data is presented separately as the two variables of myths and misconceptions were measured separately. It ends with a conclusion on both issues.

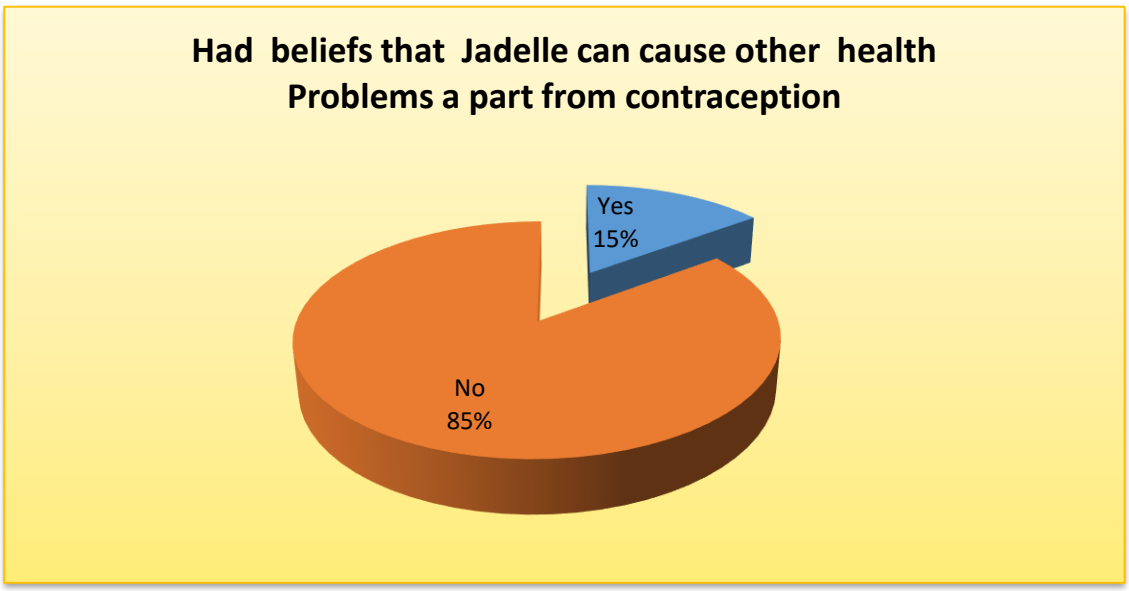


Figure 4: Had beliefs that Jadelle can cause other Health problems other than contraception

The above figure shows that only about (45)15% of the respondents mentioned that the use of Jadelle can cause other problems other than contraception, while majority (258) 85% mentioned that it is just for contraception.

Table 14: Effects on Jadelle (n=45)

Myths about the use of Jadelle	Frequency	Percentage
Cancers of the body	16	35.6
Osteoporosis	11	24.4
Hair loss	4	8.9
Jadelle can travel around the body	9	20.0
Ectopic pregnancy	5	11.1
Total	45	100.0

Table 14 shows about 35.6% (16) of the respondents believed that it can cause cancers of the body, 24.4% believed it can cause osteoporosis, 20% believed it could cause weight gain, 11.1% believed it can cause ectopic pregnancy and 8.9% believed it can cause hair loss.

Table 15: Myths on Jadelle (n=303)

Myths on Jadelle by users	frequency	Percentage
Had myths on Jadelle	45	15%
Did not have myths	258	85%
Total	303	100.0

Table 15 shows that only about 15% (45) of the respondents had myths on Jadelle while majority 85% (258) did not have.

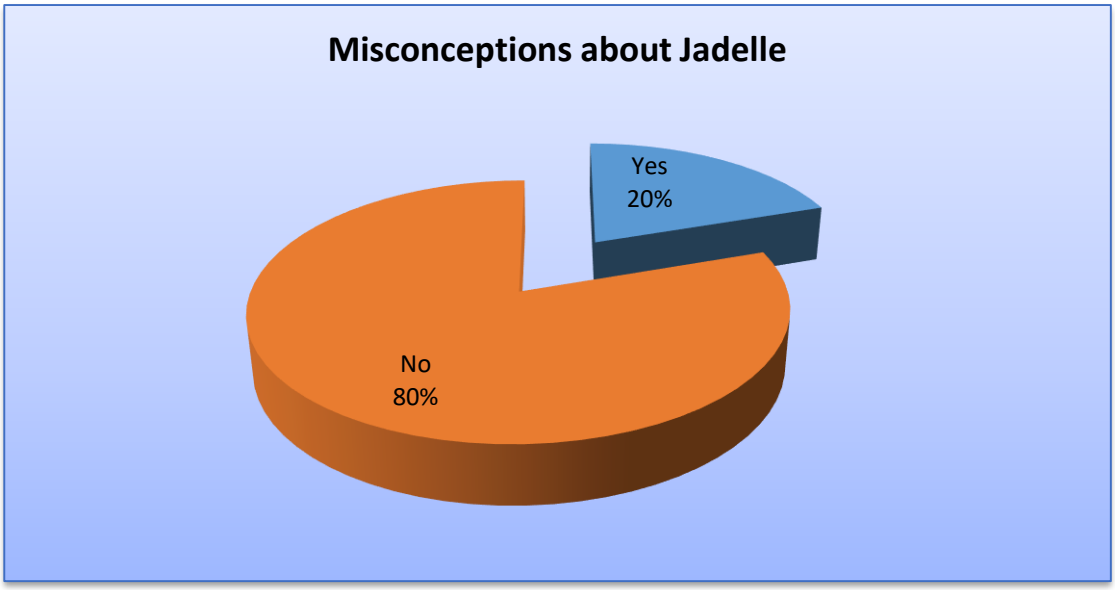


Figure 5: Proportion of respondents who had misconceptions about Jadelle

Figure 6 show that most respondents 80% (243) had no misconceptions while 20% (60) had misconceptions about the use of Jadelle.

Table 16: Type of misconceptions respondents had about Jadelle (n=60)

Misconceptions about the use of Jadelle	Frequency	Percentage
Interference with pregnancy	15	25.0
Infertility	14	23.3
Acne	13	21.7
Weight Gain	8	13.3
Cervical Cancer	9	15.0
Pain on Insertion	1	1.7
Total	60	100.0

Table 16 above shows that problems that were closely linked to the use of Jadelle, 25% (15) of the respondents cited interference with pregnancy, 23.3% (14) cited infertility, 21.7% (13) cited acne, 15% (9) cited cervical cancer, 13.3% (8) cited weight gain and 1.7% (1) cited pain on insertion.

Table 17: Misconceptions of Jadelle (n=303)

Myths on Jadelle by users	frequency	Percentage
Had misconceptions on Jadelle	60	20%
Did not have misconceptions myths	243	80%
Total	303	100.0

Table 17 shows that only about 20% of the respondents had misconceptions on Jadelle while 80% did not have.

SECTION E: ASSOCIATION BETWEEN DEPENDENT AND INDEPENDENT VARIABLES

This section contains data on cross tabulations that were then used in order to understand the correlation between the dependent variable, which was premature removal, and the independent variables (i.e. demographic characteristics, removal of Jadelle, and knowledge on Jadelle by users and myths and misconceptions on Jadelle by the users). Chi- square test was used for all variables to test for association, while fisher exact tests was used for the age variable.

Table 18: Relationship between premature removal of Jadelle and Demographic variables (n=303)

Premature removal of Jadelle Implant					Chi - square value	P-value
		No	Yes	Total		
*Age	15 - 34 years	48	186	234	35.073	**0.001**
		20.5%	79.5%	100.0%		
	35 - 44 years	28	28	56		
		50.0%	50.0%	100.0%		
	45 - 55 years	10	3	13		
		76.9%	23.1%	100.0%		
	Total	86	217	303		
		28.4%	71.6%	100.0%		
Marital status	Married	68	183	251	1.200	0.273
		27.1%	72.9%	100.0%		
	Unmarried	18	34	52		
		34.6%	65.4%	100.0%		
	Total	86	217	303		
		28.4%	71.6%	100.0%		
No. of children	Two and below	30	130	160	15.476	**0.001**
		18.8%	81.2%	100.0%		
	Three and above	56	87	143		
		39.2%	60.8%	100.0%		
	Total	86	217	303		
		28.4%	71.6%	100.0%		
Education level	Primary and below	39	104	143	0.224	0.894
		27.3%	72.7%	100.0%		
	Secondary	43	102	145		
		29.7%	70.3%	100.0%		
	Tertiary	4	11	15		
		26.7%	73.3%	100.0%		
	Total	86	217	303		
		28.4%	71.6%	100.0%		
Occupation	Unemployed	42	131	173	3.343	0.067
		24.3%	75.7%	100.0%		
	Employed	44	86	130		
		33.8%	66.2%	100.0%		
	Total	86	217	303		
		28.4%	71.6%	100.0%		
Religion	Christian	85	208	293	1.719	0.292
		29.0%	71.0%	100.0%		
	Other Religions(Muslims, Buddha)	1	9	10		
		10.0%	90.0%	100.0%		
	Total	86	217	303		
		28.4%	71.6%	100.0%		

*Fishers Exact test was used to find the association

The table of cross tabulation above, shows a statistically significant relationship between premature removal of Jadelle implant and age ($p < 0.001$) and number of children ($p < 0.001$).

Table19: Relationship between Premature removals and Decision to remove (n=303)

Variable		Premature removal of Jadelle implant			Chi - square value	p - value
		No	Yes	Total		
Decision to remove implant	Personal	76	173	249	3.146	0.076
		30.5%	69.5%	100.0%		
	Others	10	44	54		
		18.5%	81.5%	100.0%		
	Total	86	217	303		
		28.4%	71.6%	100.0%		

From the Cross tabulation above, no statistically significant relationship was observed between premature removal of Jadelle implant and decision to remove the implant ($p = 0.076$). ($X^2 = 3.146$, $N = 303$, $p > 0.05$, 2-tailed).

Table 20: Relationship between Premature removal and knowledge (n=303)

Variable		Premature removal of Jadelle implant			Chi - square value	p - value
		No	Yes	Total		
Knowledge about Jadelle	Yes	80	191	271	1.633	0.201
		29.5%	70.5%	100.0%		
	No	6	26	32		
		18.8%	81.3%	100.0%		
	Total	86	217	303		
		28.4%	71.6%	100.0%		

From the Cross tabulation above, no statistically significant relationship was observed between premature removal of Jadelle implant and knowledge about Jadelle ($p = 0.201$). ($X^2 = 1.633$, $N = 303$, $p > 0.05$, 2-tailed).

Table 21: Relationship between Premature removals and Myths (n=303)

Variable		Premature removal of Jadelle implant			Chi - square value	p - value
		No	Yes	Total		
Myths	Yes	8	37	45	2.924	0.087
		17.8%	82.2%	100.0%		
	No	78	180	258		
		30.2%	69.8%	100.0%		
	Total	86	217	303		
		28.4%	71.6%	100.0%		

From the Cross tabulation above, no statistically significant relationship was observed between premature removal of Jadelle implant and the existence of myths about Jadelle in respondents (p = 0.087). (X^2 = 2.924, N = 303, p > 0.05, 2-tailed).

Table 22: Relationship between Premature removals and Misconception

(n=303)

Variable			Premature removal of Jadelle implant			Chi - square value	p - value
			No	Yes	Total		
Misconceptions	Yes		16	44	60	0.108	0.742
			26.7%	73.3%	100.0%		
	No		70	173	243		
			28.8%	71.2%	100.0%		
	Total		86	217	303		
			28.4%	71.6%	100.0%		

From the Cross tabulation above, no statistically significant relationship was observed between premature removal of Jadelle implant and the existence of misconceptions about Jadelle in respondents (p = 0.0742). (X^2 = 0.108, N = 303, p > 0.05, 2-tailed).

SECTION F: LOGSTIC REGRESSION

This section contains data on Binary logistic regression results. Data has been presented on the predictor variables and the outcome variable of premature removal of Jadelle. Variables that yielded p values equal or less than 0.05 were deemed statistically significantly determining premature removal of Jadelle.

Table 23: Binary logistic Regression (n=303)

Variable	p - value	Unadjusted Odds Ratio	Adjusted Odds Ratio	95% Confidence Interval	
				Lower	Upper
Age group	.000				
Age group (1)	**.003**	**.258**	**.320**	**.151**	**.677**
Age group	.002	.077	.101	.024	.419
Marital Status (1)	.175	.702	.608	.297	1.247
No of children (1)	**.047**	**.359**	**.500**	**.252**	**.992**
Level of education	.312				
Level of education (1)	.155	.890	.641	.348	1.182
Level of education	.358	1.031	.545	.149	1.991
Occupations (1)	.739	.627	.906	.505	1.624
Religion (1)	.572	3.678	1.873	.212	16.533
Decision to remove implant (1)	.116	1.933	1.913	.852	4.297
Knowledge (1)	.200	1.815	1.925	.707	5.244
Has Myths	.089	.499	.449	.178	1.131
Has Misconceptions	.607	.899	1.208	.587	2.487
Constant	**.004**		**20.317**		

Table 23 shows that changes in age group from 15 – 34 to 35 – 44 impacted significantly on the outcome variable (p = 0.003), Adjusted odds ratio = 0.320, 95% CI = [0.151, 0.677]). This suggest about a third of the women in this age group are likely to remove the implant prematurely.

Similarly, changes in parity from 2 children and below to three children and above contributed significantly to the model outcome (p = 0.047), Adjusted odds ratio = 0.500, 95% CI = [0.252, 0.992]). After adjusting for confounding variables, an increase in the number of children from 0 -2 to 3 and above reduced the likelihood of removing the implant by 50%.

Variable coding key:

Age group => 15 – 34 years (reference category)

Age group (1) => 35 – 44 years

Marital Status => Married (reference category)

Marital Status (1) => Unmarried

No_of_children => 0 – 2 (reference category)

No_of_children (1) => 3 and above

Level_of_education => Primary and below (reference category)

Level_of_education (1) => Secondary

Occupation => Unemployed (reference category)

Occupation (1) => Employed

Religion => Christian (reference)

Religion (1) => Other Religions

Decision_to_remove_implant => Personal (reference)

Decision_to_remove_implant (1) => Others

Knowledge => Yes (reference)

Knowledge (1) => No

Has Myths => Yes (reference)

Has Myths (1) => No

Has Misconceptions => Yes (reference)

Has Misconceptions (1) => No.

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.0: Introduction

Good utilization of long-term family planning methods has the ability to control fast population growth effectively (MCDMCH, 2012). Jadelle is one contraceptive used as a long-term method of family planning. However, if not properly utilized, it raises concerns. In Ndola District it had been observed that many Jadelle users were not using it to its full capacity, most of them were going back for early removal and the reasons were not clear. This study therefore, aimed at determining the factors contributing to this vice in Ndola District. This chapter discusses the major findings of the study, some limitations experienced during the study and implications to the nursing profession. It then ends with some recommendations for the future.

5.1 Demographic Characteristics of Respondents

One objective of this study was to identify the demographic characteristics of Jadelle users. The study found that, most (77.2%) of the respondents were in the age ranging 15 – 34 years (Table 3). This is not a strange finding because, this is a sexually active group and is hence expected to seek for contraception as the likelihood of conception is high. This is evidenced by the fact that in Zambia, this age group bears over 50% of the total estimated number of unintended births (CSO, 2013). Neukom et al. (2010) in a study done to evaluate the effectiveness of dedicated providers in Zambia, reported that in 14 months of intensified approach of providing long term contraception including Jadelle, the service providers were more able to provide it more to the younger and lower parity population than older women. The only possible explanation to this is that the young and those with few children were more available than older ones.

Furthermore, Han et al. (2014) in their study on contraception use reported that there were more adolescents and young adults using contraceptives than older women. Han et al. (2014) further reported that the other reason why this was so, was because the mentioned group was preoccupied with education and had higher fertility rate than

older women. Although this was so in this study, the difference between this study and Han's study was that Han and his research fellows had specifically picked a sample that was young to be in their experimental group while their comparison had a combination of all ages for the purpose of establishing the factors among its users.

The other finding was that, about 33. 7% of the respondents had three to four children (Table 3). In Zambia majority of women get married early and therefore, are more likely to have more children in their lifetime. Zambia has a high child marriage rate. Two out of five girls will be married before their 18th birthday and about 73.6% are married by the time they are 20 years old (MCDMCH, 2012). Consequently, Zambia has one of the highest adolescent birth rates in sub-Sahara. This is an attestation to the high total fertility rate (TFR) in Zambia (CSO et al., 2015). The total fertility rate in Zambia is currently at 4.7 (CSO et al., 2018). However, this study finding is different from Teunssen et al. (2013) who reported that women who had between three and four children used less contraceptives in his study. The only possible explanation for this difference is that Teunssen et al. (2013) conducted their study in both rural and urban areas while this study was only done in urban areas. In rural areas access to contraceptives is difficult.

In this study 83% of the respondents were found to be married (Table 3). Most women in Zambia marry by the age of 20 years and about 60% of women are currently married (CSO et al 2015). This finding implies that most respondents who are married realize the high risk of conceiving and therefore seek a contraceptive method like Jadelle. This is similar to the retrospective study done in Nigeria on utilization of Jadelle (Adeyemi et al.2018). Adeyemi et al. (2018) reported that most (93.7%) of their respondents in their study were married women and these women sought for contraceptives as they wanted to space their children for a longer time hence the use of Jadelle.

5.2 Premature removal of Jadelle

The other objective of this study was to determine the extent of premature removal of Jadelle. In this study, it was observed that premature removals were high (71.6%), while those that were due for removal after five years were very low (28.4%) (Table 4). These findings are consistent with Gicheru (2016) who also found in his study discontinuation

rate of implants at 74.5% in Kenya. However, the findings in this study are higher than most of the studies reviewed. For example, a study done in Nigeria on the acceptance of Jadelle implant reported that users who were going back for early removals were about 10.3% (Oranu and Ojule, 2018). Another study done in Nigeria it was as low as 2.1% (Ghigbu et al., 2016).

One possible attribute to this finding in the current study was the easy access to health centres where removals are done. Most (86%) (Table 3) of respondents were within the catchment area. This implies that they could walk to the health Centre within one hour and be provided with the required service. The other possible attribute to this vice is the young women who are the majority of respondents (Table 3). These are still highly productive and hence may desire to have Jadelle removed earlier than recommended.

5.3: Reasons for premature removal of Jadelle

Determining the reasons for early removal was another objective in this study. The main reasons given for early removals were side effects of the Jadelle and the need to conceive soon (Table 5). Side effects is the most common reason during the first year of use as evidenced in some studies. In this study it was revealed that more than half (57.6%) of the respondents had given the reason of developing side effects such as irregular vaginal bleeding and backache as the cause for them to have Jadelle removed prematurely (Table 5). This finding could be associated with the low knowledge levels among respondents on the chemical components of Jadelle (Table 9), and hence what was expected in terms of side effects. In Table 9 it showed that most (86.5%) respondents did not know that Jadelle mainly contains the hormone progesterone which causes such side effects such as the ones mentioned above. However, this finding is not strange, studies done by Burusie (2015), reported that most (97%) of respondents had similar problems of inadequate knowledge on side effects and this was the cause for early removal of Jadelle while, on the divergent view Steiner et al. (2010), reported that only about 36% of the respondents who had early removal of Jadelle because of side effects.

The other reason given by respondents in this study for premature removals was the need to have more children soon (Table 5). This could be linked to the fact most respondents were young and had fewer children and hence are expected to desire more children (Table 3). This study showed that most of the respondents were below the age of 35 years and this age group is highly productive (CSO et al., 2015). Though this finding was lower in percentage than the reason of side effects it is higher than the findings in other studies, for example, Burusie (2015), reported only about 36% of the Jadelle users went for early removal of Jadelle because of wanting another child.

5.4: Decision to have Jadelle removed

In this study it was found that majority (82. 2%) of respondents (Table 6) made personal decision to have Jadelle prematurely removed. while, only a few (17 .9 %) were influenced either by husbands or relative to have it removed. The only possible explanation to this finding could be fair educational level, hence understood what was good for them and the presence of side effects which were very common amongst the users.

However, in some studies partner influence has been associated with proper utilisation of long-term methods of family planning such as Jadelle. For example, a study done in Gambia found that male partners were able to influence or decide for their partner's method of family planning and this promoted utilisation (Dampha et al., 2018). Another study conducted in Uganda indicated that decision made by the male partner were related to good utilisation of contraceptive implants (Anguzu et al., 2014).

5.5: Respondents knowledge on Jadelle

The current study set out to measure also the respondents' knowledge levels on Jadelle. In the study it was found that respondents had generally high (89.4%) knowledge on Jadelle, (Table 12). This is linked to the finding of slightly below half (47, 9 %) of the respondents having an educational level up to secondary school (Table 3). This is an expected finding as the study was conducted in an urban setting where most schools are accessible and hence most people can manage to go to school and attain basic education. This finding of high knowledge levels, though higher, is similar to Hubacher (2012) who

found in his study that at least 32% of Jadelle users had been up to secondary school, and these continued with Jadelle up to five years because they had a better understanding of the Jadelle. This was a study done to isolate the role the initial contraceptive method has on preventing unintended pregnancy in Nairobi, Kenya. This finding is also similar to a study done in Southern Ethiopia to determine utilization of implants which revealed that, most (75.9%) implant users had high knowledge on it and therefore had less discontinuation rates (Hailemariam and Elias, 2015).

The findings of high knowledge in this study could also be linked to the study stetting of urban areas where information is easily accessible through television sets, radios and social media. About 81.9% of the Zambian populations who have mobile phones are within the ages ranged 10- 24 years (Zambia Communications Technology Authority [ZCTA], 2013). About 80.3% of the Zambian population have access to Television sets and watch Zambia National Broadcasting Corporation (ZNBC) (ZCTA, 2013).

The other contributing factor is through church gatherings, where respondents could get information. In this study it was revealed that everyone (100%) belonged to a religion (Table 3). In addition, about 48.6% of the Zambian populations who use internet for education purposes are within the range of 15-34 years (ZCTA, 2013).

5.6 Myths and Misconceptions on Jadelle by the Respondents

This study also aimed at establishing myths and misconceptions on Jadelle use among women requesting for premature removal of Jadelle. In this study it was revealed that most (85%) respondents did not have any myths on Jadelle (Table15), only about 15% had myths on Jadelle. Out of these respondents who had myths, 35.6% said it could cause cancers. About 24.4% believed that it can cause osteoporosis, 20% believed that it can cause weight gain, 11.1% believed that it can cause ectopic pregnancy and 8.9% believed that it could cause hair loss. This is not a rare finding as it has been observed in other studies, for example a study done in Kenya on contraceptive implants reported that Jadelle users had similar myths towards the implant (Gicheru, 2016). However, Gicheru (2016) concluded that myths were service-related issues; he recommended that if providers were giving accurate information on the implants, more especially how it

works, myths could reduce amongst the Jadelle users. However, some studies have shown to find myths among Jadelle users, especially the older women (above 30 years). In a study conducted in California, Russo et al. (2013) found that young women were able to continue with contraceptive implants than older ones because the older ones had myths.

This study further revealed that most (80%) of the respondents did not have any misconceptions, only about 20 % of respondents had misconceptions on Jadelle (Table17). Among those who had misconceptions on Jadelle; 25% thought Jadelle interferes with pregnancy, 23.3% thought that Jadelle was linked to infertility, about 21.7% thought Jadelle was linked to Acne, 15% thought Jadelle caused cervical cancer. About 13.3 % thought Jadelle contributed to weight gain, while few (1.7 %) thought Jadelle caused a lot of pain on insertion. This is not a rare finding. A study done in Ghana revealed that many users had misconceptions on the use of contraceptive implants and not only on implants but also on other methods of family planning (Odongo et al., 2014). Odongo et al. (2014) reported that the information given to the users on implants was not clear and accurate on methods of family planning and this led to misconceptions.

According to the findings in myths and misconceptions, the only possible explanation is that respondents had high knowledge levels on Jadelle, especially how it works. Most respondents were able to attest to the fact that Jadelle works by providing contraception (Figure 3). In addition, respondents are well exposed to different sources of information as the study was conducted in an urban area, hence had facts about Jadelle. However, a study done in Gambia on Jadelle discontinuation found that users had a lot of misconceptions ((Dampha, et al., 2018).

5.7 Associations between premature removal of Jadelle and independent Variables

The last objective of this study was to determine the impact of demographic factors, myths and misconceptions and knowledge levels on premature removal of Jadelle. Age was significant at p value 0.003. Respondent's aged between 15 and 34 years

were more likely to have Jadelle removed earlier than older ones. This findings in this study on age is similar to Wilson et al. (2014) who reported that Implant users below age of 20 years were more likely to have Jadelle removed earlier (p= 0.05) than older ones. This was a retrospective study done in Pennsylvania among post-natal women on use of implants.

Burusie (2015) also found that 75% of the Jadelle users who went for early removals were below the age of 31 years. This was related to the side effects experienced by respondents which were a major reason for premature removal of Jadelle especially for young people. Bleeding from the vagina is expected only during menstruation and after delivery of a baby; any other time it is taken as an abnormality (Sellers, 2013). In addition, irregular bleeding is a common inconvenience to couples because it reduces the periods of having sexual intercourse, especially the fact that this age group is sexually active and most (82.8%) respondents were married. Irregular bleeding also increases the cost of buying pads more frequently than normal. Currently sanitary pads are costing an average of K20.00 per packet of 10 pads. It is also important to note that wearing a pad or tampon because of prolonged bleeding is very uncomfortable.

The other factor is that this age group also needs to have more children. However, this finding does not coincide with those of Han et al. (2014) and Zyambo (2013) who both reported that younger women were more likely to keep the Jadelle implant for longer periods than adults. Han et al. (2014), echoed that this finding is very economical as this is the most productive age and hence if they use contraception, population growth control could be easier. Although these researchers made such observations in their studies, both had categorically used samples that were in certain age group. These studies were experimental ones, where only the young users were exposed to Jadelle and not all age groups like this study.

The number of children one has, is another factor that was significantly associated with premature removal of the implant (Table 23). This was significant at p= 0.047.The number

of children one has in this study is a very important variable in that it determined the reproductive goal of the user, implying that fertility preferences were closely related to the number of living children a woman had. Generally, as the number of living children increases, the desire to have more children decreases and therefore contraceptive continuation and vice versa (Sellers, 2013). Interest in controlling the number of births grows rapidly as the number of children increases; for instance, in this study 81.2% had Jadelle discontinued and these are users that had two children and below (Table 18).

This is similar to a study done in Southern Ethiopia on discontinuation of implants, in this study it was reported that, the odds of implant discontinuation were 2.3 times greater among women who had history of living children less than 4 as compared to women who had 4 or more living children (AOR:1.8, 95% CI:1.01-3.21), (Tadesse et al., 2017). Siraha (2013) also reported from her study that some users who were going back for early removal did so because they had few children (most of them less than two). This is the study that sought to determine the reasons for low utilization of long acting contraceptives among HIV positive women attending the Harare Post-test support services clinic.

Madugu et al. (2015) had similar findings, in their study it was reported that 55% of Jadelle users who went back for early removal had children in the range between 2 - 5 .This was a study done on the uptake of hormonal Implants Contraceptive. The findings in Madugu et al. (2015) study were linked to reason of wanting another child as the first reason while ,in this study it was revealed that the second commonest reason for early removal was that, users wanted to have another child soon (Table 5). This implies that most respondents were delayers or spacers for shorter periods than five years and hence needed to conceive in much earlier than five years. In addition, most respondents had no career prospects as they had only basic education (Table 3).

However, Burusie (2015), found no statistical significance between those who had 4 children or less with premature removals. Balogun et al. (2016) also did not find an

association between number of children and premature removals. The findings in these studies were different from the current study because, in both above studies the aims were to establish if irregular vaginal bleeding was the cause for premature removals or not. Wilson et al. (2014) also did not find an association between number of children and premature removals; in fact, it was the lowest (12%) of all reasons for the premature removal of Jadelle.

The current study did not establish a significant association between who make the decision to remove and premature removals (Table19), (p=0.076). This is because most decisions to have Jadelle removed early were made at a personal level (Table 6). The finding in the current study is consistent with Pam (2016) who also did not find association between the said variables. However, in some studies it has been reported to be positive. For example, Elias and Hailemariam (2015) reported that 55% of the respondents had used Jadelle implant based on decision after consultation with their husbands. Elias and Hailemariam, (2015) further reported that Husband–wife joint decision increased the use of implant contraceptive 5.65 times more when compared with those women who did not have joint decision with their husbands (AOR 5.65, 95% C.I 2.78-11.51).

However, Bakibinga et al. (2019), also reported that 'where contraceptive resources are available, the decision to use contraception often may involve two individuals who may have conflicting fertility preferences. In this case, a woman's ability to decide could be relative to her partner's as well as her ability to conceal her contraceptive choices could be important determinants of contraceptive use'. This was a study done on contraceptives in Zambia.

This study did not establish an association between respondents' knowledge on Jadelle and premature removals (p= 0.201). Knowledge levels among the users in this study were found to be generally high (89.4%) (Table13). This finding could be linked to the average levels of education of most respondents. The higher the educational level the easier it is to acquire knowledge. The finding is consistent with Pam (2016) whom also did not find an association between the said variables. However, other studies reported strong

relationship between knowledge and Jadelle implant, for example studies done by Mupasi et al. (2016) in Zimbabwe did a study on dual contraceptives of implant and others reported that there was a strong relation between knowledge of users and the Jadelle implant with a $p < 0.017$. Another study done by Russo et al. (2013) found a strong correlation between premature removal and myths among the users. Furthermore, Mubarik et al. (2016) found a strong correlation between knowledge levels and premature removals. The only possible explanation why the difference between the current study and Mubarik was the Mubarik's study had grouped the knowledge variable with other factors.

In this study there was no association established between misconceptions and premature removal of Jadelle ($p= 0.0742$). Misconceptions are generally very common among Africans because they don't have a culture of reading and this is coupled with high illiteracy levels in Sub-Sahara Africa (New China, 2018). Currently there are 203 million people above the age of 15 years who cannot read and write in Sub-Sahara (New China, 2018). They would rather listen from one person who has read. This is likely to lead a lot of people into having false explanations of any outcome. It could be assumed then that because of the fair literacy levels among the users in this study, they are able to read pamphlets on Jadelle and hence the levels of misconceptions are very low. This is contrary to Russo et al. (2013) who reported in their study findings that misconceptions on Jadelle by users were strongly associated to premature removal. Another contrary finding was in Malawi in a study done to assess removal of Jadelle. In this study it was reported that users had misconceptions on Jadelle (Kamara et al., 2015).

The current study attempted to establish associations between premature removal of Jadelle and myths and an association was not found ($p= 0.087$). This is particularly linked to information on Jadelle, what it is and how it works including unexpected reactions. The finding in this study suggest that most users had high knowledge on how Jadelle works and what it is, hence, its association to the outcome variable was weak. This finding tarries with Nageso and Gebretsadik (2018) who also did not find an association between the said variables.

However, this is contrary to findings in Kamara et al. (2015) where they reported that users had myths about Jadelle suggesting that it was making the sperms weak. This finding was linked to ineffective pre insertional counseling to the users. Furthermore, Gueye et al. (2016) also found a strong relationship between premature removal and myths. The difference between this study and Gueys's could be in the levels of education and location of Jadelle users.

5.8 Strength of the Study

The study achieved its main aim of determining the factors contributing to premature removals of Jadelle among its users in Ndola District. The study established a significant association between premature removals and, age and parity. It has added to the body of knowledge which will form policy towards development of strategies in providing family planning particularly on Long Term Reversible Contraceptive Hormones (LARCH) and promote maternal and child health.

5.9 Limitation of the Study

The data collection technique of face to face interviews was intimidating to some women despite assurances; they could not have given all the information required especially on reasons for premature removals. Furthermore, the study focused on users only and not on providers, the providers could have different views on premature removals, and if the providers were considered it could have been good to consider the duration of their experiences as this has an impact on the outcome of the services being provided.

5.10 IMPLICATIONS OF THE STUDY TO NURSING

5.10.1: Nursing Education

This study revealed that most users had the implant removed because of young age, and the number of children. This is linked to family planning provision services, in this case profiling. Nursing education plays a vital role in training midwives on how

to communicate with clients especially those seeking family planning so acquisition of skills such as counseling (profiling) and utilizing the nursing process to identify individual needs. This will mean more efforts in instilling skills to the midwives. This will avoid a lot of users coming back for premature removals.

5.10.2: Nursing Administration

Midwives are usually overwhelmed with work; this is because they are usually less than the established requirements in most institutions. The supervisors need therefore to ensure that quality care is provided to Jadelle users. There must be adequate time spent before and after insertions with the clients to help them through all would be challenges before, they leave the health institutions. The implications therefore to the supervisors is to increase in the efforts of supervising staff so that proper or quality care is provided and ensuring good staffing all the time. The supervisors should also ensure that there is a youth friendly corner to provide care to adolescents which is specific.

5.10.3: Nursing Practice

This study revealed that there was an association between parity and age and premature removal of Jadelle. It will be good for midwives to provide individualized care based on client's needs. For those who have reproductive goals of having another child in three years' time, the health practitioners could provide appropriate family planning methods. They need to do quality profiling so that the clients' needs are met.

5.10.4: Nursing Research

The study revealed that there are a lot of premature removals among its users. There is very little literature on this. More research is needed in the area of family planning outlining among the users, especially to establish which family planning methods could be suitable for young women and those with few children or none. This is to build the body of the nursing profession on it.

5.11 Conclusion

Provisions of effective family planning methods are key components in reducing maternal and child mortalities, and yet this area of services seems not to receive the grave attention it deserves. Despite numerous efforts by the government, the utilization of contraceptives like Jadelle implant have not been to their full capacity. In this study it has been revealed that age and parity are associated with premature removals. The study also found that the main reasons for early removals were side effects of irregular vaginal bleeding and wanting to have a child in the near future. Howe ever, the study revealed that most users had high knowledge on Jadelle implant and had no myths and misconceptions. Having well trained and committed midwives to provide this service can help promote full utilization of Jadelle implant and reduce on premature removals of Jadelle. The varied reasons for the many removals need to be explored and measures put in place so that there is full utilization of Jadelle implant.

5.12 RECOMMEDATIONS

5.12.1: To the Midwives

The study revealed that overall, the midwives do not establish reproductive goals according to age how many children one intends to have, and so much attention needs to be paid to this. Midwives need to give the recommended information on contraceptive implants by WHO to clients, follow up and provide individualized care. Additionally, avail the clients all possible methods that they can benefit.

5.12.2: To Ministry of Health

As a measure to improve the utilization of Jadelle, Ministry of Health (MoH) needs to expand the establishment in health centers for midwives, so that there are many practitioners in the maternal and child health departments, particularly for family planning services. Also, there is need to continue with capacity building in the midwives on skills of profiling on family planning and the nursing process. In addition, establishing youth friendly family planning centers, so that young mothers are well attended to could be of much help.

5.12.3: General Nursing Council

There is need to strengthen curriculum on Information Communication and Education (IEC) and use of GATHER acronym especially on profiling skills. If possible, these should be examinable at final examinations. More attention needs to be paid to practicing skills of counseling and IEC provision. The profiling of clients of care must be individualized. Also the midwifery curriculum should be strengthened on adolescent's health.

5.12.4 Future Research

This study was limited to Jadelle implant, there is need to determine which family planning methods could be suitable for the young women and those with non or few children There is also need to determine the partners and couples' views' on family planning. Also, a similar study to this should be done at a large scale so that it is generalized to the entire country. Additionally, there is need to standardize methods of doing research so that the expected data is collected, as they affect researchers, policy makers and contraceptive users.

5.13 Dissemination of Findings

These study findings were presented at graduate seminar on 8th August 2017. The findings will also be presented to the Management at Ndola DHMT during clinical meetings, as this was the study site. Results will be published in a recognized journal such as Zambian Medical Journal and other internationally recognized Journals. In addition, bound copies will be submitted to the School of Nursing Sciences- UNZA-Medical Library, Main Library and Biomedical Ethics. The researcher will also present the findings to Midwives Association of Zambia Foras.

REFERENCES

Abraham, C. and P. Sheeran. 2015. "Health Belief model." *Research gate*. Available at https://www.researchgate.net/publication/290193215.

Adewusi, A. 2017. "Women under pressure: how society encourages baby factories and toxic mothers." *Non-Parents Newsletter*. Available at: https://www.nonparents.com/issues-surrounding-childlessness/impact-on-relationships-and-self-esteem/having-children-is-a-must-for-us-as-african-women/.

Adongo, B. P., T. N. Tabong and P. Tapsoba. 2014. "A comparative qualitative study of misconceptions associated with contraceptive use in southern and northern Ghana." *Frontiers in public health journal*. **2** (137). Available at: http/www.ncbi.nlm.nih.gov/pmc/articles.

Akinbami, A.A., A.Gbadegesin, A. S. Ajibola, E. I. Uche, A. O. Dosunmu, A. Adediran, and A. Sobande. 2015. "Factors influencing CD4 cell count in HIV-positive pregnant women in a secondary health center in Lagos, Nigeria." *HIV/AIDS*. 7. *pp. 115–118*.Avaibale at : https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4401335/.

Anguzu, R., R. Tweheyo, J. Sekandi and V. Zalwango.2014. "Knowledge and attitudes towards use of long acting reversible contraceptives among women of reproductive age in Lubaga division, Kampala district, Uganda. *"Research gate journal.* Available at: https://www.researchgate.net/publication/260874087_Knowledge_and_attitudes_towards_use_of_long_acting_reversible_contraceptives_among_women_of_reproductive

Armstrong, K. 2018. "The WEIRD science of culture, values and behavior' Association for Psychological science." *Psychology of social science.* Available at: http://www.psychologycalsicnec.org.

Asaye, M. M., S. Gigussie & M. Ambaw. 2016. "Early discontinuations and associated factors among Implanon user women in Debre Tabor Town, Public health facilities, Northwest Ethiopia." *International journal of reproductive health*. Available at:.http://www.ncbi.nlm.nih.gov/pubmed/29796392.

Bakibinga, A., D. Matanda, L. Kisia, N.Mutombo. 2019. "Factors associated with use of injectables, long-acting and permanent contraceptive methods (iLAPMs) among married women in Zambia: analysis of demographic and health surveys, 1992–2014.ORCID."Availabe at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6555706/.

Balogun, O.R., S. Rakiya ,F. Ma & A. Adeniran .2016. "Jadelle Subdermal Implant: Evaluation of acceptance, effectiveness, side effects and discontinuation in Llorn, Nigeria*." Research gate journal.* Available at: http///www.researchgate.net/publication/310059395.

Bendix, D. and S. Shultze. 2018. 'The Political economy of Family Planning: Population Dynamics and Contraceptive Markets." *Development and Change.***49** (2).pp. 259-285.Avaialable at: https://onlinelibrary.wiley.com/doi/abs/10.1111/dech.12363.

Bhatia, P., S. Nangia, S. Aggarwal. and C. Tewari .2011. "Implanon: Subdermal single rod contraceptive Implant." *Journal of Obstetrics and Gynaecology of India.*61(4)Available at : https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3295879/.

Burusie, A. 2015. "Reasons for Premature Removal of Implanon among Users in Aris Zone, Oromia Region, Ethiopia." *Reproductive System and Sex A.ual Disorders: Current Research* **4**(1). Available at: http//www.longdon.org/open.acess.

Bogale,B., M. Wondafrash, T. Tilahun, and E.Girma.2011."Married women's decision-making power on modern contraceptive use in urban and rural southern Ethiopia." *BMC Public health.* Available at:

https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-11-342

Central Statistical Office Zambia, Ministry of Health Zambia, and ICF International. (2015). Zambia Demographic and Health Survey 2013-14. Rockville, Maryland, USA: Central Statistical Office, Ministry of Health, and ICF International.

Central Statistical Office Zambia, Ministry of Health Zambia MoH), and ICF International. (2019). Zambia Demographic and Health Survey 2013-14. Rockville, Maryland, USA: Central Statistical Office, Ministry of Health, and ICF International.

Central Statistical Office & Ministry of Gender (2015). Gender Status Report Zambia 2012- 2014. Available at: https://www.zamstats.gov.zm/phocadownload/Gender/Gender%20Status%20Report%202012-2014%20290616.pd

Dampha,I., M. Jasseh, J.S. Sawo. 2018." Perceptions and Acceptance of Levonorgestrel Implants among Family Planning Clients within greater Banjul Area, The Gambia." *International journal of nursing and clinical Practices.* Available at: https://doi.org/10.15344/2394-4978/2018/293

Davidson, M., M. London and P. Ladewig. 2012. Olds' Maternal- Newborn Nursing & Women's health Across the lifespan. Harlow: Pearson Education Limited.

Dietrich, C. 2010. "Decision Making: Factors that Influence Decision Making, Heuristics Used, and Decision Outcomes." *Enquiries journal*.2 (2). Available at: http://www.inquiriesjournal.com/articles/180/decision-making-factors-that-influence-decision-making-heuristics-used-and-decision-outcomes.

Elias, B. and B. Hailemariam. 2015. "Implants Contraceptive Utilization and Factors Associated among Users." *Journal of Women's Health Care. **4** (281) available at: https://www.omicsonline.org/open-access/implants-contraceptive-utilization-and-factors-associated-among-married-women-in-the-reproductive-age-group-1849-year-in-southern-ethiopia-2167-0420-1000281.php?aid=63946*.

Edward, A., W. Dix, A. N. Sally, P. Rawstorne. 2016. "Informing the introduction of contraceptive implants in the Pacific: a mixed methods study of contraceptive beliefs and behaviours in Tonga." *Australian and New Zealand Journal of Public Health*. 40(2). Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/1753-6405.12494.

Fraser, A.M. and M. Cooper. 2010. Textbook for Midwives.14th ed. Churchill: Livingstone.

Ganzalez, C. G., M. W. Flouders, R. Chang, A.T. Baria, & B. J. He. 2018. "Past experience's shape what we see more than what we are looking at now." *Science daily*. Available at: http://wwwsciencedaily.com.

Gicheru, F. N. 2016. 'Determinants of discontinuation of five years implant amongst women of reproductive age in selected health facilities of Nairobi, Kenya." East African Health Publication and thesis Hub **12**(1).Available at http://publications.universal health 2030.org/ref/468.

Chigbu, B., S. Onwere , A. Onwere , and C. Kamanu C. 2016. "Patterns of discontinuation of long acting reversible contraceptives in Southern Nigeria." Green journal. 9N (124).Available at: htpp//journals./www.com/greenjournal/abstract/2016/0500.

Glasier, A.and A. Gebbie. 2017. "Contraceptive Implant." *Science Direct*. Available on http://www.sciencedirect.com/topic/medicineand dentistry/contraceptive implant.

Glanz, K.R., B.K. Rimer, F.M. Lewis. 2002. "*Health Belief Model." Health communication.* Available at: https://www.utwente.nl/en/bms/communication-theories/sorted-by-cluster/Health%20Communication/Health_Belief_Model/.

Guyton, A.C. and J.E. Hall. 2010. Textbook of Medical Physiology,10th ed. Philadelphia: Sauder's company.

Gueye, A., S. S. Ilene, M. Corron, O.C Chinelo. 2016." Belief in Family Planning Myths at the Individual and Community Levels and Modern Contraceptive Use in Urban Africa. *HHS Public access.* Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4858446/

Han, l., B. Stephanie, J. Sheder. & K. Tocce.2014. "Preventing repeat pregnancy in adolescents: is immediate postpartum insertion of the contraceptive implant cost effective?". *American Journal of Obstetrics & Gynecology*.**211** (24). Available at: https://www.ajog.org/article/S0002-9378(14)00220-8/pdf.

Hoggart, L.and V. Louise."2012. Young women's experiences of side-effects from contraceptives implants: a challenge to bodily control." *International journal on sexual and reproductive health and rights*. Available at: http//www.tandfonline.com/loi/zrhm20.

Hornby, A.S. 2010. Oxford Learners Dictionary of Current English. University Press: New York.

Hubacher, D. 2012. "Preventing Unintended Pregnancy Among Young Women in Kenya: Prospective Cohort Study to offer contraceptive Implants." *The Journal Contraception* [online]. Elsevier. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0010-7824(12)00186-2

Ijeoma, N.E. E.and F.C.Wekere. 2020. "A ten -year review of Jadelle contraceptive use at Rivers State University Teaching Hospital, south Nigeria." *ResearchGate journal*. Available at: https://www.researchgate.net/publication/310059395

Index mundi. (2018). Angola. Available at: https://www.indexmundi.com/angola/.

International Planned Parenthood Federation. (2012).Hormonal contraceptives.*FP2020 family planning*: Available at: http://www.familyplanning2020.org/entities/181/commitments.

Jacobstein, R. and H. Stanely. 2013. "Contraceptive Implants. Providing better choice to meet growing Family Planning demand." *The Journal Global Health: Science and practice* 1 (1). Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4168562/.

Jacobstein, R.and C. Polis. 2014. “Progestin-only contraception: Injectable and implants.” *Best Practice & research clinical, Obstetrics and Gynecology.* Available at: https://www.sciencedirect.com/science/article/pii/S1521693414001035

Jain, U. 2010. “Competition Tolerance in High- and Low-Density Urban and Rural Areas.” *The Journal of Social Psychology.***105** (2) .Available at:https://www.tandfonline.com/doi/pdf/10.1080/00224545.1978.9924127.

Johns Hopkins Program for International Education in Gynecology and Obstetrics (2015). “Providing contraceptive implant.” *Reference manual*. Available at http://www.jhpiego.org.

Kamara, B. O., R. Rodriguez, G. Chorwe, A.Chimwaza. 2015. “Perceptions of Couples who use Jadelle Implant in Blantyre District, Malawi.” *Open Journal of Nursing.* **5** (11). Available at: http://file.scirp.org/Html/6-1440541_61145.htm.

Knowledge for health (2017). How a nurse Midwife in Haiti is harnessing contraceptive knowledge to better serve new mothers. *Training Resource package for family planning.* Available: at http//www..// medium.com/the exchange.

Lopez, L.M., M. Steiner, D. Grimes, D. Hilgenberg, and K. Schulz. 2013. “Strategies for communicating contraceptive effectiveness.” *Cochrane library*. Available at: http://www.cochranelibrary.com

Madugu, H. A., M. Abdul, U. Bawa, and B. Kolawole. 2015. **"**Uptake of hormonal implants contraceptive in Zaria, Northern Nigeria." *Open journal for obstetrics and Gynaecology*.**5** (5). Pp. 268-273. Available at: http//www.reserachgate.net/publication/27792130

Machiyama, K., F.A. Huda, and J. Cleland. 2018. "Women's attitude and beliefs towards specific contraceptives in Bangladeshi and Kenya." *'Reproductive health*.**15** (75). Available at: http://e-health -journal. biomedcentral.com.

Ministry of Community Development Mother and Child (2012). *Family planning services. Integrated family planning scale up 2013- 2020*. Lusaka. Government printers.

Ministry of Education, Science, Vocation Training and Early Education. 2013. Integrated Science Syllabus. Grade 1 – 7. Curriculum Development Centre Lusaka.

Ministry of Community Development, Mother and Child .2013. Family planning Services: Integrated family Planning Scale up plan 2013-2020. Lusaka.

Muhamed, Z., S. A. Ibrahim and R. A. Attah. 2016. "Jadelle Subdermal contraceptive implant in Amini Kano Teaching Hospital Kano."**33** (1) Available at http//www.ajol.info/index.php/tjog/article.

Mubarik,1. M., N. Jamee. and R. Khalil.2016. "Knowledge, attitude and utilization of sub-dermal birth control implants among married rural women of Pakistan." *International Journal of Research in Medical Sciences.* **4**(6) pp.2229-2239, Available at: http://dx.doi.org/10.18203/2320-6012.ijrms20161792.

Mustafa, G., S. Khurram, E.Azmat, A. Hameed, I. Wajahat, E. Hussain, and E. Munroe. 2015. "Family Planning Knowledge, Attitudes, and Practices among married men and women in rural areas of Pakistan: Findings from a Qualitative Need Assessment Study." *International Journal of Reproductive Medicine* Volume 2015, Article ID 190520, 8 pages Available at: http://dx.doi.org/10.1155/2015/190520.

Mosha, I., R. Rubén and D. Kakoko. 2013. "Family planning decisions, perceptions and gender dynamics among couples in Mwanza, Tanzania: a qualitative study." *BMC Public Health.* 13. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3679800/

Nageso, A. and A. Gebretsadik. 2018. "Discontinuation rate of Implanon and its associated factors among women who ever used Implanon in Dale District, Southern Ethiopia." *BMC women's health journal.* 16 (189*).* Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6245529/

Ndola District Health Office. *Maternal and Child health registers*. (2012-2016).

Neukom, J., J. Chilambwe, J. Mkandawire, R.K. Mbewe, and D. Hubacher.2010. Dedicated providers of long-term reversible contraceptives: New approach in Zambia; international reproductive health journal, *Contraception.* **83**(5) pp 447-452. Available at: http//www.researchgate.net

New China (2018). United Nations decries Sub-Saharan Africa's high levels of illiteracy. *Xinhua. Available at: http://www.xinhuanet.com/english/2017-06. /14/c_136365869.htm*

Oranu, E.O. and J.D. Ojule. 2018. “A Decade of Jadelle Subdermal Implant Contraception in a Tertiary Health Institution in Port Harcourt, Southern Nigeria.” *Journal of Biosciences and Medicines* **6** (3).Available at: http://file.scirp.org/Html/10-2150549_83467.htm.

Pam, V. C., J.T. Mutihir, D.D. Nyango, I. ShambeI, C.O.Egbado. 2016. “Sociodemographic profiles and use-dynamics of Jadelle (levonorgestrel) implants in Jos, Nigeria.” *Nigerian Medical Journal*. **57**(6). Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5126742/.

Pillai V.K. and Y.C. Wang. 2016. “Women’s Education and World Peace: A Feminist dream comes true.” *International Journal of Health Policy and Managment.**5** (2).pp.107-108.*Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4737533. .

Population Council (2002). Pregnancies. *The Journal Studies in family planning*. **45** (3). Available at: https://doi.org/10.1111/j.1728-4465.2014.00393.x .

Roke, C., H. Roberts, A. Whitehead. 2016. “New Zealand women’s experiences during their first year of Jadelle contraceptives Implant.” *Journal of Primary Health Care;* 8(1). Available at:https://www.ncbi.nlm.nih.gov/pubmed/27477370.

Romano, M. J., P. Toye. and L. Pathen .2018. “Continuation of long acting reversible contraceptives among Medicaid patients.” *Contraception.* Available at: http://www.contrcaceptionjournaldoi.org.

Rowlands, S. and Searle S. (2014). "Contraceptive implants: current perspectives." Open Access journal: 5. Available at: https://www.dovepress.com/contraceptive-implants-current-perspectives-peer-reviewed-fulltext-article-OAJC.

Russo, J. A., E. Miller. and M. Gold. 2013." Myths and Misconceptions about Long- Acting Reservable Contraception (LARC)." *Adolescents health* **52** (4). Available at: http://www.jahonline.org.

Sacred Heart of Jesus Catholic Church (2018). Catholic beliefs about contraception. Available at:https://sacredheartwinchester.org/catholic-beliefs-about-contraception/.

Sandle, M. and P.Tuohy. 2017. Everyone's talking Jadelle': the experiences and attitudes of service providers regarding the use of the contraceptive implant, Jadelle in young people in New Zealand. *New Zealand Medical Journal.* **130** (1454). Available at: https://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2017/vol-130-no-1454-28-april-2017/7226.

Sedgh, G.,Singh S.,Hussain R.2014. "Intended and Unintended Pregnancies Worldwide in 2012 and Recent Trends." *Studies in Family Planning* 2014; **45**(3): Available at: https://www.guttmacher.org/article/2014/09/intended-and-unintended-pregnancies-worldwide-2012-and-recent-trends.

Sellers, P.M. (2013). Midwifery.2nd Ed. Claremont: Juta and Company.

Sergiso, J. E., R.M. Stalter, R.L.Callahan, K.H.Rademacher, M.Stainer. 2017. "Cost of Contraceptive Implant Removal Services Must Be Considered When Responding to the Growing Demand for Removals." *Global Health. 5 (2).pp.330-332.*Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5487094/.

Siraha, P.2013. "The reasons for low utilization of long acting contraceptives amongst HIV positive women at Harare posttest services clinic, Zimbabwe." *Sun-scholar research repository*. Available at: http://scholar.sun.ac.za/handle/10019.1/79960.

Simmons, G.R., J.N. Sander, C. Geist, L. Gawron, K. Myers. & K. D. Turoc. 2019. "Predictors of contraceptives switching and discontinuation within the first six months of use highly effective reversible contraceptives initiative salt lake participants." *American Journal Obstetrics and Gynecology*. **220** (4). Available at: https://www.ajog.org/article/S0002-9378 (18)32232-4/pdf.

Statistics Botswana. 2019. Maternal Mortality Ratio 2017. Available at: http://www.statsbots.org.bw.Gaborone.

Tadesse, A., M. Kondale, M. Agedew, F. Gremeskel, N. Boti, & B. Oumer.2017."Determinants of Implanon discontinuation among women who ever used Implanon in Fango District, Southern Ethiopia: a community based case control study." Available at http//www.hindawi.com/journal/ijimed.

Tesfaye, K. 2019." Early Discontinuation of Implant and Its Associated Factors among Women who Ever used Implant in 2017/2018 in Hawassa Health Centers, Southern Ethiopia, 2019.' *Journal of Medical Case Reports and Reviews 2:7 (2019). Available at* www.jmcrr.info.

Teunissen, A. M., B. Grimm. and M.E. Roumen. 2013. "Continuation rates of the subdermal contraceptive Implanon (R) and associated influencing factors." *Research gate.* Available at https://www.researchgate.net/publication/259314529_Continuation_rates_of_the_subdermal_contraceptive_Implanon_R_and_associated_influencing_factors.

Thompson, M. J. 2013. "A Brief history of birth control in the U.S." *Our Bodies Ourselves. Available at:* https://www.ourbodiesourselves.org/health-info/a-brief-history-of-birth-control/.

United Nations Population Fund. 2014. UNFPA Zambia Annual Report – 2014. Available At: https://www.glowm.com/resources/glowm/cd/pages/v6/v6c08.html

United States of American Aid (2014). "Family planning 2020." *Bill and Melinda Gates Institute for Population and Reproductive Health*. Available at: ww.familyplanning2020.org.

United States of American Aid. 2019. "Final Report: Access to contraceptive implant removal in Ghana." *Family health international.* at:https//www.fhi360.org/site/default/files/media/document/resource-access-implant-removal-ghana-report.

United Nations Children's Fund .2018. "Namibia: Survival of Newborns and Mothers." Available at: http://www.unicef.org.

Wilson, S., C. Tennant, D. Sammel and C. Schreiber. 2014. "Immediate Postpartum Etonogestrel Implant: A contraceptive option with Long term Continuation." *Contraception Journal.* 90. Pp. 259-264. Available at: htpp://www.nicbi.nim.nih.gov/pubmed.24993485.

Witwer, E., K. Racheal and D. Lindaberg. 2018. **"**Sexual Behavior and Contraceptive and Condom Use Among U.S. High School Students.' *Guttmacher Centre for population research, innovation and dissemination institute.* Available at: https://www.guttmacher.org/report/sexual-behavior-contraceptive-condom-use-us-high-school-students-2013-2017.

World Health Organisation. 2018. "Emergency Contraception." *Fact sheet.* Available at: http://www.who.int/news-room/fact-sheets/detail/emergency-contraception.

World Health Organization. 2018. “Selected practice recommendations for contraceptive use.” *Sexual and reproductive health.* Available at: http://www.who.int/reproductivehealth/publications/family_planning/SPR-3/en/.

Yaya, S., A. Amouzoi and O.A. Uthmon. 2018. “Prevalence and determinants of terminated and unwanted pregnancies among married women: analysis of pooled cross section surveys in Nigeria.” *BMJ Global Health*, Available at http://www.ncbi,nlm,nih,gov.

Zambia Communication Technology and Authority (2013). 2013 ICT Country Survey Report. Lusaka.

Zambia National health Strategic Plan (2017-2021), 2013. Lusaka.

Zyambo, M. 2013. “The prevalence, determinants and outcome of women with unintended pregnancies delivering at the University Teaching Hospital.”

APPENDICES

APPENDIX A: INFORMATION SHEET

1. **Introduction**

   I am student at the University of Zambia in the school of medicine. Am pursuing a master's degree in nursing science, a research is a partial requirement for the above degree to be achieved.

2. **Study title Study Title**

   "Premature removal of Jadelle implant among its users in Ndola district."

3. **Purpose of the Study**

   To determine factors contributing to premature removal of Jadelle among uses in Ndola District.

4. **Procedure**

   Face- to face exit interviews will be conducted with Jadelle users that have come for premature removal of Jadelle. You will be interviewed one at a time in a separate private room. You are expected to answer questions concerning why you are coming for premature removal of a Jadelle. The interview will take about 20 minutes. You have been selected to participate in this study because you have come for premature removal of Jadelle before it is five years of use hence you will be in a better position to inform this researcher on the reason why you are coming for removal.

5. **Voluntariness**

   Participation in this study is entirely voluntary and you are free to decline or withdraw from taking part in this study without giving any reason. There will be no penalty for that. You also have the right not to answer any questions that you may deem personal or otherwise.

6. **Guarantee of Confidentiality**

   Be assured that the information you will provide during this interview will be confidential and all the forms will be kept under lock and key to prevent unauthorized people from accessing the information.

7. **Risk/Benefits/Discomforts**

   There are no risks involved in this study. There will be no direct benefits to the participants. However, participants with any questions regarding Jadelle will be given appropriate information during data collection.

8. **Compensation/Reimbursement**

   No compensation will be given to the participants in this study

9. **Consequences of Injury**

   No injuries are anticipated in this study as no invasive procedures will be involved.

Persons to contact for problems or questions

Principal investigator
Agnes Chipulu Mwafulirwa,
Ndola school of Nursing
P/A, Ndola,
Phone number: 0966 - 940574

Chairperson (UNZABREC)
Prof. M. Maimbolwa,
University of Zambia,
Nursing sciences
P.O 50110,
Lusaka,
Phone number: 0977- 800067

Co- Supervisor
Mrs. Maureen Makoleka
University of Zambia,
School of Nursing sciences
P.O 50110,
Lusaka,
Phone number: 0977- 862284

APPENDIX B: INFORMATION SHEET (BEMBA VERSION)

IFYOMULEFWAKWA UKWISHIBA

1. **Ukutendeka**

   Ine ndimusambi pasukulu likalamba ilya University of Zambia muchiputulwa cesukulu lya Bumi. Ndesambila amasambililo yapamulu mulu banasi ukuchilapo.

2. **Umutwe welyashi lyakufwaikliksha**

   Ukufwailikisha ubwafya ubulibonse elyo umuntu talapelwa icipepla camasambililo ayapamulu. Ine ndefwailikisha icilelenga banamyo banacifyashi muno mu Ndola yonse ukukana ikala ne nyeleti umuti wa Jadelle imyaka iyaenekela.

3. **Imifwalikishe**

   Uyu umuti uleesha ubufyashi.

   Kuti natemwa ngacakuti mwasumina ukuti mube omo nabo nalaipusha uko utu mepusho tumotumo. Cilikulimwe mwebene ngamwasumina ukti mube mwibumba ilyo lyakulaasuka amepusho pamulandu nyeleti wamuti wa Jadelle.

4. **Ukuiipela**

   Takuli nungu umo uwala mipatikisha iyo, muli abantungwa ukukana nangula ukuleka nelyo namusumina kale.Muli akakabungwe kakwasuka amepusho mulefwaikwa ukwasuka mapesho ayanono.

5. **Iinkama**

   Elyo twakulaipusha aya amepusho, twalaikala mumuputule uwafisama, kuuba fye babili nabakepusha. Ifipepala apotwakulalemba, tafyakumonwe nabalibonse iyo kamofye abasumishiwa kubuteko ngaula nefunde lyachalo.Tatwalembe po neshina lyenu lelo twalalemba ichipendwa, pakwebati mufisame. .Amashiwi yonse ayo twalalanda naimwe yalaba ayamunkama lelo, ichiputulwa chabumi,makamaka bakangalilia, ba nushi eleyo ne chiputulwa cha kupokolola abakela chalo pamo no lyashi lyakufwailikisha, bena bakapelwa insambu shakumona ifyo mwalanda, lelo nabo nimunkama.

6. **Amasanso no busuma**

   Ndecetekela nshamicushe nangula ukumipanika inshila fye yonse, lelo twala posako akashita fye akalinga ili twakulamipusha amepusho. elyo naimwe bene mwalasambililia po fibili nagula cimo.Ngacakwebati mwasumina ukuba ngaumo pali abo , mwala twafwilisha ukutupela amano ayakuti ubuteko and nangula bashimafunde na ba nashi ukukwata amano ayakumyundapilako kuntashi.

7. **Ukubwesha ngakwali ubonaushi**

   Tatwamilipile pakwasuka yamepusho.

8. **Ukundapwa/ Ubwafwilisho**

   Ngacakutila mwasangwa no bwafya ilyo tulemipusha aya amepusho , twala myafwilisha ukulingana nefunde.

Bakafwa Ngakwingaba Ubwafya

1. Ba Agnes Chipulu Mwafulirwa ,

Ndola college of Nursing,

p/a, Ndola.

Inambala yalamya yabo; 0966 – 940574

2. Ba Prof. M. Maimbolwa,

University of Zambia,

School of Nursing sciences

P.O 50110,

Lusaka.

Inambala yalamya yabo: 0977- 800067

3. Inkonkami yabo

Ba Maureen Makoleka

University of Zambia,

School of nursing sciences

P.O box 50110,

Lusaka.

Inambala yalamya yabo: 0977- 862284

APPENDIX C: CONSENT TO PARTCIPATE IN THE STUDY

I ……have been fully informed of the purpose of the study, the benefits, discomforts, risks and confidentiality, and I agree to participate willingly. **Please note that; your** participation in this study is entirely voluntary and you are free to refuse or withdraw from the participation without affecting your work.

Participant's Signature……

Date……

Participant's right thumb print (if unable to write): ……
Interviewer's Signature……

Date……
Name of Witness: ……
Signature of Witness: …….
Date: ……

Name of Researcher: ……...
Signature of Researcher: …….
Date: ……

Persons to contact for problems or questions

Principal investigator

Agnes Chipulu Mwafulirwa,
Ndola school of Nursing,
P/A, Ndola.
Phone number: 0966 – 940574

Supervisor and Chairperson of UNZABREC

Prof. M. Maimbolwa,
University of Zambia,
School of Nursing sciences
P.O box 50110,
Lusaka,
Phone number: 0977- 800067.

Co Supervisor

Mrs. Maureen Makoleka
University of Zambia,
School of Nursing sciences
P.O box 50110,
Lusaka,
Phone number: 0977- 862284

APPENDIX D: CONSENT FORM (BEMBA VERSION)

UKUSUMINISHA UKUBA MUKA BUNGWE KAKUFWAILIKISHA

Ine ……ningufwa bwino bwino ifyo nalaibimba mo, elyo nafyonse ububi no busuma nabolondolola, nasumina ukuti kuti banjipusha ukwabula ukumpafya /ukunsembaika

Twapapata sana mwiba bakumisunkilamo muli aka akabungwe. Muli abantungwa ukwabula ukuluusa nangu nincito yenu.

Nalemba:----------

Ubushi ku bwapa:……..

Kambone…….(Ishina)……

Nalemba:……

Abakwishibisha ngakwali ubwafaya

Umwine insakwe

Ba Agnes Chipulu Mwafulirwa ,

Ndola school of Nursing,

P/A ,Ndola.

Inambala yalamya:0966 - 940574

Bakangalila

Ba Prof. M. Maimbolwa ,

University of Zambia,

School of Nursing sciences

P.O 50110,

Lusaka,

Inambala yalamya: 0977- 800067

Inkonkanyi

Ba. Maureen Makoleka
University of Zambia,
School of Nursing sciences
P.O 50110,
Lusaka,
Inambala yalamya cell:0977- 862284

APPENDIX E: STRUCTURED INTERVIEW SCHEDULE

THE UNIVERSITY OF ZAMBIA

SCHOOL OF NURSING SCIENCES

STRUCTURED INTERVIEW SCHEDULE ON PREMATURE REMOVAL OF JADELLE AMONG CHILDBEARING WOMEN IN NDOLA DISTRICT

Date of Interview: ……

Participant's Number: ……

Code Number of the Clinic: ……..

Instructions to the Interviewer

1. Introduce yourself to the respondent

2. Explain the purpose of the interview

3. Reassure the respondent that all responses will be held in strict confidence

4. Individual names and addresses should not appear on the interview schedule

5. Ensure that all questions are answered and indicate response by ticking in the appropriate box (e.g. √) or filling in the space(s) provided.

6. Thank the respondent at the end of each interview.

SECTION A: DEMOGRAPHIC DATA

1. Where do you stay.....?

2. How old were you on your last birthday...

3. What is your marital status?

   (a) Single
   (b) Married
   (c) Divorced
   (d) Widowed

4. How many children do you have?

   (a) One
   (b) Two
   (c) Three - Four
   (d) Five or more

5. What is your educational level?

   (a) Primary
   (b) Secondary
   (c) College
   (d) University
   (e) None

6. What is your occupation...

   a) Housewife
   b) Self employed
   c) Employer
   d) Employed by an organization

7. What is your religious denomination?

…….

PART B: REMOVAL OF JADELLE

8. How long have stayed with the Jadelle implant

a) Five years and more

b) Less than five years

9. If less than five years, what are the reasons for your premature removal.

……

10. Was the decision to have Jadelle inserted a personal or not?

a) Yes

b) No

11. If No in question 10 who made the decision for you?

……..

PART C: KNOWLEDGE ON JADELLE

12. How does Jadelle work? ……

13. What are some of the benefits of Jadelle? ……

……

14. How long should one keep the Jadelle in the arm?

(a) One year

(b) Two years

(c) Three years

(d) Four years

(e) Five years

15. What are the chemical components of Jadelle that cause contraception?.....

16. How do you take care of the site of the arm where it is inserted…….

17. Is the review date which one is given important

a) Yes

b) No

18. If yes in number 17 what is its importance?.....

……

19. What are some of the signs and symptoms a woman on Jadelle should look out for and return to the clinic immediately if they are present?

PART D: MYTHS AND MISCONCEPTIONS OF JADELLE IMPLANT

20. Do you believe that Jadelle can cause other things other than Contraception?

a) Yes

b) No

21. If yes in number 16 mention some of those things that can out of Jadelle other than contraception?.....

22. Do you think that there are certain problems that are closely linked to the use of Jadelle?

a) Yes ☐

b) No ☐

23. If yes in number 18 what are the other problems that are caused by Jadelle use? ……..

THANK YOU FOR YOUR PARTCIPATION!

APPENDIX F: STRUCTURED INTERVIEW SCHEDULE

(BEMBA VERSION)

THE UNIVERSITY OF ZAMBIA

SCHOOL OF NURSING SCIENCES

STUDY TITLE: PREMATURE REMOVAL OF JADELLE AMONG CHILD BEARING WOMEN IN NDOLA DISTRICT

Date of Interview: ……

Participant's Number: ……

Code Number of the Clinic: ……

Instructions to the Interviewer

1. Introduce yourself to the respondent
2. Explain the purpose of the interview
3. Reassure the respondent that all responses will be held in strict confidence
4. Individual names and addresses should not appear on the interview Schedule.
5. Ensure that all questions are answered and indicate response by ticking in the appropriate box (e.g. √) or filling in the space(s) provided.
6. Thank the respondent at the end of each interview.

ICIPANDE CAKUBALILAPO: UKWISHIBA NAMAYO

1. Bushe mwikalakwi... ..?

2.Muli ne myaka Inga.?..

…….

3. Bushe mwaliuupwa/waliupwa?

(a)Ndimushimbe

(b) Naliuupwa

(c)Twalilekana

(d)Nalifwilwa

4. Bushe mukwete abana banga?

(a) Umo

(b) Babili

(c) Batatu- bane

(d) Basano nokuchila

5. Mwafika pesa mumasambililo?

(a) Amasambililo yanshi

(b) Sekondari

(c) ayapamulu panono

(d) ayapamulu sana

(e) nshayako

6. Ulabomba/mulabomba?

a.) Naupwafye

b). Ndaibombela

c.) Namakwebo

d.) Ndabomba inchito yachikaya

7. Cilonganino nshi ca mapepo mwabamo?

…….

ICIPANDE CABUBILI: UKUFUMYA UMUTI WAKUKANYA

UBUFYASHI (JADELLE)

8. Papwa imyaka iinga apo bamibikile inyeleti mumubili

a) Isano no kuchila

b) Tailakumana isano

9. Ngachukutila imyaka isano tailakumana, isano, cinshi mulefwaila ukufumya elyo tailti fike……

10. Bushe ituntonkayo ilyakubikwa inyeleti lyali lyenu nelyo iyo.

a) Nasumina

b) Nakana

11. Ngachakuti mulekana ukuti tabamitunkile, nibani bapingwile ukti mufumwye umuti?

a) Nemwine……

b) balume nagula bafyashi……

ICIPANDE CABUTATU: AMANO PAMUTI WAJADELLE

12. Musango nshi inyeleti ibombelamo? ……

……

13. Lumbulepo ubukumo ubutumbuka mukubikwa iyi ineyelti mumumbili ……

14. Bushe namyo uukwete uyu umuti mywaka inga, engaekala nayo?

(a) Umwaka umo

(b) Imyaka ibili

(c) Imyaka itatu

(d) Imyaka ine

(e) Imyaka isano

15. Bushe mwalishiba icishimba ichaba muli uyu umti icilenga ukuti namayo eba pabukulu ?……

16. Bushe musunga shanii incende yakuboko apo inyeleti ibikilwe……

17. Bushe cikankala ukubwela kuli shingan'ga pabushiku mwaebwa?

a) Nasumina

b) Nakana

18. Ngacakuti mwatila ee, kulipusho yalenga ikumi limo and cine lubali, busuma nshi bwabapo?

19.Fishibilo inshi namayo uuli neneyelti engamwenako pakuti egnabwelela bwangu bwangu ku cipatala.

……

ICIPANDE CACINE: UKWELENGANYA NO BUFI PA NYELETI YA JADELLE

20. Bushe uyu umuti kuti waleta amafya nangula nafimbi ukuchila pakulesha ubufyashi?

A) Nasumina ☐

b) Nakana ☐

21. Ngamwati ee, kucipusho campedwa amakumi yabili nacimo, kuti mwalumbulako amafya yamoyomo ……. ☐

22. Bushe muletontonkanya ukuti uyu umuti wa nyeleti walikwata Amabwa fya ayakumubili ayendela pamo nu muti uyu? ☐

a) Nasumina ☐

b) Nakana ☐

23 Ngacakwebati mwasumina kucipusho campendwa amakumi yabili nafitatu, kuti mwatwebako amafya yamo yamo…….

NATOTELA MUKWAI PAKWASUKA AYA AMEPUSHO!

APPENDIX G: SCORING SHEET FOR VARIABLES

Variables	No.	Question	Answers	Score
Knowledge	**12**	How does Jadelle work?	a) Provides contraception	1
			b) I don't know	0
	13	What are some of the benefits of Jadelle?	a) Less visits to the clinic and easy to manage.	1
			b) I don't know	0
	14	How long should one keep the Jadelle?	a) Five years	1
			b) Four years	0
			c) Three years	0
			d) Two years	0
			e) One year	0
	15	What are the chemical components of Jadelle?	a) Progesterone hormone	1
			b) I don't know	0
	16	How do you take care of insertion site?	a) Keep it clean and dry all the time, do not lift heavy things one the affected side	1
			b) I don't know	0
	17	Do you think review date after insertion is important	a) Yes	1
			b) No	0
	18	Why is review important?	a) For follow up care b) I don't know	1 0
	19	Mention some dangers when using Jadelle	c) heavy vaginal bleeding and severe backache	1
			a) I don't know any	0
SUBTOTAL				**8**

SCORING SHEET FOR VARIABLES CONTINUED

Variable	Q. No.	Question	Answers	Score
Myths	Do you believe that Jadelle can cause other things? other than contraception	Yes	1	
		No	0	
	If you believe that Jadelle can cause other things other contraception, what are some of those things	a) Cancers of the body, Osteoporosis, Hair loss, Jadelle can travel around the body and become lodged in the brain, the heart, or a growing fetus and Ectopic pregnancy	1	
		b) Do not know	0	
Misconceptions	Do you think that there are certain things that are closely linked with the use of Jadelle?	a) Yes	1	
		b) No	0	
	What are some of the problems that are linked with Jadelle use	A) Interference with infertility, infertility, Acne, Weight gain, Pain on insertion	1	
		B) 99 I don't know	0	
Subtotal			**4**	
Grand total			**12**	

APPENDIX:H

UNIVERSITY OF ZAMBIA
BIOMEDICAL RESEARCH ETHICS COMMITTEE

Telephone: 260-1-256067
Telegrams: UNZA, LUSAKA
Telex: UNZALU ZA 44370
Fax: + 260-1-250753
Federal Assurance No. FWA00000338

Ridgeway Campus
P.O. Box 50110
Lusaka, Zambia
E-mail: unzarec@unza.zm
IRB00001131 of IORG0000774

4th April 2019.

Your Ref: 008-02-16.

Ms. Agnes C. Mwafulirwa,
University of Zambia,
School of Nursing Sciences,
P.O Box 50110,
Lusaka.

Dear Ms. Mwafulirwa,

RE: **REQUEST FOR RENEWAL OF ETHICS CLEARANCE FOR: "PREMATURE REMOVAL OF JADELLE CONTRACEPTIVE IMPLANT AMONG WOMEN IN THE CHILD BEARING AGE AT URBAN HEALTH CENTRES IN NDOLA DISTRICT, ZAMBIA" (REF. No. 008-02-16)**

We acknowledge receipt of your progress report and request for renewal.

Renewal is hereby granted for a period of three years respectively as follows:

a. From 12th May 2017 to 11th May 2018;
b. From 12th May 2018 to 11th May 2019 and
c. From 12th May 2019 to 11th May 2020.

Yours sincerely,

Munsaka.

Sody Mweetwa Munsaka, BSc., MSc., PhD
CHAIRPERSON
Tel: +260977925304
E-mail: s.munsaka@unza.zm

APPENDIX :I

7th July, 2016

Ms. Agnes C. Mwafulirwa
University of Zambia
P.O. Box 50110
LUSAKA

Dear Sir

RE: REQUEST TO CONDUCT RESEARCH ON PREMATURE REMOVAL OF JADELLE AMONG USERS.

Refer to above.

The district Medical Office hereby grants you permission to conduct the above research.

Note, however, that the research will be limited to the provisions of the ethical clearance and that a copy of the final report should be given to the office.

Yours faithfully,

NDOLA DISTRICT MEDICAL OFFICE

Dr. M. K. Simpungwe
DISTRICT MEDICAL OFFICER

APPENDIX: J

University of Zambia,

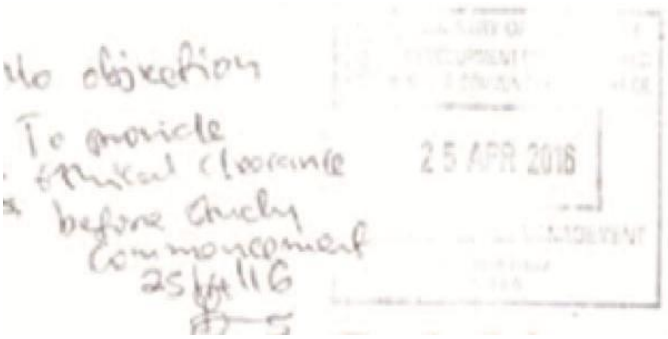
School of Medicine,

Department of Nursing Sciences,

PBRW, 50110,

LUSAKA

18TH April 2016



The Medical Officer,

Ndola district Health Office,

Ndola.

Ufs: The Head of Department,

Department of Nursing Sciences,

Lusaka

Dear Sir/Madam,

RE**: Permission to do pilot Study in Twapia community on Premature Removal of Jadelle among women of child bearing age**.

I am a student pursuing a Master's degree in nursing sciences. In partial fulfillment of the award of a degree, I am required to carry out a research project.

I am requesting for permission to undertake a pilot study in Twapia on women who have Jadelle inserted. I intend to interview women who have Jadelle inserted. My area of interest is to find out the factors contributing to premature removal of Jadelle among women of child bearing in Ndola.

I intend to carry out my interviews between May 1st and 31st May, 2016, if that's convenient for you.

It is hoped that the results of the study will be useful to all women in the child bearing age, who, presently, may not know the dangers and implications associated with this.

I hope to hear from you at your earliest convenient time.

Thanks in advance

Yours Faithfully

AMwafulirwa
MSC STUDENT-UNZA

APPENDIX: K

UNIVERSITY OF ZAMBIA
SCHOOL OF NURSING SCIENCES
JOURNAL OF RESEARCH IN NURSING, MIDWIFERY AND HEALTH SCIENCES

01st July, 2020

Ms Agnes Mwafulirwa

University of Zambia

LUSAKA

Dear Ms Agnes Mwafulirwa,

RE: ACCEPTANCE OF MANUSCRIPT TO THE JOURNAL OF RESEARCH IN NURSING, MIDWIFERY AND HEALTH SCIENCES (JRNMHS)

This is to inform you that your manuscript entitled "PREMATURE REMOVAL OF JADELLE IMPLANT AMONG WOMEN OF CHILDBEARING AGE IN NDOLA DISTRICT, ZAMBIA" has been accepted for publication. You are hereby being advised that publication will be done after payment of the stated publication fee.

Best regards,

Concepta N. Kwaleyela (PhD)
CHIEF EDITOR: JRNMHS