

**TIMING OF INSERTION AND COMPLICATIONS WITHIN SIX
WEEKS OF POSTPARTUM INTRAUTERINE CONTRACEPTIVE
DEVICE USE AMONG YOUTHS IN THIKA LEVEL V HOSPITAL.**


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DECLARATION


I, Dr. Alawiya Abdulkadir Mohamed do declare that this dissertation is my original work and has not been presented elsewhere. This research project is my original work and has not been presented for academic award in any other university. References to work done by others have been clearly indicated.

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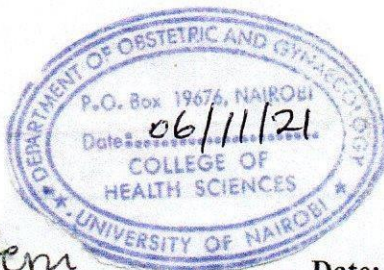
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LIST OF ABBREVIATIONS AND ACRONYMS

ACOG	American College of Obstetricians and Gynecologists
ANC/PNC	Antenatal Care /Postnatal Care
CU T380A	Copper Intrauterine Contraceptive Device type T380A
ERC	Ethical Review Committee
FIGO	International Federation of Gynecology and Obstetrics
FP	Family Planning
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
IUDs	Intrauterine Contraceptive Devices
KDHS	Kenya Demographic and Health Survey
KOGS	Kenya Obstetrical and Gynecological Society
LARC	Long-Acting Reversible Contraceptives
MDG	Millennium Development Goals
MEC	Medical Eligibility Criteria
PMTCT	Prevention of Mother to Child Transmission
PPFP	Postpartum family planning method
PPIUD	Postpartum intrauterine contraceptive device
SDG	Sustainable Development Goals
SVD	Spontaneous Vaginal Delivery
UN	United Nation
UNDP	United Nations Development Programme
UNICEF	United Nations Children’s Emergency Fund
USAID	United States Agency for International Development
VCT	Voluntary Counseling and Testing
WHO	World Health Organization
SPSS	Statistical Package for the Social Science

DEFINITION OF OPERATIONAL TERMS

Adolescents:	People aged 10-19 years.
Children:	People aged 0-17 years.
Youth:	People aged 15-24 years.
Young people:	People aged 10-24 years
Contraceptive prevalence rate:	This is the percentage of currently married women age 15-49 that are using any method of family planning.
Family planning:	According to WHO, “family planning is allowing individuals and couples to anticipate and attain the desired number of children and the spacing and timing of their children through contraception and treatment of involuntary infertility.”
Intrauterine contraceptive device:	This is a flexible device (copper-based or hormone-releasing device) that is inserted into the uterine cavity by a trained service provider. It is a safe and highly effective long-acting (3-12years depending on the type) contraceptive method.
Long term/acting family planning method:	These are reversible family planning methods that prevent contraception for a longer period exceeding three years. This includes contraceptive implants, IUCD/coil.
Unmet need:	According to WHO, Women with unmet need are those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child.

Unintended pregnancies:

These are pregnancies that are reported to have been either unwanted (i.e. they occurred when no children, or no more children, were desired) or mistimed (i.e., they occurred earlier than desired).

Postpartum:

The period after delivery of the products of conception until 6weeks.

Rapid repeat pregnancy:

Pregnancy that occurs within 2 years of a previous pregnancy.

ABSTRACT

Background: Globally the adolescent birth rate was 44 births per 1,000 in 2018, compared to 56 births per 1000 in 2000. In Kenya, the adolescent birth rate is 96 per 1,000 women. In the last five years, the teenage pregnancy rate has remained unchanged at 18%, while the unmet need for family planning services for youth is averaged at 23% (KDHS, 2014). A majority of adolescent pregnancies in Kenya are unintended and unwanted. These pregnancies are preventable with contraception such as LARC like IUDs. In Kenya, there is little data on the use of IUD in adolescence with a few suggesting extreme low usage.

Study Objectives: To determine the type of insertion and complication within six weeks of postpartum IUCD use amongst youth in Thika County.

Methodology: The study was a cross-sectional study, utilizing secondary data from Thika level 5 hospital that was collected from the project, institutionalization of immediate postpartum IUD in six Counties in Kenya conducted by KOGS and FIGO. Data were conveyed to the Statistical Package for the Social Science (SPSS 23) software, cleaned, confirmation of study variables, coding and analysis done. Descriptive statistics for the sociodemographic characteristics of participants were analyzed and presented in the form of proportions and means. Uptake of postpartum intrauterine devices was expressed as a prevalence.

RESULTS: Majority who has PPIUCD inserted was in the age group of 19-22 years (48%) followed by 23-24 years (40%). On marital status, 195 (75%) were married. Most of the youth were housewives (48%) while 54 (21%) were students. Primipara mothers accepted PPIUCD more at 146 (56%). Close to 62% of youth had never used family planning before, with 38% having a prior history of family planning use. Majority of the youth, 228 (88%) had no complications immediately after insertion while the main complaint was severe pain in 20 (8%) and heavy bleeding in 12 (5%) of the youth. No perforation was reported after insertion. IUCD insertion done intra-operatively at cesarean section were 152 (59%) while 106 (41%) of youth had insertion done between 10 minutes to 48 hours post vaginal delivery. The majority of the youth came back for follow-up 238 (92%) at 6 weeks. Out of the 238 who came for follow-up, 38 (39%) complained of complications such as irregular bleeding while only 5% had spontaneous IUCD expulsion at 6 weeks.

CONCLUSION: PPIUCD is acceptable to youth and is a safe convenient method with minimal adverse effects in both vaginal and cesarean deliveries.

1.1 Background

The United Nations (UN) meaning of youth is an individual between the ages of 15 and 24 years, a transition period from adolescence to adulthood (1). The United Nations Children's Fund (UNICEF) likewise defines adolescents as people between the ages of 15-24. The World Health Organization (WHO) however defines adolescents as people inside 10-19 years age bracket. (2)

Adolescence is a transitional and endangered phase defined by significant growth and development. Furthermore, this period has vulnerabilities and opportunities. Thus their experiences can shape the bearing of their lives and that of their households. Therefore, providing thoughtfulness to youth's wellbeing and education is a lifetime investment that will have a positive impact on their attitude and lifestyle during the entire life. (1)

Globally, 16 percent of the world's population is adolescents. (2) By the intended date for the sustainable development goals 2030, the number of adolescents is expected to have grown by 7%, to almost 1.3 billion. Thus without the interest, input and involvement of adolescents, the fulfillment of the SDG will be difficult to achieve. (3)

In Sub-Saharan Africa, adolescents accounted for 16% of the world total, equally divided between Eastern, Southern, West and Central Africa. By 2030, the adolescent population of Sub-Saharan Africa will increase to 23% while the one in Asia and the Pacific will reduce to 48% (18). Kenya is a very youthful country, 32% (9.1million) of Kenyan populations are youths and of this 51.7% are female, furthermore, 61.5% of these are under 25 (41.3% of whom are under 15 and 21.1% are 15-24. (4)

1.2 Prevalence of Adolescent Pregnancies

The WHO reports 16 million adolescents to give birth annually, particularly in low and middle-income nations. Eleven percent of all births globally are from adolescent mothers (5). In 2018, the worldwide adolescent birth rate was 44 /1,000 women aged 15 to 19, contrasted with 56 out of 2000. Kenya's teenage birth rate is 96 per 1,000 women. Over the most recent five years, the adolescent pregnancy rate has stayed steady at 18% (7). Sub-Saharan Africa had the most noteworthy predominance of adolescent pregnancy at 101 for every 1000 ladies (8). Most of the countries with young pregnancy levels above 30% happen in sub-Saharan Africa (9). In Kenya one in every five adolescent girls between the ages of 15-19 have begun

childbearing with 29% of these declaring that the previous birth or current pregnancy was unintended. (6)

The KDHS 2014 report indicated that 18% of Kenyan adolescents had begun childbearing with notable differences in regional variations (6). For instance, Nyanza and Coast provinces had twice as high adolescent pregnancies compared to other regions especially the central region (10). These statistics are a reflection of the social indicators of development patterns such as education that lead to a delay in the onset of childbearing. A third of uneducated teenagers (32%) have begun motherhood, compared with only one-tenth of those with some secondary education and above. Likewise, childbearing in youth from poorer households is more likely to have begun (24%) than in youths from wealthier households (16%) (7).

1.3 Socio-Economic Impact of Adolescent Pregnancies

Adolescent pregnancy is a universal health issue, especially as it accounts for 23% of the general illness burden (disability-adjusted life-years) owing to pregnancy and childbirth (5). Approximately 70,000 young people die each year from pregnancy-related difficulties, while at least 2 million more are left with incessant ailment or incapacities that can cause them long-lasting anguish and disgrace (8). Moreover, the emotional, psychological and social needs of pregnant youth girls can be greater than those of older women. The primary cause of death among youth girls is complications from pregnancy, birth, and unsafe abortion. Among girls 25 and below living in the developing world, maternal sepsis and hemorrhage are common causes of death (9). Moreover, perinatal mortalities are 50% higher in infants from adolescent mothers than those who are born to women older than 20 years; these infants are also more probable to be born preterm and with a low birth weight (5). Moreover, around 2.2 million teenagers are living with HIV, of which 60% are girls. Youth bear an unbalanced weight of new HIV infections, they make up 58% of new HIV infections among youth and 67% of these new infections are in Sub-Saharan Africa (15). Also, up to 65% of obstetric fistula develops in adolescents, with dreadful outcomes for their lives both physically and socially (5).

Since a majority of these pregnancies are unintended, they result in social ramifications that limit the potential of youth by putting them at great risk for untimely birth, longstanding poverty, school dropout, drug abuse, and misconduct. Moreover, it exposes both mother and child to the danger of poor health and socioeconomic consequences, bringing about

astounding expenses to our country. Therefore, spacing their next pregnancies gives youth time to focus on their education, employment and health.

1.4 Adolescent Pregnancies and Unmet Contraceptive Needs

In Kenya, the teenage birth rate is 98 / 1,000 women, almost twice the world average of 50 (10). This high rate of adolescent pregnancies can partly be attributed to the reducing age at sexual debut and the unmet contraceptive need. Only 5% of unintended pregnancies occur among consistent users of contraception, while 52% occur due to non-use and 43% to inconsistent use(11).

Globally, an estimated 33 million adolescents have an unmet need for contraception (12), the majority of this is from developing countries especially Sub-Sahara Africa with 14million unintended pregnancies.

In Kenya, the 2014 KDHS report estimated the total fertility rate at 4.6 and a contraceptive prevalence rate (CPR) among sexually active single teenage girls at 49% while unmet need for contraceptives for adolescents was 23% which is higher compared to the national average of 18% (6). Accordingly, only 19.6% of currently married teenagers aged 15 -19 years use a modern family planning method while only 5% of all teenagers in the nation aged 15 - 19 years presently use any modern family planning methods (7).

The low family planning use among teenagers represents a large percentage of the population which is being underserved by reproductive health services. It is estimated that the neglected requirement for contraception among youths would diminish unplanned pregnancies in this age group by 6 million annually, subsequently reducing 2.1 million unplanned births, 3.2 million abortions, and 5,600 maternal deaths (19). As many studies have shown, delaying adolescent births considerably reduces population growth rates, producing broad financial and social benefits (5).

1.5 Post Partum Contraceptive Use Among Adolescents

Family planning is an essential element in safe motherhood as it reduces 30% of maternal and 10% of newborn deaths. Besides, it's a major pillar in the prevention of mother to child transmission of HIV (PMTCT) (13). Postpartum family planning is the prevention of unintended and rapid repeat pregnancy in the first 12 months after delivery. Postpartum LARC is a reversible family planning method that prevents contraception for a longer period exceeding three years. These include implants and IUCD. Due to the safety and efficiency of LARC methods, the American Academy of Pediatricians (AAP) and the American Congress

of Obstetricians and Gynecologists (ACOG) endorse IUDs and implants as first-line family planning methods for teenagers.

Several postpartum contraception methods are available for adolescents. Before the availability of LARC, the pill was the commonest (53%) family planning method started by teenage mother this was immediately after delivery or this was done after the first postpartum visit, followed by intramuscular medroxyprogesterone (32%) (14).

Adolescents who use contraception mostly use short-acting methods, such as condoms, oral contraceptives or withdrawal. These methods have higher discontinuation and pregnancy rates compared with LARC methods (15)(16). The efficacy of a short-acting pregnancy prevention method is reduced by higher failure rates plus poor continuation (17). In Kenya, 82% of teenagers at the danger of unintended pregnancy used contraception between 2006 and 2010 but only 59% used an extremely efficient technique, including any hormonal or IUD technique (18).

1.5.1 Post Partum Intra-Uterine Devices

Intrauterine devices (IUDs) are usually small T-shaped devices that are made of purely plastic, which may be copper-bearing or Levonorgestrel (hormone) releasing. The IUD is a long-term revocable contraceptive method that is ideal for women of all procreative ages (including those infected with HIV) (21).

IUD is the most regularly utilized revocable contraceptive globally at 14.2% among married women using contraception whose age is between 15- 49 years (24). However, the use of IUD represents only 2% of modern family planning methods in sub-Saharan Africa, uncovering the under-use of this technique in the region notwithstanding it being such a significant choice for women elsewhere (25). While Kenyan youth the IUD use is 0.9% (6) IUD has minimal post insertion precautions that are usually associated with higher typical use failure rates (26). IUDs offer five to twelve years of protection against pregnancy having quite insignificant failure rates within the year preceding after insertion (0.6% to 0.8% for the copper T 380A IUD and 0.9% for the 14-mcg LNG-IUD) (27)(22). Furthermore, it has the lowest discontinuation rates at 6% and implants 8%, therefore, it has an important effect on increasing the contraceptive prevalence rate (6).

In the postpartum period, the IUD (PPIUCD) can be inserted post-SVD or post-cesarean within 48hrs moreover it is the only FP that is highly sufficient, non-hormonal, reliable, economical, not greatly reliant on user compliance, immediately reversible, has no effect on

lactation and it's a long temporary contraceptive method that can be usually be initiated during the immediate postnatal period (28)(29)(30).

The insertion of immediate PPIUD is safe and not difficult when compared with the delayed obstetric, and other health-related complications linked with closely spaced pregnancies(31) this can be inserted by a mid-level skilled birth attendant(32). Usually, the IUD insertion does not need repeated health care visits by a health care professional for contraceptive refills (33).

2.0 LITERATURE REVIEW

2.1 Introduction

Uptake of Postpartum family planning remains low in Sub-Saharan Africa and there is very minimal data concerning the way pregnant women arrive at a point of making up their mind on using PPEP (34). In Kenya, the use of PPIUD was introduced in the 1990s. Unfortunately, it has not been used routinely, with deliberate efforts being put to promote LARC and its sustainability. Moreover, a policy guiding the safe use of postpartum and post-abortion IUD was instituted in 2009 (35)(36).

The benefit of early initiation or continuation of family planning are well known and are beneficial. This is more so among youth who, in most cases, would wish to either resume their studies or postpone childbirth for a longer period, yet are faced with a myriad of challenges that hitherto make it difficult to access contraception.

2.2 Uptake of LARC methods among Adolescents in Kenya.

According to the recent survey by the Kenya National Survey of Family Growth, the most used forms of contraception are condoms and withdrawal, followed by birth control pills(15). The commonest family planning approaches used by students or their partners were condom (71%), withdrawal (20.6%), and birth control pills (7.2%), in spite of that, 6.3% got pregnant or impregnated someone (37). All of these methods have a high risk for inconsistent use for adolescents since they are user dependent and usually require active compliance for the prevention of unwanted pregnancies, which makes them less efficient than LARC methods.

The current use of LARC methods is higher age group between 25-34 years compared to age group is 15-24 years and rates of use are three times higher in parous women compared with nulliparous women. However, in recent years, the LARC method use has increased almost ten-fold in women with no previous births (18).

According to a 2012 study in the U.S.A by ACOG, 8.5% of adolescents use long-acting methods of which 3.9% use IUCDS'(38). In Kenya, the average prevalence rate of IUCDS among the reproductive age group has increased from 2.7% in 1998 to 3.4% in 2014 KDHS (6). However, only 38% of youth who use contraception use a modern method (6). Intentions to start postnatal contraception, including the use of IUD by teenage mothers soon after they have delivered, usually differ by programs and populations from 62% to 95% (39).

2.3 Timing of PPIUD Insertion

Insertion of IUCD in the immediate postnatal period is an effective, secure and appropriate contraceptive intervention in both cesarean and normal deliveries but very few studies have looked at the timing of PPIUD insertion particularly in youth however the majority of the studies are on a comparison between PPIUD post vaginal delivery versus cesarean delivery.

In a study conducted in India by Reetu et al 58 % of insertions was immediately after cesarean and 41 % after vaginal delivery 28 % of total insertions came for follow up, there was no significant statistical difference, although the number of women followed up after intra-cesarean insertions were higher than post placental vaginal insertions. There was no case of uterine perforation or any unwanted pregnancy. Symptoms of unusual vaginal discharge significantly higher after cesarean IUCD insertions. Spontaneous expulsion of IUCD occurred in 5.3% of the cases that were reported after follow-up. IUCD that was inserted after a normal delivery had significantly quite high expulsion rates of (9.1%) than intra-cesarean IUCDs (2.1%). Women who undergo cesarean seem to have a greater probability of accepting postpartum IUCD mainly due to post-cesarean conception fear. The symptom of irregular bleeding per vagina was not influenced by the route of insertion. The timing of IUCD insertion was an important determinant of expulsions. The expulsions were significantly higher in post-placental IUCD insertion (40). However, Gupta et al. reported lower expulsions after intra-cesarean insertions (41).

Another examination done by Halder to assess the safety and adequacy of PPIUD post SVD verses post-cesarean demonstrated that in the two groups (vaginal insertion and intra-cesarean), acknowledgment of PPIUCD was best in the age group of 21–25 trailed by 25–30 years. Primipara acknowledged PPIUCD more than the others (44 and 52 % in vaginal & intra-cesarean group, separately). Moms from urban regions took up PPIUD more (62 and 52 % in vaginal groups and intra-cesarean groups, separately) than moms from rural zones (38 % in vaginal group and 48 % in a cesarean group). The ejection rate was 4% in the vaginal insertion group and 2 % among the post-cesarean addition group. No pregnancy was recorded in any of the groups inside 1-year. One percent of mothers presented with diseases like PID in each vaginal and intra-cesarean group. All expulsion by mothers was 8% among vaginal groups and 4% among the intra-cesarean group which isn't factually significant. The continuation rate at one year was higher in the vaginal group compared to the cesarean gathering. Around 74 % of mothers were satisfied with PPIUCD in the vaginal group and 72 % in the cesarean group. In the study mothers with more than one living child had usually a

lower acceptance rate of IUCD (1%) this was among the cesarean group when comparing to the vaginal group that had 13%. There was no statistical importance regarding bleeding and infection rates within both groups. In this particular study the pelvic infection rates (3.2% were found to be much higher than studies done in both Kenya and Mali which had rates that were less than 2%. IUCD that were inserted vaginally or through intra-cesarean had the same contraceptive efficacy i.e. 0 per 100-woman year. In both groups, no perforation was recorded, 74% of mothers were pleased with PPIUCD in the vaginal group and relatively 72% in the cesarean group. In addition to this intra-cesarean insertion recorded high continuation rates compared to vaginal insertion. (48)

In a study done by Sharman et al, 51 % of women had the post placental IUD insertion within 10 minutes of placental delivery following normal delivery, whereas 45 % of women preferred insertion in the cesarean section. A small percent of women representing 3 % had insertion done between 10 minutes to 48 hours after normal delivery. Usually, follow-up was done after 6 weeks and then another follow-up was done at 6 months in the post-natal period, only 50 % of women come for follow-up in the out-patient section whereas 34 % of women were contacted using phone interviews. Despite this, about 15 % of women could not be followed-up. 64% of women had no complaint regarding the use of PPIUD. Generally, 16% of women complained of menstrual disturbances and 13% of women had pain in the lower abdomen. 5.2% was the expulsion rate this was calculated using history, pelvic ultrasonography and clinical examination. In vaginal insertions incidence of expulsion was more compared to intra-cesarean insertions having 7 % and 2 % expulsion rates respectively but this difference was statistically not significant. Continuation rates were at 81 % at 6 months. The expulsion rate was 5 %. It was discovered that the expulsion rate was more in cases whereby IUD was inserted after normal delivery having a rate of 7 % compared to the cesarean section which had 2 % this was at the end of 6 months. In this study, there was no serious complication, uterine perforation or misplaced IUD in our study (49).

The CHOICE project, a cohort study was used in the St. Louis region (US) to promote the use of LARC methods to lessen unwanted pregnancies. 1404 teenage girls were educated about the different reversible family planning methods with the sole emphasis on the advantages that the LARC method offered. They were given their preferred choice of reversible family planning method at no absolutely cost and then they were followed for 2 to 3 years. Results gotten from this study were compared to those seen nationwide among U.S teens that are in the same age group. It was found that these teenage girls had lower rates of

birth, pregnancy and abortions when equated to national rates for sexually active teens. 1404 girls who participated in the study 72% of them chose an intrauterine device or implant (LARC methods). 28% of them chose other contraceptive methods. LARC use was acceptable and common among adolescents but teenagers whose age was between 14 to 17 years were more likely to use the LARC method. The implant was the commonest family planning option for participants who were between 14 to 17 years of age, whereas an IUD contraceptive method was common in older teens (51).

A study done in Mbagathi showed a low rate of PPIUCD acceptability and uptake among adolescent mothers. Fourteen of the one hundred and seventeen teenage clients reported that they were willing to have an IUCD inserted in the postpartum period. The younger adolescents aged 14-16 years were more likely to accept the method than the older adolescent mothers aged 17-19 years. 80 % of those who accepted PPIUD were satisfied with the method (42).

Adolescents have high continuation rates with LARC methods. A meta-analysis of 12 studies evaluating LARC method continuation among adolescents and women younger than 25 years found a 12-month continuation rate of 84% (43). Despite high efficacy and satisfaction rates with LARC methods, relatively few adolescents use an implant or IUD for contraception. Only 5.8% of adolescents and women aged 15–19 years have ever used a LARC method, with 3.0% ever using an IUD and 2.8% ever using a contraceptive implant (44). Age is a factor that influences LARC method preference, with younger adolescents (14–17 years) most commonly selecting implants and older women (18–20 years) most commonly selecting IUDs (45).

2.3 Drivers and Barriers to PPIUD uptake among Adolescents

Drivers are factors that facilitate uptake of the IUD and they include client knowledge and awareness on the method, influence from providers, family members, and partners. Barriers are the obstacles or factors that hinder women from using IUD. They include fear of side effects, misconceptions, little or lack of knowledge (46).

Few types of research have assessed barriers to family planning use among teenagers. Two relatively small quantitative studies have shown that postpartum adolescent's main reasons for inconsistent or discontinued contraceptive use included concerns about the side effects (47)(48), not planning to have sex (49) and not remembering to take oral contraceptives (47). In spite of the high numbers of unmarried sexually active teenagers in Kenya, most of the studies on barriers to contraceptive use has been done among married women; studies among

teenagers are only focussed on condom use only (50).

2.3.1 Socio-Demographic and Reproductive Health Factors

Contraceptive use is influenced by socioeconomic status through the ability to get family planning commodities, meet the cost of travel and the cost of information materials that create consciousness of family planning use (51). Age and education status were found to influence the uptake of IUD while marital status and religion did not seem to influence the uptake besides plan of fertility, as well as high parity, has also been found to be a driver in use of IUD (52). History of birth has been found to affect the use of IUD, with those who have not given birth being reluctant to use the method as compared to those who are parous (53).

It has been shown by Chacko et al that teenager's awareness of LARC as an unsuccessful method of contraception was notably related with low intent to use LARC as a postpartum contraceptive method. Moreover, a history of not giving birth before was remarkably associated with the intention to use non-hormonal family planning (54).

A research found that early postpartum teenagers were very probable than teenagers who had never been pregnant to have used hormonal contraceptives and especially more likely to have used long-acting methods (55). However, teenage mothers' contraceptives use was found to decline after the early postpartum period. As shown by Meade et al that, among teenage mothers, 68–73% of oral contraceptive users and 37–66% of injectable users had discontinued their method within 12 months (56). As shown in several studies, stopping family planning puts teenage mothers at high risk for a rapid repeat pregnancy; within 12 months postpartum 12–44% were pregnant, and 20–42% within 24 months (56)(57).

2.3.2 Side Effects of PPIUD use

Perceived and real reactions of family planning methods developed as an essential hindrance to use overall age groups (11). This might be identified with the myths and misconceptions that numerous ladies hold about potential side effects and negative results (69). The KDHS reported that, by and large, 36% of ladies report discontinuation within 1 year of utilizing a method as a result of symptoms; and 16% of married ladies not using family planning methods were not doing so because of fear of side effects (11).

A focus group study on Latinas aged 18-26 found out that side effects hindered the use of family planning methods, this was despite that access to information about contraception had improved (70). Research that was done in Tanzania found out that the fear of having side effects was the main reason teenagers discontinued the use of family planning methods (71).

Furthermore, fear that contraception causes infertility which is often stigmatized, resulting in believes that the methods can harm future childbearing (72).

2.4 Adverse events and follow up of PPIUCD use

IUD complications are uncommon and do not differ considerably between teenagers and adult females, making these techniques safe for teenagers. The common side effects of IUD include bleeding, backache and cramping commonly during the first few months of use (58). Despite the side effects from the IUD being troubling for the user most of them improve over time while others do not (59). These are some of the information that may be helpful to counsel youth who are considering an IUD and to users who are contemplating removal due to side effects.

2.4.1 Intra-Uterine Contraceptive Device and Risk of Pelvic Inflammatory Diseases

The American College of Obstetricians and Gynecologists (ACOG), the American Academy of Pediatrics (AAP), the Centers for Disease Control and Prevention (CDC), and the Society of Family Planning (SFP) promote the use of LARC by adolescents (60)(61). Studies have shown that even in settings of high STI prevalence, the risk of PID in IUD users is very low (46).

The pelvic inflammatory risk with IUD insertion is 0–2% when no cervical infection is present and 0–5% when insertion occurs with an undetected infection. The risk of PID is highest in the first 20 days after IUD insertion but the overall absolute risk of PID is small at 1.6 cases per 1000 woman-year of use (62). Besides, long-term use of levonorgestrel IUDs may decrease the later risk of PIDs by thickening cervical mucus and thinning endometrium (96) adolescents are at higher risk of developing STIs, so obstetrician-gynecologists should continue to pursue screening procedures for sexually transmitted diseases (STIs). Male or female condoms should be used by Adolescents who choose LARC methods to lower the susceptibility to STIs and HIV. However, routine screening before IUD insertion does not decrease the risk of postinsertion PID (63) but will delay the initiation of contraception and increase the risk of unintended pregnancy.

2.4.2 Post Partum Intra Uterine Device and Uterine Perforation

Uterine perforation is a very rare complication of IUD insertion. A systematic review summarizing retrospective cohort data and insurance claims data demonstrated that adolescents are not at a higher risk of perforation compared with older women. The risk of uterine perforation for adolescents and women is approximately 0.1% (64).

2.4.3 Intra Uterine Device Expulsion

Device expulsion is uncommon with the expulsion report rate range starting at 2% to 10% entailing all users of IUD (22). A retrospective review of 2,138 women aged 13–35 years with an IUD showed that younger females between thirteen and nineteen years and nulliparous women had the least likelihood of experiencing expulsion than older or parous women (overall expulsion rate of 6%). However, when expulsion did occur, the younger females had a higher probability of partial discharge than the older cohort (65).

In another retrospective review of 684 females, 27% of whom were adolescents, there was no significant difference in the rate of IUD expulsion between adolescents and adults at 6 months after placement (66). Among adolescents in the CHOICE Project, expulsion rates at 12 months and 36 months were approximately 10% and 19% respectively, which was approximate twice the risk for women older than 20 years (45). Prior expulsion has also been shown to be a risk factor for repeat expulsion, but should not be considered a contraindication if the adolescent desires another IUD (67).

2.4.4 Pain During Intra Uterine Device Insertion

Most women experience some degree of discomfort during IUD insertion. Health workers should provide anticipatory guidance regarding pain that may occur during and after the insertion of IUD. Adolescents and nulliparous women can have ease Insertion of Intrauterine devices. In a cohort of 1,177 adolescents and women aged 13–24 years, successful IUD placement was achieved on the first attempt in 96% of patients. The majority of the IUDs were placed by a well-experienced clinician (68)

3.0 STATEMENT OF THE PROBLEM

Most of the research on family planning has been directed among married women; Research among youth is constrained in spite of the high quantities of unmarried sexually active youth in Kenya. Furthermore, no investigations on the timing of the insertion of PPIUD have been done in Kenyan youth. Youth, being a unique and neglected group, need to be provided with family planning information to make choices on contraception, as they are notably at a higher risk of pregnancy and childbirth-related complications.

Despite provisions of various policies and guidelines to ensure proper reproductive health (RH) for adolescents in Kenya, there have been various challenges such as only 12 % of health facilities providing the recommended comprehensive reproductive health services to adolescents. The KDHS 2014, reported only one-third of sexually active adolescents using some form of family planning. Different Kenyan communities are yet to accept the reality of youth premarital sexuality, especially for girls; this, partially explains the frequently neglected family planning needs for unmarried youth.

The stigma that unmarried adolescents experience when they are seen at reproductive health centers is a great barrier to the use of family planning services. Few studies on the timing of PPIUD insertion and outcome have focused specifically on youth, whose reproductive health is a target of the Sustainable Development Goals and the Family Planning 2020 agenda.

Preliminary studies have demonstrated the benefits of offering FP services in the immediate postpartum period. This period provides an opportunity to avert repeat pregnancy, increase the survival of both the mother and the newborn and provides for re-integration back to school, vocational training and productively contribute to development. However, in Kenya, there is little data on the use of postpartum LARC methods such as the IUCD in youth with a few suggestions that there is extremely low usage. The study, therefore, intends to investigate the timing of ppiud insertion, adverse event and follow up of postpartum amongst youth.

3.1 Study Justification

Kenya's population constitute of 36% young people aged 10-24 years, with nearly 42% of Kenya's citizens (16.5million) are under age 15 years and an approximate 100,000 teenagers turning 16 years annually. This pattern according to KDHS (2014), is expected to continue for more than a decade, and it is going to put a heavy burden on reproductive health services including FP.

Nonetheless, youth experience some of the worst reproductive health outcomes. According to KDHS 2014 adolescent pregnancy accounts for 18% of all pregnancies. Furthermore, the high unmet need for FP 23% in 2014 is highest compared to other age groups (national average 18%). The maternal mortality rate is twice as high in women 15-19 years compared to those 20-34 year old. A study done showed 51% of New HIV infections and 13% of AIDS-related deaths occur among young people between 15-24 years (NACC, 2015).

Internationally more than 50% of all pregnancies are unplanned and large differences exist in access to the most efficient family planning method. In the KDHS 2014 report, 17% of births in Kenya were reported as being unwanted and a further 26% as being mistimed (wanted later). These unwanted pregnancies are likely to be associated with higher STI transmission rates, intimate gender-based violence, school drop out and an overall strain on the health system.

To avert these, therefore, mechanisms to improve effective FP uptake and approaches have to be employed as they have been shown to have extensive social and health benefits towards women in the developing countries. The choice and timing of the FP method is also of paramount importance, especially among youth who face unique developmental and stigmatizing challenges. Insertion of IUD during the postpartum period has several advantages compared to interval insertion (insertion at 4weeks) for instance less discomfort at time of insertion while bleeding from insertion can be disguised by postpartum lochia. Furthermore, the young mother is protected against pregnancy before resuming sexual activity.. Furthermore, IUDs are also economical, can be inserted in a matter of minutes by a trained provider, and there is no need for an additional facility visit when inserted during the childbirth stay.

It is for this reason that, in 2016, the American College of Obstetricians and Gynecologists and Academy of Pediatrics endorsed LARC such as IUDs or implants safe for adolescents. The report shows that pills or condoms are required for daily or pre-sex compliance among individuals whereas Depo-Provera requires injections every 3 month. Therefore, IUCD is

much more effective, long duration of use of this IUD has a pregnancy rate of 2 % over 10 years.

To reduce the unmet need for contraceptive use and increase the use of contraceptives in youth, a clear understanding of the factors that determine their use is necessary. Unlike previous studies on the determinants of family planning services in Kenya, on the general population, this study focuses on youth and will incorporate the outcomes. It is hoped that the results of the study will improve the policy maker's understanding of the determinants of contraceptive use. The results can serve as an input in the design of interventions aimed at providing LARC services to adolescents. The study will also add to the existing literature on contraceptive use in Kenya and suggest areas for further studies.

PPIUCD in compliant adolescents, who are at risk of repeat unintended pregnancies and the associated atrocities, is therefore deemed apt. This study targets evaluation of the process and outcomes of PPIUCD insertion in adolescents in order to enrich evidence of the practice.

3.2 Study Question

What is the timing of insertion and outcomes of Postpartum Intrauterine Devices among youth in Thika level V hospital, Kiambu County.

3.3 Study Objectives

3.3.1 Broad Objective

To determine the timing of insertion and complications within 6 weeks of Postpartum Intrauterine Device use, amongst youth in Thika level V hospital, Kiambu County.

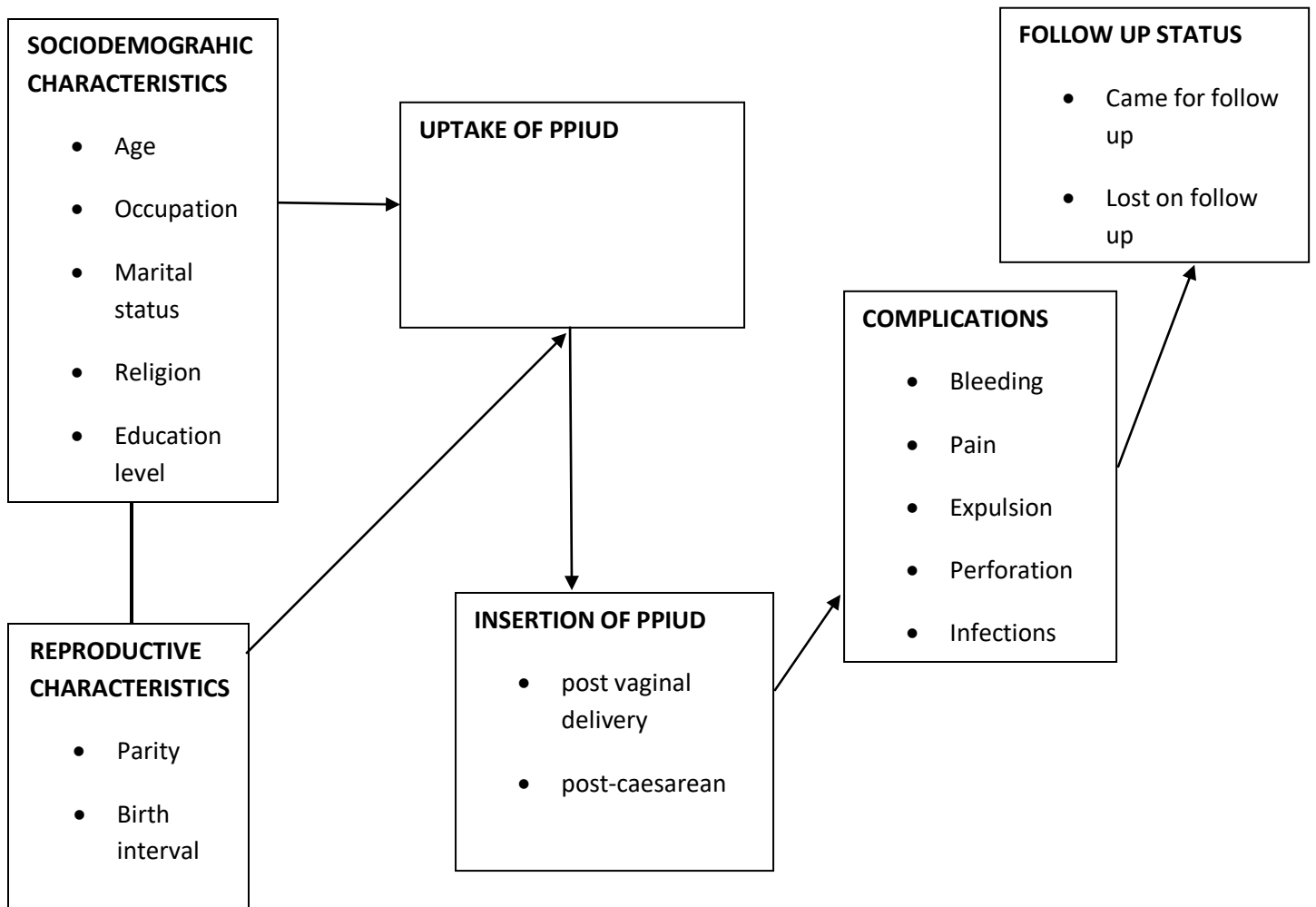
3.4 Specific Objectives

Amongst the youth in the Thika level V hospital, to:

- a) Describe the socio-demographic and reproductive characteristics associated with uptake of PPIUD
- b) Determine the timing of PPIUD insertion.
- c) Determine the youth who came for follow-up.
- d) Assess the complications within 6 weeks following PPIUD insertion

CONCEPTUAL FRAMEWORK

I



4.0 METHODOLOGY

4.1 Study Design

This was cross-sectional study utilizing data collected during the implementation of the PPIUD project on uptake of the method among youth aged 15 to 24years in Thika level V hospital.

4.2 Study Sites

Thika Level 5 Hospital is among the 6 county hospital involved in the project on institutionalization of immediate postpartum IUD conducted by the KOGS and FIGO The data was drawn from files of youth who attended antenatal clinic and delivery services at the Thika Level 5 Hospital in the period January 2015 to December 2017. Thika Level 5 Hospital serves as a teaching hospital for Kenya medical training college, Mount Kenya University and a county referral hospital for Kiambu County. The hospital serves a cosmopolitan population with a catchment that has blurred inter-county boundaries extending to Nairobi, Kirinyaga, and Machakos averaging to about 3.5 million on average.

The hospital is located at the hub of Thika town, neighboring several colleges, with a high population of women in the reproductive age group (15-45) and near many industries that employ a large number of people from distant areas. This has seen the hospital provide reproductive health services to a wide catchment beyond the natives of the county. The hospital has been chosen for the study due to the large catchment area and with diverse social-economic, religious and cultural populations.

The hospital is a teaching and referral hospital that provides comprehensive obstetric care in Kiambu County on a daily basis, with the integration of PPF providing an ideal opportunity and reducing missed opportunities once mothers are discharged after delivery. They have specialized services that can address complications arising from childbirth and PPIUD complications .They offer training for midwives, medical officer interns and clinical officers.

4.3 Study Population

Data abstraction from the previous PPIUD project by FIGO and KOGS was done from the records department in Thika level 5 hospital and found that 700 women had PPIUD inserted during the study period. Furthermore, 260 out of the 700 were between 15-24 years old. Random sampling was done of the 260.

4.4 Sample Size Calculation and Sampling Procedure

Cochran's formula for prevalence studies was used to calculate sample size (n) estimated prevalence

$$n = \frac{Z^2_{1-\alpha/2} \times p(1-p)}{d^2}$$

Assumptions from a study by Nyarko H.S, 2015, where 18.3% of the adolescents had utilized (69) Postpartum intrauterine device. Applying this in the formula, the calculated sample size is:

Where:

n=sample size

Z= level of statistical difference = 1.96

P = proportion of adolescents utilizing postpartum intrauterine device (18.3%)

d= Estimated error, taken as 0.05

Substituting this in the formula gives a sample size of 230 as shown below:

$$n = \frac{1.96^2 \times 0.183(1-0.183)}{0.05 \times 0.05}$$

$$= 230$$

Simple random sampling using simple random tables was used to identify 230 out of the 260 youths.

4.5 Inclusion Criteria

All women age 15-24 years who had PPIUD inserted during the PPIUD study.

4.6 Exclusion Criteria

- Records with incomplete follow up data.

4.7 Study Variables

Objective	Dependent	Independent	Source
Timing of insertion	Counseled, consented Post svd Post cesarean	Age, marital status, religion	-Patients files
Adverse events	Complication i.e. Bleeding, spontaneous expulsion, removal, PID, within six weeks after insertion	The ICUD time frame of insertion	-Patients files
Follow up	Came for follow up Lost to follow up	Education stat us, social demographics and reproductive characteristics	-Patients files

4.8 Ethical Considerations

Permission to conduct this study was sought from the Department of Obstetrics and Gynaecology at The University of Nairobi, KOGS, Thika level 5 hospital and the principal investigators of the PPIUD project. Ethical approval was sought from Kenyatta National Hospital/The University of Nairobi Ethics. Patient confidentiality was maintained by de-identifying personal identifiers from the files and bias minimized by conducting appropriate random sampling methods.

4.9 Data Collection

4.9.1 Data collection Procedure

Using a specially designed data abstraction tool, data for the 260 participants were extracted from the patient records at the Thika Level 5 hospital. Data were collected by trained research assistants using a specially designed data abstraction tools. The collected data were reviewed daily for completeness before uploading to a password protected excel sheet for cleaning. This was done by the data manager.

4.10 Data Quality Assurance

The data quality procedures were confirmed that it is the precise copy of the data this included verifying that we have the appropriate documentation, have an accurate number of variables and can produce the original summary statistics.

4.11 Data Analysis

Data were conveyed to the Statistical Package for the Social Science (SPSS) software version 23, for cleaning, confirmation of study variables, coding and analysis. Descriptive statistics for the socio-demographic characteristics of the study participants such as age, parity, level of education, were analyzed and presented in the form of proportions, means and pie charts as appropriate. Uptake of postpartum intrauterine devices was expressed as a prevalence.

4.12 Study Limitations

Information bias due to data extraction from the earlier study was therefore not able to verify data from the participants. Poor documentation of the secondary data set was handled by not including incomplete data documented.

RESULTS

The main objective of the study was to determine the type of insertion and outcomes within six weeks of Postpartum Intrauterine Device, amongst youth in Thika level V hospital, Kiambu County. Out of 700 files collected from the records department, 260 were of youth which were analyzed:

Section 1: Sociodemographic factors of youth who had PPIUD insertion at Thika level 5 hospital

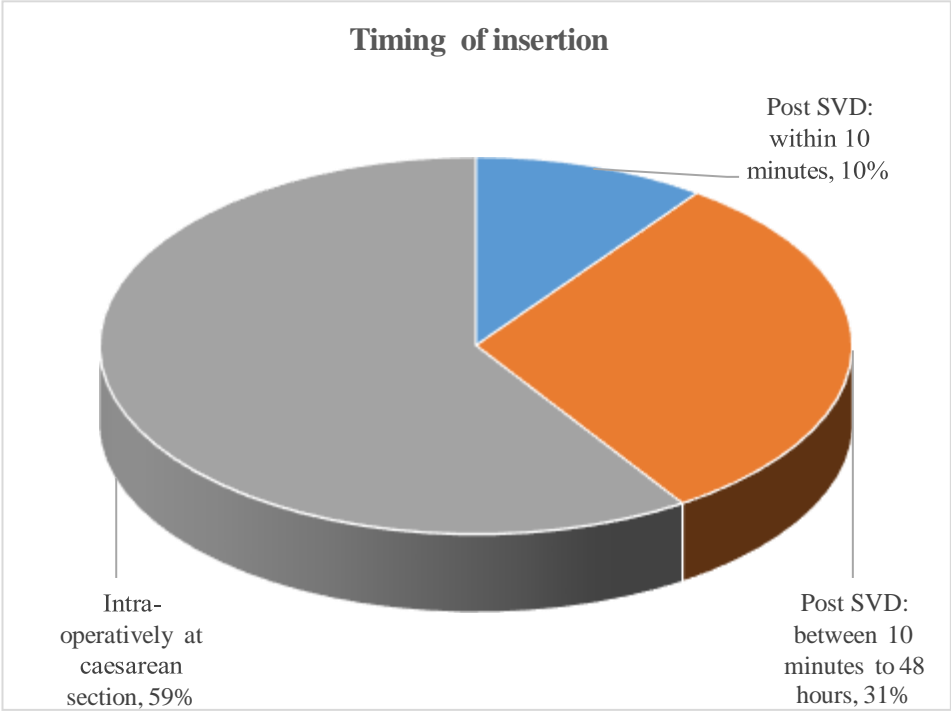
Table 1: The sociodemographic characteristics of the youth that had PPIUD inserted at Thika level 5 hospital.

	Number of youths n=260	Percentage (%)
Age		
15-18	32	12.3
19-22	125	48.1
23-24	103	39.6
Education		
Primary	64	24.6
Secondary	158	60.8
Post-secondary	38	14.6
Marital status		
Single	65	25.0
Married	195	75.0
Occupation		
Employed	11	4.2
Self-employed	71	27.3
Student	54	20.8
Housewife	124	47.7
Religion		
Christian	255	98.1
Islam	5	1.9

In this study, it was found that majority who had PPIUCD insertion was in the age group of 19- 22 years followed by 23-24 years (48% and 40% respectively). The mean age of the patients was 21.5 (SD=2.1) years, while the median age was 22.0 (IQR=3) years. The youngest patient was 16 years while the oldest was 24 years. On marital status, 195 (75%) were married. Most of the patients were housewives (48 %) while 71 (27%) of youth were self-employed and 54 (21%) were students. On marital status, 195 (75%) were married. Most of the patients were housewives (48 %) while 71 (27%) of youth were self-employed and 54 (21%) were students. The majority of the youth were Christians (98%) only 2% were Muslim.

Section 2: The timing of insertion of PPIUD in the youth.

Figure 1: Timing of insertion of PPIUD among youth in Thika level 5



As seen in Table 1, 152 (59%) youth had IUD insertion done intra-operatively at cesarean section while 80 (31%) of youth had device insertion between 10 minutes to 48 hours post vaginal delivery whereas 26 (10%) of youth underwent post placental IUD insertion within 10minutes of placental delivery following vaginal delivery.

Section 3: Obstetric and reproductive characteristics of youth who had PPIUD insertion in Thika.

Table 2: Obstetric and reproductive characteristics of youth who took PPIUD in Thika level 5 hospital.

	Number of youths n=260	Percentage (%)
Parity		
0	140	53.8
1	74	28.5
2	36	13.8
3	9	3.5
4+1	1	0.4
Type of delivery		
Vaginal	108	41.5
Caesarean	152	58.5
Previous family planning use		
Yes	99	38.1
No	161	61.9
Type of family planning	Frequency n =99	Percentage (%)
Injectable	36	13.8
Oral contraceptives pills	24	9.2
Emergency contraceptive pills	22	8.5
Implant	12	4.6
IUCD	2	0.8
Periodic abstinence	2	0.8
Condoms	1	0.4

Majority were Primipara at 140 (54%) followed by para 1+0 at 74 (28.5%). Majority of the youth delivered via a cesarean section at 152 (59%) while 108 delivered vaginally at 108 (41%). There were 161 (62%) of youth who had never used family planning before, only 99 (38%) had a prior history of family planning use.

Section 4: Assessed complications immediate post insertion of PPIUD

Table 3: The complications in immediate PPIUD insertion (10mins <6weeks) in the youth at Thika level 5 hospital.

	Frequency n=260	Percentage (%)
None	228	87.7
Severe pain	20	7.6
Heavy bleeding	12	4.6

Results on table 3 show that 228 (88%) had no complications immediately after insertion while the main complaint was severe pain in 20 (8%) and heavy bleeding in 12 (5%) of the youth. No perforation was reported after insertion.

Table 4: Patient follow up to 6 weeks after PPIUD insertion among the youth at Thika level 5 hospital.

	Yes (%) N=260	No (%)
Patient came for follow-up	238 (91.5)	22 (8.5)
*Complications after PPIUD insertion	98 (37.7)	162 (62.3)

The majority of the youth came back for follow-up 238 (92%) at 6 weeks. Out of the 238 who came for follow -up 38% complained of complications which are listed in table 5 below.

Table 5: complications of PPIUD insertion at 6 weeks follow up in youth in Thika level 5 hospital

	Frequency N=98	Percentage (%)
Irregular bleeding	38	38.7
Mild pain/cramps	22	22.4
Long threads	18	18.3
PID/infections	15	15.3
Spontaneous Expulsion of IUD	5	5.1

At 6 weeks the major complaint was irregular bleeding in 38 (39%) while only 5% had spontaneous IUCD expulsion at 6 weeks.

SECTION 10:

DISCUSSION:

The study was conducted among youth who had PPIUD insertion in Thika Level 5 hospital. The aim was to determine the type of PPIUD insertion, describe the socio-demographic, reproductive characteristics associated with uptake of PPIUD and the complications up to the 6-week following PPIUD insertion.

In this study, the acceptance of PPIUD was high in the age group of 19-22 years followed by 23-24 years (48% and 40% respectively). This is similar to studies done in India by Gupta 2013 and Halder et al 2014 showing that acceptance of PPIUCD was best in the age group 20-25 years (15.7%) and of 21–25 (40 and 44 %) respectively(41)(70). Khanchan et al also suggested that PPIUCD acceptance was more in the younger age group of patients 20-25 years 47.5% which gradually declined with increasing age (71). A plausible explanation is the desire for the youth to continue with education and preferred a longer acting method which was nonhormonal. Furthermore, in our set up the younger age group where getting family planning counseling from nurses who went to their school health education programs.

The mean age of the patients was 21.5 (SD=2.1) years, while the median age was 22.0 (IQR=3) years. A study by Alvarez Peyalo et al, also found that the average age of PPIUD acceptors was 20.6 years (72).

There were 158 (61%) of the patients who had attained secondary education, followed by 64 (25%) with primary, and lastly 38 (15%) with post-secondary education. A study by Safwat et al. supports this, women with no formal education had an acceptance of 9.4 %, while those with formal education were 19.4 % (73).

Among the youth, primipara comprise the majority at 140 (54%), followed by para 1+0 at 74 (28.5%). This was similar to a study done by Halder et al but contrary to studies done by Safwat et al. in Egypt and Kanchan et al in India where acceptance was high in multiparous 33% and 51.6% respectively. (71)(70)(73). This is because young primipara didn't want another pregnancy soon and because the probability that the first pregnancy amongst the primipara may have been unplanned and they wish to avert another rapid repeat pregnancy occurrence or have a longer pregnancy interval opting for LARC

There were 161 (62%) of youth who had never used family planning before while 99 (38%) had a prior history of family planning use. In this study only 5.4% of youth had used a LARC

method similar in a study in the U.S.A by ACOG, in which 8.5% of adolescents use long-acting methods of which 3.9% use IUCDS'(38) while in our findings, only 2 (0.8%) used an IUCD. while Kenyan youth the IUD use is 0.9% (6) .Of these that used family planning the majority were on injectables at 36 (14%), second commonest family planning method was emergency pill 22 (8.5%).

Only 32 (12.3%) had complications immediately after insertion. The main complaint was severe pain in 20 (7.6%) and heavy bleeding in 12(4.6%) of the youth. A study by Sherma et al showed that 61.45% of women reported no complain, while Pelvic pain was reported in 12 (25.6%) women. No perforation was reported after insertion as was shown by clinical evaluation done after insertion, this is also following the studies done in India by Reetu et al and Gupta et al that showed there were no cases of uterine perforation following PPIUD insertions . (74)(41) A possible explanation for the complaint of severe pain could be the after pains experienced following delivery as the uterus contracts and retracts in the involution process also a protective mechanism to avert PPH and endogenous release of oxytocin associated with rooming in, breast feeding practice and milk let down.

The majority of the youth 154 (59%) had IUD insertion done during cesarean section delivery while 106 (41%) of youth had device insertion following vaginal delivery. A possible explanation for the majority of PPIUD insertions at caesarian section could be the ease of the procedure as there is a visual attribute during the procedure with direct placement of the IUD at the uterine fundus by the health personnel unlike the vaginal insertion that is a comparatively a blind procedure. A study done in India by Reetu Hooda showed a similar finding where the majority of the insertion was done after cesarean delivery 58.3% while 41.7% were placed after vaginal delivery (40). This was in contrast to Sharma et al and Kanchan et al 2019 insertion of PPIUCD was more after normal vaginal delivery as compared to the cesarean section. (71)(75)

The majority of youth, 238 (92%) came back for follow-up at 6 weeks this was similar to Sharma et al, a follow-up in outpatient and telephone of 96 (84.9%) (75). A study done by Reetu 2016 showed that follow up was 171 (28.8% of total insertions) which is low. (74) The possible explanation for the high follow up rate could be that youth were contacted telephonically and reassured bout the importance of follow up.

Only 98 (38%) of patient who came for follow up at 6 weeks complained of complications, the major one being irregular bleeding at 38 (39%) which was also found in a study done by Reetu in India which showed 10.5% of women had change in bleeding pattern. Gupta et al had only 13 (4.33%) cases of bleeding which was lower than reported in this study (74), while 22% complained of mild pain and 18% complained of long threads, this is in contrast to Kanchan et al which showed missing thread in 14.6% (71). Only 5% had spontaneous IUCD expelled at 6weeks. Reetu et al and Kanchan et al had expulsion of 9 (5.3%) and 2.7% which is a lesser number of spontaneous IUCD expulsions observed as compared to other studies.

C, Elen et al. reported 1-year cumulative expulsion rates of 12.6% and 17.6% in two different studies of PPIUCD insertions (76)(77). We did not encounter any serious complication, uterine perforation or misplaced IUD in our study, which is similar to the results of another study by Xu J et al.

Our study was limited in that we were not able to analyze the relationship between the youth who did not consent for PPIUD and their related factors being a cross sectional study. We followed the clients up to their 6th week post -delivery and would suggest a study to follow their reproductive career as a long term cohort would be informative.

The strength of our study is that it is the first study of its kind in this setting that assessed the sociodemographic and reproductive characteristics of youth with uptake of PPIUD and provides a baseline upon which further studies can be carried out.

CONCLUSION:

1. PPIUCD is acceptable to youth after both vaginal and caesarean deliveries.
2. Postpartum insertion of PPIUCD is a safe convenient method in both vaginal and cesarean deliveries.

RECOMMENDATIONS:

PPIUCD should be considered a post-partum contraception immediate post vaginal and caesarean delivery as it provides an opportunity to avert rapid repeat pregnancy and short interpregnancy interval. We propose future studies to look into drivers and barriers of PPIUD use in youth.

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27. Changes ----- M. 1 INDICATIONS AND USAGE Skyla ® is indicated to prevent pregnancy for up to 3 years . Replace the system after 3 years if continued use is desired . 2 DOSAGE AND ADMINISTRATION Skyla contains 13 . 5 mg of levonorgestrel (LNG) released in vivo at a rate . 2018;1–32.
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STUDY TIMELINE

Timeframe/ Activity	Apr 18	May 18	Jun 18	Jul 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18	Jan 19	Feb 18	Mar to Apr 19
Proposal Developmen t and defense												
Ethical clearance												
Data collection												
Data Analysis, thesis writing and defense												
Disseminati on of results to key stakeholder s												

BUDGET

Item	Units	Unit cost in Kshs.	Total cost in Kshs.
Statistician	1	1	30,000
Research Assistant	2	10,000	20,000
Printing and stationery	5	6	6,000
Air time	2		10,000
Travel costs	3	100*21	6,300
Internet	1	4700*6	28,200
Flash disk/storage files	2	2*3000	6,000
TOTAL			106,500

ANNEXES

Annex I: Letter to Medical superintendent Thika level 5 hospital

Dr. Alawiya Mohammed (MBChB)

H58/57771/16

The Medical Superintendent

Thika Level Five Hospital,

Thika

Dear Sir,

RE: DATA COLLECTION AT THE THIKA LEVEL FIVE HOSPITAL

The subject matter refers: I am currently a 3rd-year student pursuing a Master's Degree in Obstetrics and Gynecology at the University of Nairobi, College of Health Sciences. I am conducting a study on the uptake of postpartum intrauterine device services among youths at the Thika Level Five Hospital. This letter, therefore, is to seek for your permission for me to be able to collect data from the records for women who attended post-natal services for the period January 2015 to December 2017.

I have attached the ethical approval from UoN/ ERC.

Your consideration will be highly appreciated.

Yours Sincerely,

Dr. Alawiya Mohammed

Senior House Officer,

Department of Obstetrics and Gynecology,

College of Health Sciences

University of Nairobi

Annex II: Data Extraction Tool

A. Socio-demographic characteristics.

1. Study no. _____.
2. Age (In completed years) _____
3. Education level
 - Never been to school
 - Primary school
 - Secondary school
 - Post-secondary education.
4. Marital status
 - Single
 - Married
 - Divorced.
 - Widowed
5. Occupation _____
6. Religion
 - Christian
 - Islam
 - Hindu
 - Others, _____

B Reproductive health history.

1. parity _____
2. Gravida _____
3. Type of delivery.
 - Vaginal delivery
 - Cesarean section
4. History of Previous family planning use
 - Yes
 - No

If yes which one

- Oral contraceptives pills
- Condoms
- Withdrawal
- Periodic abstinence
- Emergency contraceptive pills
- Injectable
- IUCD
- Implants

Other (please specify) _____

1. Date of (last) delivery ____/____/_____
Day Month Year

B. Timing of Insertion

1. After how many counseling sessions did the patient provide consent for PPIUD insertion?

- 1
- 2
- 3

2. Timing of insertion of PPIUD

a) Post SVD.

- Within 10 minutes
- Between 10 minutes to 48 hours

b) Intra-operatively at cesarean section

3. Date of insertion

____/____/_____

Day Month Year

2 Were there any immediate complications after insertion (please circle all that apply)

- None

- Perforation.
 - Severe pain
 - Heavy bleeding
 - Other (please specify)
-

C) Outcome and follow-up at 6week.

1. Did the patient came for follow –up?

- Yes
- No

2. Where there any complications after PPIUD insertion?

- Yes
- No

If yes

a) Which of these complications

- Heavy bleeding
- Irregular bleeding
- PID/infections
- Severe pain
- Expulsion of IUD
- Others _____

Name, designation and signature of the person collecting data:

Name _____

Designation _____

Date _____/_____/_____

Annex III: KOGs Approval Letter

KENYA OBSTETRICAL AND GYNAECOLOGICAL SOCIETY

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RE: APPROVAL TO USE PPIUD DATA.

We hereby write to you on the above, and on behalf of Dr. Alawiya Abdukadir reg No. H58/B7771/2016. We have granted her approval to use the FIGO/KOGS data for her study on; "TYPES OF INSERTION AND COMPLICATIONS WITHIN SIX WEEKS OF POSTPARTUM INTRAUTERINE CONTRACEPTIVE DEVICE USE AMONGST YOUTH IN THIKA."

Any assistances accorded to her will be highly appreciated.

For any clarification feel free to contact us.

Yours Faithfully,

Dr. Benjamin Odongo Elly
National Chairman - KOGS



Annex IV: Dummy Tables

1. Objective 1: Socio-demographic factors associated with uptake of immediate PPIUCD

among adolescents

Variable	Frequency (n=)	Proportion
Religion		
• Christian		
• Islam		
• Hindu		
• Others		
Marital Status		
• Single		
• Married		
• Divorced		
• Widowed		
Educational Status		
• Never been to school		
• Primary school		
• Secondary school		
• Post-secondary education		
Mean age (SD)		

Occupation		
• Formal		
• Informal		

2. Timing of insertion of PPIUCD

Variable	Proportion	P-value
Post Cesarean Section		
Post-Spontaneous Vaginal Delivery		
• Within 10 minutes		
• Between 10 minutes to 48 hours		

3. Obstetric Characteristics

Variable	Frequency (n=)	Proportion
Parity		
• Primi		
• Para 1		
• Para 2		
• Para 3		
• Para 4		
• Grand Multipara		
Birth Interval		
• Less than 2 years		
• More than 2 years		
History of previous FP and type		
• Oral contraceptives pills		
• Condoms		
• Withdrawals		
• Periodic Abstinence		
• Emergency Contraceptive Pills		
• Injectables		
• IUCD		
• Implants		

Objective 2: Assess the outcomes and complications, at 6 weeks, following PPIUCD use

Complications of PPIUCD use within 6 weeks of insertion

Outcome	Number (n=)	Yes	No	Proportion
Bleeding				
Post insertion pain				
Expulsion				
Perforations				
Infection-discharge				
Returned to care				