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An exploratory analysis of factors associated with interest in postpartum intrauterine device (IUD) uptake among pregnant women and couples in Kigali, Rwanda

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Master of Public Health

Global Epidemiology

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An exploratory analysis of factors associated with interest in postpartum intrauterine device (IUD) uptake among pregnant women and couples in Kigali, Rwanda

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2012

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Abstract

An exploratory analysis of factors associated with interest in postpartum intrauterine device (IUD) uptake among pregnant women and couples in Kigali, Rwanda

By Vanessa Chilombo Da Costa

Background: The desire to space or prevent future pregnancies is high among postpartum women in Rwanda. However, the use of long-acting reversible contraception (LARC), especially the highly effective and cost-effective copper intrauterine device (IUD), is very low, while the rates of unintended pregnancy are high. This study aims to identify factors associated with pregnant women's and couple's interest in receiving a postpartum IUD within 6 weeks after delivery.

Methods: Pregnant women or couples attending antenatal care (ANC) in Kigali, Rwanda were consented and enrolled in this cross-sectional study from August-September, 2017. After participating in a postpartum LARC counseling session, surveys assessed participants' demographics; pregnancy experiences and desires; and postpartum LARC knowledge, attitudes, practices, and interest. Multivariable logistic regression was used to model factors associated with interest in receiving a postpartum IUD within 6 weeks after delivery.

Results: 150 pregnant women (103 women alone and 47 couples) consented to participate. Though only 3% of women had ever used an IUD previously, 124 (83%) women were interested in receiving a postpartum IUD. Self-reporting physical side effects as a disadvantage to the IUD (adjusted odds ratio, aOR 0.21 95% CI 0.06-0.75) and self-reporting infection as a disadvantage to the IUD (aOR 0.19 95% CI 0.04-0.85) were significantly associated with less interest in receiving a postpartum IUD. Demographic factors did not predict postpartum IUD interest, and interest did not differ by male involvement.

Conclusion: Recommendations to increase postpartum IUD uptake include educating pregnant women and couples about the method during antenatal care and addressing client myths and misconceptions about the IUD. This strategy provides allows pregnant women and couples to make informed decisions about their future contraception use, reduce unmet need for family planning, and reduce unintended pregnancy.

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Chapter I: Literature Review

Background

The Rwandan Ministry of Health's (MOHs) goal to decrease unmet need for family planning aligns with the desire expressed by women in Rwanda to space or prevent future pregnancies [1]. According to the 2015 Rwanda Demographic Health Survey (RDHS), 19% of married women ages 15-49 have an unmet need for family planning [2]. Unmet need is even more pronounced in post-partum women -- data from the 2010 RDHS found that among women who were within two years postpartum, 51% had an unmet need for family planning, and only 2% of women wanted to have another child in the future [3].

Postpartum contraceptive methods are beneficial to improving maternal and child health [4]. Under-5 mortality has decreased over the past 10-years (from 152 to 50 deaths per 1,000 live births), however it is still significantly higher among children born less than two years after a previous birth (99 deaths per 1,000 live births) [2]. In 2015, 14% of children in Rwanda were born less than two years after their older sibling, though the recommended spacing is at least 36 months to reduce the risk of infant and under-5 mortality [2].

Birth spacing can be achieved by increasing postpartum IUD uptake, which can ultimately decrease infant mortality rates [2]. Although research shows that the IUD is the most effective method for birth spacing and pregnancy prevention (the copper IUD (Copper T-380A) can last up to 12 years and is over 99% effective at preventing pregnancy, with a failure rate of

less than 1% [5], [6]), it is the least used contraceptive method in Rwanda [2]. The 2015 Rwanda Demographic Health Survey found that the uptake of IUDs in general, and not specifically within the postpartum period, is extremely low compared to other contraceptive methods. Among all women (unmarried and married) between the ages of 15-49, only 0.7% of women used IUDs compared to 14.1% using injectables, 4.7% using oral contraceptives, and 4.7% using implants [2].

A major challenge on the supply side of family planning in sub-Saharan Africa is the lack of providers who are trained to provide and counsel on LARC methods, especially interval and post-partum IUDs [7]. For example, a previous study conducted by the Rwanda Zambia HIV Research Group (RZHRG) in Zambia which aimed to integrate fertility goal counseling with LARC access for HIV discordant couples found that providers were not trained to insert or counsel on interval IUDs, but were trained to insert implants [8].

Knowledge and experience providing IUDs is low among providers in Rwanda, Malawi, South Africa, Zimbabwe, and Zambia [9], [10], [11], [12]. In a cross-sectional study conducted in hospitals in Rwanda from 2014-2015, 76% of providers at district hospitals had no previous experience providing immediate postpartum contraception. Providers expressed that this was due to limited knowledge, and concerns regarding the side effects and effectiveness of immediate postpartum contraception [9]. In surveys conducted in South Africa and Zimbabwe among family planning providers, only 14% of providers offered IUDs to their patients, and over 50% wanted further LARC training [11]. Studies conducted in Malawi and Zambia found LARC use

and provider knowledge and training to be low [10], [12]. One of the major misconceptions held by providers was that menstruation needs to return before a postpartum contraception method should be initiated; DHS data shows higher rates of contraception among women who have restarted menstruation compared to those who have not [13], [14]. Previous implementation research conducted in Rwanda in 2012 focused postpartum IUD insertion training for providers in four hospitals and eight health centers in Rwanda and developed a protocol for service delivery. However, despite this focus on increasing the supply of postpartum IUD provision and the motivation of the providers, uptake of the postpartum IUD remained low [15]. The group and individual education sessions were conducted during antenatal (ANC) care visits, in which half of the 277 postpartum women interviewed had previously heard of the IUD, and only 5 of the women received the method [15]. In another study that offered LARC methods to HIV positive women in Rwanda, IUD uptake was 3% at sites where there was guaranteed access to both LARC methods [16]. These findings indicate that provider training alone is not sufficient to increase uptake of postpartum IUDs.

In addition to supply, studies conducted in Malawi and Zambia suggest that demand side barriers should be also addressed to increase provision and uptake [10], [12]. Studies conducted in Uganda, Rwanda, and Malawi similarly found that a lack of client knowledge and misconceptions was a barrier for potential LARC uptake [8], [13], [17], [18]. The cross-sectional mixed methods study conducted with non-pregnant women and their partners in

Rwanda found that having misconceptions about fertility timing and menopause can lead to the avoidance of postpartum contraception [13].

The fear of side effects and the effectiveness of the IUD had also been found to be a major concern for potential postpartum LARC clients [19]. A study conducted in Mbarara district in Uganda found that beliefs that contraceptives cause cancer, birth defects, and infertility are commonly held beliefs [7]. Despite this, LARC benefits -such as the ability to use it long-term and their high rate of effectiveness in preventing pregnancy and spacing births- have been expressed by current users as motives to uptake either an IUD or implant [7].

To provide accurate information regarding side effects, address misconceptions, and increase knowledge about postpartum contraception, the literature repeatedly suggests that counseling and promotion for postpartum contraception use should seek to increase method knowledge, dispel myths about methods, and discuss fertility intentions and birth spacing with clients[13], [17] [18]. Increasing knowledge of LARC methods is a main focus as knowledge and use of these methods is relatively low compared to injectables, oral contraceptive pills, and condoms [7], [18], [20]. Involving men in counseling sessions and the decision-making process has also been associated with effective LARC method promotion [8], [13] [17], [21]. Research also supports early contraception counseling (i.e., at ANC visit) as essential to postpartum IUD uptake, especially since baseline knowledge about postpartum contraceptive methods-especially the IUD- is low [18]. Several studies in sub-Saharan Africa have found that the opinion of male

partners about contraception is significantly associated with LARC use and suggests that educating men should be incorporated into counseling programs [13], [17], [22], [23], [24].

There is a lack of research that concurrently evaluates the supply and demand of postpartum LARC services to develop effective programs in sub-Saharan Africa. The overall goal of this project aims to improve postpartum IUD uptake by intervening in both the supply and demand side of postpartum family planning services. In this analysis, we focus on the demand side, assessing the factors associated with postpartum copper IUD interest among currently pregnant women and couples, after a pre-survey postpartum LARC counseling session during ANC visits in Kigali, Rwanda. Since there is research that both supports and counters the importance of demographics, pregnancy experiences and desires, and social determinants of health as factors that are associated with family planning uptake, a wide range of these factors are explored in this analysis.

The postpartum period is often defined as up to two years after delivery; Rwanda has previously used that as their point of reference in postpartum family planning research [3]. However, the study conducted in Rwanda in 2012 to evaluate the feasibility of postpartum IUD services in Rwanda defined postpartum IUD services as within 48 hours of delivery [15]. Our study focuses on insertions at three time points within 6 weeks after delivery: immediately post placental (within 10 minutes after delivery), 10 minutes to 48 hours after delivery, and 4 to 6 weeks after delivery (i.e. at the infant vaccination visit). The literature consistently shows there are lower IUD expulsion rates in the immediate postpartum period (within 10 minutes) compared

to the early postpartum period (no later than 6 weeks), and that IUD expulsion rates are lowest for interval insertions (after 6 weeks) [25]. Additionally, the literature suggests that initiating contraception during the early postpartum period may alleviate some of the barriers such as accessing these services since the client would be at the health facility for delivery [4], [26]. This may be beneficial in Rwanda, where 91% of women deliver at a health facility in 2014-2015 [2].

We hypothesize that, even following a postpartum IUD counseling session, there are still demographic, behavioral, and knowledge factors that influence willingness to uptake IUDs within 6 weeks postpartum among currently pregnant women in Kigali, Rwanda. Additionally, we hypothesize that perceptions of the benefits and disadvantages of the IUD influence willingness to uptake IUDs within 6 weeks postpartum.

Chapter II: Manuscript

Introduction

The Rwandan Ministry of Health's (MOHs) goal to decrease unmet need for family planning aligns with the desire expressed by women in Rwanda to space or prevent future pregnancies [1]. According to the 2015 Rwanda Demographic Health Survey (RDHS), 19% of married women ages 15-49 have an unmet need for family planning [2]. Unmet need is even more pronounced in post-partum women -- data from the 2010 RDHS found that among women who were within two years postpartum, 51% had an unmet need for family planning, and only 2% of women wanted to have another child in the future [3].

Birth spacing can be achieved by increasing postpartum IUD uptake, which can ultimately decrease infant mortality rates [2]. Although research shows that the IUD is the most effective method for birth spacing and pregnancy prevention (the Copper T-380A IUD can last up to 12 years and is over 99% effective at preventing pregnancy [5], [6]), it is the least used contraceptive method in Rwanda [2]. The 2015 Rwanda Demographic Health Survey found that among all women between the ages of 15-49, only 0.7% of women used IUDs compared to 14.1% using injectables, 4.7% using oral contraceptives, and 4.7% using implants [2].

Previous implementation research conducted in Rwanda in 2012 focused postpartum IUD insertion training for providers in four hospitals and eight health centers in Rwanda and developed a protocol for service delivery. However, despite this focus on increasing the supply of postpartum IUD provision and the motivation of the providers, uptake of the postpartum IUD

remained low [15]. The group and individual education sessions were conducted during ANC visits, in which half of the 277 postpartum women interviewed had previously heard of the IUD, and only 5 of the women received the method [15]. In another study that offered LARC methods to HIV positive women in Rwanda, IUD uptake was 3% at sites where there was guaranteed access to both LARC methods [16]. These findings indicate that provider training alone is not sufficient to increase uptake of postpartum IUDs.

Studies suggest that client side barriers should be addressed to increase postpartum IUD provision and uptake [10], [12]. Studies conducted in Uganda, Rwanda, and Malawi found that a lack of client knowledge and misconceptions was a barrier for potential LARC uptake [8], [13], [17], [18]. A cross-sectional mixed methods study conducted with non-pregnant women and their partners in Rwanda found that having misconceptions about fertility timing and menopause can lead to the avoidance of postpartum contraception [13].

The fear of side effects of the IUD has also been found to be a concern for potential postpartum LARC clients [19]. A study conducted in Mbarara district in Uganda found that beliefs that contraceptives cause cancer, birth defects, and infertility are common [7]. Despite this, LARC benefits -such as the ability to use it long-term and their high rate of effectiveness in preventing pregnancy and spacing births- have been expressed by current users as motives to uptake either an IUD or implant [7].

To provide accurate information regarding side effects, address misconceptions, and increase knowledge about postpartum contraception, the literature repeatedly suggests that

counseling and promotion for postpartum contraception use should seek to increase method knowledge, dispel myths about methods, and discuss fertility intentions and birth spacing with clients[13], [17] [18]. Research also supports early contraception counseling (i.e., at ANC visits) as essential to postpartum IUD uptake, especially since baseline knowledge about postpartum contraceptive methods-especially the IUD- is low [18]. Several studies in sub-Saharan Africa suggest that educating men should be incorporated into family planning counseling programs [13], [17], [22], [23], [24].

There remains a lack of research that evaluates the demand of postpartum LARC services to develop effective programs in sub-Saharan Africa. In this analysis, we assess factors associated with postpartum copper IUD interest among currently pregnant women and couples, after a pre-survey postpartum LARC counseling session during ANC visits in Kigali, Rwanda. Since there is research that both supports and counters the importance of demographics, pregnancy experiences and desires, and social determinants of health as factors that are associated with family planning uptake, a wide range of these factors are explored in this analysis. Our study focuses on interest in insertions at three time points within 6 weeks after delivery: immediately post placental (within 10 minutes after delivery), 10 minutes to 48 hours after delivery, and 4 to 6 weeks after delivery. The literature suggests there are lower IUD expulsion rates in the immediate post placental period compared to the early postpartum period (no later than 6 weeks), and that IUD expulsion rates are lowest for interval insertions (at or after 6 weeks) [25], [27].

Methods

Setting

This study is a component of the first phase of a Bill and Melinda Gates Foundation Grand Challenges Exploration Grant to assess the supply and demand of postpartum IUDs and increase postpartum IUD uptake. Principal Investigator Dr. Kristin Wall of the Department of Epidemiology at Emory Rollins School of Public Health leads this project. Projet San Francisco (PSF), the Kigali site of the Emory Rwanda Zambia HIV Research Group (RZHRG), with the support of founder and co-Principal Investigator Dr. Susan Allen, site director Dr. Etienne Karita, and the PSF staff and field team, is implementing this project. Rwanda, which is located in East Africa, has a population of approximately 12 million people, with approximately 1,318,000 million people living in the capital city, Kigali [28], [29]. The primary official language in Rwanda is Kinyarwanda, which is spoken throughout the country. All surveys were conducted in Kinyarwanda.

Study Design, Population, & Recruitment

The client and couple participants were enrolled in this cross-sectional study during an ANC visit. Surveys were conducted by trained data collectors in Kinyarwanda at the six sites from August 10, 2017 to September 8, 2017. Recruitment of women alone or couples occurred at six pre-established sites in Kigali, which included four health clinics and two hospitals. The specific sites were selected because they are high volume clinics, and the hospitals are the district area hospitals, as well as the labor and delivery hospitals for their respective health clinics that

do not have a labor and delivery department. Prior to participating in the survey, all study participants participated in a 30-minute interactive group counseling session on postpartum LARC options, focusing on the postpartum IUD (namely the copper T-380A IUD, which is the IUD available at health facilities in Rwanda).

Pre-Survey Counseling

The pre-survey counseling session, led by a trained Projet San Francisco (PSF) nurse counselor, consisted of a 30-minute interactive group counselling promotion during the ANC visit. Participants were informed that the session would focus on postpartum LARC methods. After a small discussion about the participants' current knowledge about contraceptive methods, the session continued with information on the following topics: general reasons for family planning, facts about the IUD, and benefits and side effects of the IUD. Next, the nurses described the immediate postpartum IUD insertion procedure. They shared commonly asked questions about the IUD, and information about all IUD insertion timing options that are available within the 6-week after delivery. Participants were provided with information on the implant, and were advised to attend an individual family planning consultation if they wanted more information about LARC or non-LARC specific contraceptive methods.

Data Collection

(RZHRG), PSF staff, and student researchers developed the original survey that was piloted among family planning clients (n=22) before implementation. This survey was created in English and translated by native speakers into Kinyarwanda. The survey was developed after the

research team conducted four focus groups with pregnant women and couples focused on postpartum LARC knowledge, attitudes, and practices, as well as previous LARC promotional research. The surveys were administered by PSF counselors using tablets through the survey platform, Survey CTO (Dobility, Cambridge, USA). Each survey took approximately 45 minutes to complete. Data was exported as excel spreadsheets and uploaded into a secure Microsoft Access database for storage prior to data analysis. No personal identifiers were collected. The couples took the survey together, and both women who were surveyed alone and couples were asked the same questions, with the exception of the former group not being asked the male-specific questions. The survey was quantitative and included mostly closed-ended questions with some open-ended questions. The survey questions for this analysis includes questions about demographics, literacy, pregnancy history and desires, and previous modern contraception use. Clients/couples' beliefs regarding the benefits and disadvantages of the postpartum IUD were asked as unprompted open-ended questions. Specifically, participants were asked: "What are the benefits of postpartum IUDs?" and "What are the disadvantages of postpartum IUDs?" The survey instrument can be found in Appendix 1. The outcome (postpartum IUD interest) was asked as three separate questions. These questions are: "Are you interested in getting a postpartum IUD inserted immediately after delivery?" If 'No' to the previous question: "Are you interested in getting a postpartum IUD inserted within 48 hours you give birth?" If 'No' to the previous question: "Are you interested in getting a postpartum IUD at the six-week infant vaccination visit?"

Data Analysis

This dataset was cleaned and analyzed using SAS version 9.4 (SAS Institute, Cary, North Carolina, USA). The primary outcome of interest for analysis is interest in an IUD within 6 weeks postpartum. The outcome variable was created by combining interest from the three postpartum IUD interest questions. If the participant answered 'Yes' to interest in the postpartum IUD at any of the three time points, the primary outcome variable was coded as 'interested in the postpartum IUD.' If the participant answered no to interest in the postpartum IUD at all three time points, the primary outcome variable was coded as 'not interested in the postpartum IUD.' The female and male age variables were calculated using 'January 1' as the month and day of birth, since only the years were collected in the study.

The data is stratified into two groups (couples N=47 and women with or without their partner N=150). Differences between the distribution of factors associated with postpartum IUD interest were assessed using chi-square tests, fisher's exact tests, t-tests, or Wilcoxon-Mann-Whitney tests. Normality was assessed using the Sharpiro-Wilk Test for the continuous variables. Medians and interquartile ranges (IQRs) were calculated for non-normal variables. Although the normality assumption was only met for the female age variable ($p>0.05$), the median and IQR was also reported for consistency, however the differences by postpartum IUD interest was assessed using a t-test. The Wilcoxon Mann-Whitney test was reported for the following variables: male age, income, gestational age (months), number of current children, number of children who were planned, age of youngest child, desired number of additional

children, and desired number of years until next child. P <0.05 was considered to be statistically significant. For the t-tests, the equality of variances F test was used to determine if the equal or unequal (Satterthwaite) t-test should be reported. If the p-value for the F test was significant at p<0.05, then the unequal (Satterthwaite) p-value was reported.

The characteristics that were significant at p<0.05 in the bivariate analyses were included in the unadjusted logistic regression models. Odds ratios (ORs), 95% confidence intervals (CIs), and p-values were obtained to assess factors that strongly predicted an interest in a postpartum IUD. The demographic, behavioral, and knowledge characteristics with 95% CIs that did not contain the null value in the unadjusted logistic regression models (and p<0.05) were included in adjusted multivariable logistic regression models. Adjusted logistic regression models were only produced for the 'women with or without their male partner' group, since the final model for the group of 'couples only' group was an unadjusted logistic regression model. Multicollinearity diagnostics were conducted to ensure that the variables in the adjusted models were not highly associated with each other.

Ethical Considerations

The project and all accompanying materials were approved by the Emory University Institutional Review Board (IRB) and the Rwanda National Ethics Committee (RNEC). Written informed consent was obtained from all participants prior to enrollment. Each individual study participant was compensated with 3,000 Rwandan Francs (RWF) (equivalent to $3.60 USD).

Results

Of the 150 surveys included in the analysis, 103 (69%) were conducted with women alone, and 47 (31%) were conducted with women and their male partners. The breakdown of enrollment and interest in the IUD by survey status and group is shown in Figure 1. Overall, 124 (83%) expressed an interest in the postpartum IUD while 26 (17%) did not. Of the 124 who were interested, 104 (84%) were interested in IUD insertion immediately (within 10 minutes after delivery). Eleven of the 26 women/couples who were not interested in the postpartum IUD were interested in the postpartum implant. The remaining 15 women/couples were not interested in either LARC method.

Overall, the median age of women was 28 years old (IQR=7), and the median age of men was 30 years old (IQR=8). 50% of women and 57% of men had no education or primary school only. The majority of participants were cohabitating with their partner (93%), could read in Kinyarwanda (89% for women and 91% for men), could write in Kinyarwanda (88% for women and 87% for men), had government health insurance (mutuelle) (93% for women and 79% for men), were non-Catholic (77% for women and 53% for men), and had previously used at least one modern contraceptive method (56%).

The most common previously used modern contraceptive method was injectables, with 54 women (36%) having used them. Only 5 women (3%) previously used an IUD and 28 (19%) previously used an implant. The majority of women were unemployed (57%) while the majority of men were employed (96%). The most frequently self-reported benefit of the postpartum IUD

was no hormones (n=99, 66%) and the most frequently self-reported disadvantage was unintended pregnancy (n=57, 38%). These findings are summarized in Table 1 and Table 2.

Bivariate analyses

Lower gestational age (months) was significantly associated with interest in receiving a postpartum IUD (6.73 vs 7.58, p=0.03) among all women. None of the demographic or other behavioral characteristics were significantly associated with postpartum IUD interest.

Self-reported benefits and disadvantages were associated with the postpartum IUD interest (Table 2). Among women with or without their male partners, those who self-reported 'no hormones as a benefit' (p=0.0002) and 'long-term method as a benefit' (p=0.0004) were more likely to be interested in receiving a postpartum IUD. Alternatively, those who self-reported the following factors were less likely to be interested in receiving a postpartum IUD: 'none/do not know benefits' (p=0.0007), 'physical side effects as a disadvantage' (p=0.0003), and 'infection as a disadvantage' (p=0.01). Among couples, those who self-reported 'long-term method as a benefit' were more likely to be interested in receiving a postpartum IUD (p=0.02). The following factors were not significant for either group: pregnancy prevention effectiveness, delays pregnancy/birth spacing, ease of logistics, immediately fertile again after removal, unintended pregnancy, none/do not know disadvantages, irregular/heavy bleeding, expulsion, cancer/cysts, sexual/other concerns, and ectopic pregnancy.

Unadjusted Logistic Regression Models

Among women with or without their male partners, those later in pregnancy had lower odds of being interested in receiving a postpartum IUD (OR=0.71 95% CI 0.53-0.96). Additionally, those who self-reported 'no hormones as a benefit' had higher odds of being interested in receiving a postpartum IUD (OR=5.00 95% CI 2.04-12.29). Those who self-reported 'long-term method as a benefit' had higher odds of being interested in receiving a postpartum IUD (OR=5.63 95% CI 1.99-15.89). Those who self-report that there were 'none/do not know benefits' had lower odds of being interested in receiving a postpartum IUD (OR 0.22 95% CI 0.09-0.56). This relationship was also found with self-reporting 'physical side effects as a disadvantage' (OR 0.16 95% CI 0.05-0.47) and 'infection as a disadvantage' (OR 0.26 95% CI 0.08-0.81).

Among couples, those who self-reported 'long-term method as a benefit' had higher odds of being interested in receiving a postpartum IUD. (OR=11.2 95% CI 1.25-100.30).

Adjusted Logistic Regression Models

Among women with or without their male partners, six factors were included in the adjusted logistic regression model (Table 4). The final models represent the findings that not self-reporting 'physical side effects' (aOR 0.21 95% CI 0.06-0.75) and not self-reporting 'infection as a disadvantage' (aOR 0.19 95% CI 0.04-0.85) were significantly associated with interest in receiving a postpartum IUD.

Analysis of Women Only

The bivariate chi-square analyses that were conducted for the women only group (N=103) were not included in the primary analysis because those results were similar to that of the overall group (women with or without their male partners). These findings can be found in Table 5 and Table 6.

Discussion

The focus of this study was on assessing postpartum IUD interest after postpartum IUD counseling. Since baseline knowledge about the postpartum IUD is low [18], our study focused on assessing knowledge, attitudes and practices after providing postpartum LARC information, so all women and couples would have a baseline knowledge before assessing what influenced their interest. Evaluating interest post-counselling allows us to understand the residual beliefs, myths, and misconceptions about these methods and refine counseling messages accordingly.

Our findings both support and challenge the original hypothesis. Knowledge via respondent's self-reporting physical side effects and infection as disadvantages of the postpartum IUD were less likely to have interest in the postpartum IUD, while most demographic and behavioral characteristics were not associated with interest. For couples, self-reported 'long-term method as a benefit' was the only significant factor associated with the outcome. Although unintended pregnancy was the most frequently self-reported disadvantage of the postpartum IUD, there was no association between reporting this disadvantage and interest in the postpartum

IUD. By contrast, effectiveness in preventing pregnancy was the most frequently self-reported benefit of the postpartum IUD.

Self-reporting physical side effects (i.e., headaches, backaches, weight gain, weight loss, abdominal pain, or vaginal dryness) and self-reporting infection as a disadvantage were associated with not being interested in receiving a postpartum IUD. Acknowledging and addressing potential disadvantages alongside benefits may also be important to promoting postpartum IUDs. Some concerns about the physical side effects of the postpartum IUD during counseling sessions are valid, but may occur at different rates and levels of severity. In a retrospective study which evaluated over 1 million women in the United States who had an IUD inserted, the rates of complications and side effects were: 12.5% for pelvic pain, 5.16% for regular heavy menstrual bleeding, 0.2% for menorrhagia, and 0.06% for infection [30]. Previous literature does not show that side effects such as headaches and weight changes (which are not associated with non-hormonal contraceptive methods) occur in copper IUD users, although they were of concern among the participants in a U.S. study [25], [30]. Myths and misconceptions surrounding the IUD still exist (i.e. the IUD causes cancer, cysts, and that the IUD can disappear in the body), even after counseling that explained the difference in the side effects between non-hormonal copper IUDs and hormonal implants. This is supported by a systematic review of IUD perspectives which found that concerns regarding cancer were pervasive in low and middle income countries [31]. Differentiating between true disadvantages and myths can address these concerns.

Concerns about IUD expulsions were low, and not significantly associated with IUD interest. A systematic review of 15 articles found that immediate IUD expulsion rates vary widely across different studies. In a study conducted in Turkey, at one year of follow-up immediate insertion expulsion rates were 36.9%. However, a study conducted in Egypt found that the immediate expulsion rates were 13% at one year of follow-up [25]. A systematic review that assessed multiple studies that focused on post placental IUD insertions within 10 minutes and examined IUD expulsions that occurred among them suggested that the benefits of contraceptive use immediately after pregnancy for those wishing to prevent or space future births outweighs the concerns and risks regarding expulsions [26]. Our findings, which found interest in post placental IUDs to be high (84% of postpartum IUD interest) may be due to sharing information with clients/couples during the counseling session about expulsion rates at the different IUD insertion time periods. This differs from previous studies in sub-Saharan Africa, where IUD uptake was higher after the post placental time point [32], [33].

The finding that those earlier in pregnancy were more likely to be interested in receiving a postpartum IUD -although this was not significant in the adjusted model- may be due to pregnant women and couples having more time to think, discuss, and learn more about the method and alternative options at future ANC visits before making a decision. This finding is also supported by previous research that counseling on contraceptives early in pregnancy- ideally during ANC visits- is essential to increasing postpartum IUD uptake [18].

Previous research highlights that males' opinions in the decision making process have been significantly associated with LARC uptake. [13], [17], [22], [23], [24]. Our findings which show no significant association between male presence and postpartum IUD interest may be due to effectively eliminating any differences between women and their male partner's postpartum IUD interest through the preliminary counselling session.

Characteristics such as age, education, income, religion, desired number of additional children, desired years until next child, previous IUD use, previous implant use, and no previous modern method use-were not significantly associated with postpartum IUD interest. By focusing on the post-counselling knowledge, attitudes, and practices, we may have accounted for these differences among participants. There is limited research on the association between many of these factors and postpartum IUD uptake within 6 weeks after delivery, however previous literature highlights associations between some of these factors and general postpartum family planning uptake. A study in Uganda on factors associated with postpartum family planning uptake within 12 months after delivery found that women who were primary or higher educated, wealthier, Protestants, or have more surviving children were more likely to use modern postpartum family planning methods [34] . Age and higher socioeconomic status were also found to be significantly associated with LARC use in Zambia [35].

Strengths

This study focused on postpartum LARC within 6 weeks after delivery, allowing us to gather information specific to this postpartum period, which is very limited in the current

literature. By focusing on a study population of currently pregnant women with or without their male partners we were able to learn about their attitudes and willingness to get a method while they were pregnant. The open-ended design of the questions about the benefit and disadvantages of postpartum IUD allowed us to hear a full range of knowledge and attitudes of participants, without restrictions. By analyzing a wide range of factors among women with or without their male partners and couples, we were able to identify what factors do and do not influence these different groups' interest in receiving a postpartum IUD within 6 weeks after delivery.

Limitations

Due to the small sample size, there were wide confident intervals for the logistic regression models and we had limited power to detect significant differences in covariates by postpartum IUD interest, especially for the couple group. Since the sample size was small, interest in receiving a postpartum IUD could not be stratified by timing in the analysis. This study includes data from 4 health centers and 2 hospitals located in the urban capital city, so these findings may be most generalizable to rural populations (as of 2017, 69% of the country was living in rural areas [36]). Participants were asked about their interest in the postpartum IUD first, at each of the three time points sequentially, before being asked about their postpartum implant interest. Thus, limited inference should be made to the low interest in implant.

Conclusion

Though previous IUD use was low, interest in postpartum IUDs was very high. Postpartum contraceptive counseling should incorporate promotional messages that educate pregnant women and their partners about the postpartum IUD. These messages should start early in pregnancy, and should not only include messages regarding benefits, but also explain potential disadvantages and address myths about the postpartum IUD.

An ongoing intervention to increase postpartum IUD uptake utilized these findings along with findings from focus groups conducted with women and couples to create a postpartum IUD counseling session, which is being administered to women and couples during ANC visits. Providers and community health workers are being trained to deliver this promotional counseling session, and providers have been trained on postpartum IUD insertion and follow-up. This strategy focused on improving both supply and demand seeks to provide pregnant women and couples with detailed knowledge to make an informed decision about their future contraception use, and give providers the skills and knowledge to promote and provide the method. This intervention may reduce unmet need for family planning, reduce unintended pregnancy, improve birth spacing, and lower infant mortality rates.

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Figure and Tables

Figure 1. Enrollment and postpartum IUD interest within 6 weeks after delivery

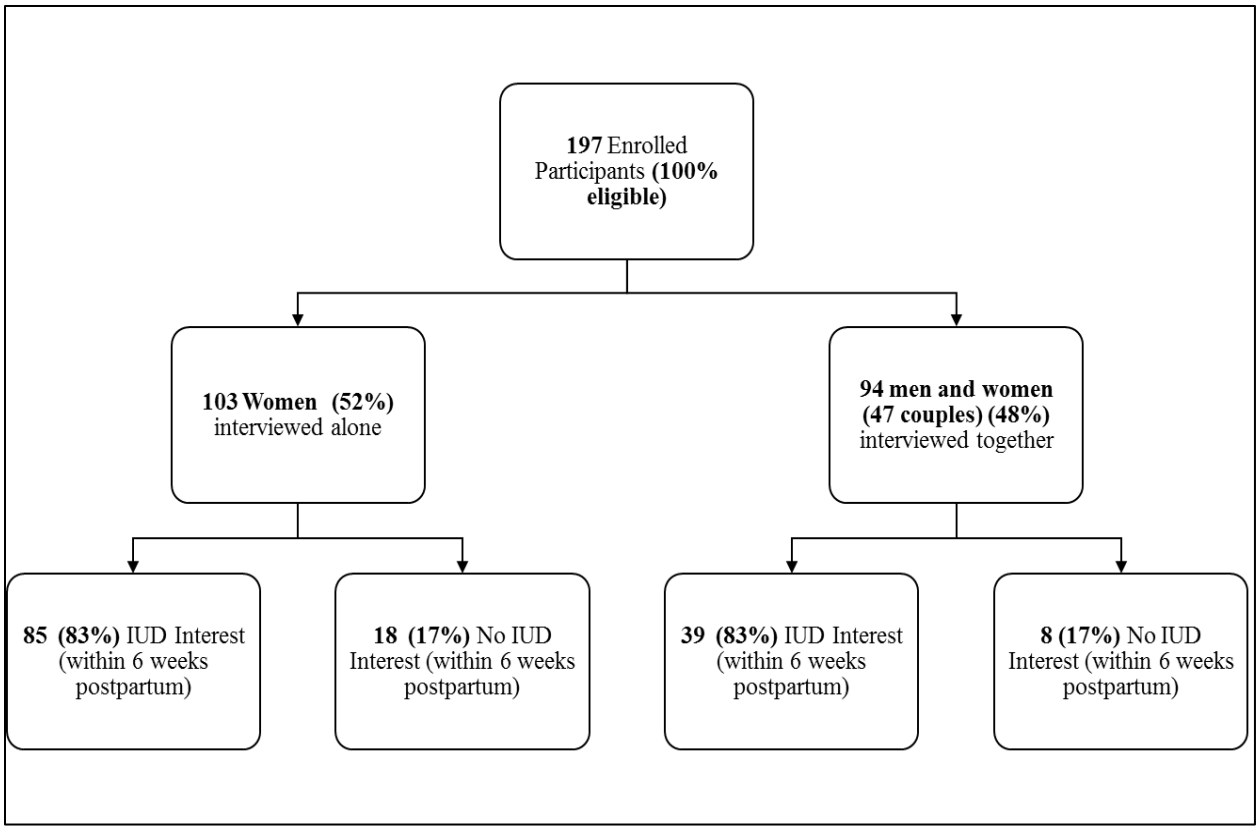

Table 1. Demographic and Behavioral Characteristics of couples only v. women with or without their male partners stratified by postpartum IUD interest within 6 weeks after delivery

	Couples- women and male partner (N=47)					Women- with or without male partner (N=150)				
Characteristics	**PPIUD interest=Yes n= 39**		**PPIUD interest=No n= 8**			**PPIUD interest=Yes n= 124**		**PPIUD interest=No n= 26**		
	median	**IQR**	**median**	**IQR**	***p value***	**median**	**IQR**	**median**	**IQR**	***p value***
Age										
Female	27	9	29	6	0.91	28	8	30	7	0.97
Male	31	8	30	8	0.99					
Household Monthly Income (USD)**	$ 95	$ 113	$ 65	$ 101	0.25	$ 24	$ 113	$ 1	$ 60	0.27
Pregnancy and Birth Spacing										
Gestational Age	6	4	8	3	0.23	7	3	8	1	0.03*
Number of Current Children***	1	1	2	2	0.21	1	2	2	3	0.48
Number of Children who were Planned***	1	2	2	1	0.53	2	2	2	2	0.14
Age of youngest child	5	5	3	3	0.19	3	4	3	2	0.74
Desired number of additional children	1	1	1	1	0.70	1	2	1	2	0.41
Desired years until next child	5	2	10	4	0.09	5	3	5	4	0.69
	n	**%**	**n**	**%**		**n**	**%**	**n**	**%**	
Location					0.73					0.86
Kinyinya Health Center	13	33	4	50		20	16	5	19	
Remera Health Center	7	18	2	25		21	17	4	15	
Kacyiru Health Center and Hospital	9	23	1	13		43	35	7	27	
Muhima Health Center and Hospital	10	26	1	13		40	32	10	38	
Cohabitation					1.00					0.38
Yes	35	90	7	88		117	94	23	88	
No	4	10	1	13		7	6	3	12	
Education (Female)					0.09					0.20
Secondary School & College/University	12	31	0	0		65	52	10	38	
No School & Primary School	27	69	8	100		59	48	16	62	
Religion (Female)					0.41					0.20
Catholic	12	31	1	13		31	25	3	12	
Non-Catholic	27	69	7	88		93	75	23	88	
Occupation (Female)					0.72					0.32
Employed	18	46	3	38		56	45	9	35	
Unemployed	21	54	5	63		68	55	17	65	
Literacy (Female)										0.16
Read Kinyarwanda					0.64	112	90	21	81	
Yes	32	82	6	75		12	10	5	19	
No	7	18	2	25						
Write Kinyarwanda					1.00	111	90	21	81	0.21
Yes	31	79	6	75		13	10	5	19	
No	8	21	2	25						
Mutuelle Health Insurance (Female)					0.44					0.68
Yes	37	95	7	88		116	94	24	92	
No	2	5	1	13		8	6	2	8	

Table 1. Continued

Education (Male)					0.71					
Secondary School & College/University	16	41	4	50						
No School & Primary School	23	59	4	50						
Religion (Male)					0.71					
Catholic	19	49	3	38						
Non-Catholic	20	51	5	63						
Occupation (Male)					0.31					
Employed	38	97	7	88						
Unemployed	1	3	1	13						
Literacy (Male)										
Read Kinyarwanda					0.54					
Yes	36	92	7	88						
No	3	8	1	13						
Write Kinyarwanda					1.00					
Yes	34	87	7	88						
No	5	13	1	13						
Mutuelle Health Insurance (Male)					0.67					
Yes	30	77	7	88						
No	9	23	1	13						
Previously Used Modern Methods****										
Intrauterine Device					1.00					0.59
Yes	2	5	0	0		5	4	0	0	
No	37	95	8	100		119	96	26	100	
Implant					0.18					0.53
Yes	8	21	4	50		22	18	6	23	
No	31	79	4	50		102	82	20	77	
Injectables					0.23					0.87
Yes	13	33	5	63		45	36	9	35	
No	26	67	3	38		79	64	17	65	
Oral Contraceptive Pills					1.00					0.07
Yes	8	21	1	13		30	24	2	8	
No	31	79	7	88		94	76	24	92	
None					0.13					0.50
Never used a modern method	17	44	1	13		53	43	13	50	
Used at least one modern method	22	56	7	88		71	57	13	50	
Previously Used LARC Methods					0.19					0.81
Yes	9	23	4	50		26	21	6	23	
No	30	77	4	50		98	79	20	77	
Male Partner Present										1.00
Yes						39	31	8	31	
No						85	69	18	69	

*Statistically Siginficant ($p<0.05$)

**Income coverted from Rwandan Francs to USD using rate at time of data colletion $1= 840 RWF

*** Not including current pregnancy

****Participants could choose more than one contraceptive method

IUD: intrauterine device; **LARC:** Long-acting Reversible Contraception

Table 2. Unprompted Benefits and Disadvantages of the postpartum IUD reported by couples only v. women with or without their male partners stratified by postpartum IUD interest within 6 weeks after delivery

	Couples- women and male partner (N=47)					Women- with or without male partner (N=150)				
Knowledge	**PPIUD interest=Yes n= 39**		**PPIUD interest=No n= 8**			**PPIUD interest=Yes n= 124**		**PPIUD interest=No n= 26**		
	n	**%**	**n**	**%**	***p value***	**n**	**%**	**n**	**%**	***p value***
Benefits**										
No hormones	26	67	4	50	0.44	90	73	9	35	0.0002*
Pregnancy Prevention Effectiveness	24	62	5	63	1.00	77	62	12	46	0.13
Long-term Method	24	62	1	13	0.0180*	71	57	5	19	0.0004*
Delays Pregnancy/ Birth Spacing	13	33	4	50	0.44	40	32	11	42	0.33
None/ Don't Know	6	15	3	38	0.17	20	16	12	46	0.0007*
Ease of Logistics	6	15	2	25	0.61	13	10	4	15	0.50
Immediately fertile again after removal	1	3	0	0	1.00	7	6	0	0	0.61
Disadvantages**										
Unintended Pregnancy	11	28	2	25	1.00	50	40	7	27	0.20
None/ Don't Know	20	51	1	13	0.06	48	39	9	35	0.70
Irregular/ Heavy bleeding	8	21	2	25	1.00	23	19	3	12	0.57
Expulsion	3	8	1	13	0.54	17	14	1	4	0.20
Physical Side Effects	1	3	2	25	0.07	8	6	8	31	0.0003*
Infection	1	3	1	13	0.31	9	7	6	23	0.01*
Cancer/Cysts	4	10	1	13	1.00	12	10	2	8	1.00
Sexual and Other Concerns	2	5	1	13	0.44	8	6	1	4	1.00
Ectopic Pregnancy	0	0	0	0	N/A	5	4	3	12	0.14

*Statistically Siginficant ($p<0.05$)

**Unprompted open ended questions

IUD: intrauterine device; **Pregnancy Prevention Effectiveness:** prevent pregnancy, effective immediately after insertion, highly effective, most effective at preventing pregnancy, cost-effective; **Ease of Logistics:** easy to use, easy to get, reduces appointment times, can easily go back to work, doesn't have disadvantages of other methods; **Physical Side Effects:** side effects in general, headache, backache, weight gain/loss, abdominal pain, vaginal dryness, negatively affects the body; **Sexual and Other Concerns:** affects sexual intercourse, no hormones, concerned about IUD string, IUD disappears

Table 3. Unadjusted odds ratio (OR) and 95% confidence interval (CI) for factors associated with postpartum IUD interest within 6 weeks after delivery

	Couples- women and male partner (N=47)			Women- with or without male partner (N=150)		
Variables	**OR**	**95% CI**	***p value***	**OR**	**95% CI**	***p value***
Gestational Age	–	–	–	0.71*	0.53, 0.96	0.02
Self-reported no hormones as a benefit						
No	–	–	–	1.00	–	
Yes	–	–	–	5.00*	2.04, 12.29	0.0005
Self-reported long-term method as a benefit						
No	1.00	–	–	1.00	–	
Yes	11.20*	1.25, 100.30	0.03	5.63*	1.99, 15.89	0.001
Self-reported no benefits or don't know benefits						
No	–	–	–	1.00	–	
Yes	–	–	–	0.22*	0.09, 0.56	0.001
Self-reported physical side effects as a disadvantage						
No	–	–	–	1.00	–	
Yes	–	–	–	0.16*	0.05, 0.47	0.001
Self-reported infection as a disadvantage						
No	–	–	–	1.00	–	
Yes	–	–	–	0.26*	0.08, 0.81	0.02

*Statistically Siginficant ($p<0.05$)

OR: odds ratio; CI: confidence interval

IUD: intrauterine device; **Physical Side Effects:** side effects in general, headache, backache, weight gain/loss, abdominal pain, vaginal dryness, negatively affects the body

Table 4. Adjusted odds ratio (aOR) and 95% confidence interval (CI) for factors associated with postpartum IUD interest within 6 weeks after delivery

Variables	Women- with or without male partner (N=150)		
	aOR**	**95% CI**	***p value***
Gestational Age	0.81	0.58, 1.11	0.19
Self-reported no hormones as a benefit			
No	1.00	_	
Yes	2.94	0.67, 12.91	0.15
Self-reported long-term method as a benefit			
No	1.00	_	
Yes	2.03	0.53, 7.88	0.30
Self-reported no benefits or don't know benefits			
No	1.00	_	
Yes	0.54	0.13, 2.30	0.40
Self-reported physical side effects as a disadvantage			
No	1.00	_	
Yes	0.21*	0.06, 0.75	0.02
Self-reported infection as a disadvantage			
No	1.00	_	
Yes	0.19*	0.04, 0.85	0.03

*Statistically Siginficant ($p<0.05$)

**Adjusted for all the other variables in the table

aOR: adjusted odds ratio; **CI:** confidence interval; **IUD:** intrauterine device; **Physical Side Effects:** side effects in general, headache, backache, weight gain/loss, abdominal pain, vaginal dryness, negatively affects the body

Table 5. Demographic and Behavioral Characteristics of women without their male partners stratified by postpartum IUD interest within 6 weeks after delivery

	Women-without male partner (N=103)				
Characteristics	**PPIUD interest=Yes n=85**		**PPIUD interest=No n=18**		***p value***
	median	**IQR**	**median**	**IQR**	
Age					
Female	29	7	30	8	0.90
Household Monthly Income (USD)**	$0	$51	$0	$30	0.13
Pregnancy and Birth Spacing					
Gestational Age	7	2	8	1	0.06
Number of Current Children***	1	2	2	3	1.00
Number of Children who were Planned***	2	2	2	2	0.14
Age of youngest child	3	3	4	2	0.63
Desired number of additional children	1	2	2	2	0.23
Desired years until next child	5	3	5	1	0.71
	n	**%**	**n**	**%**	
Location					0.77
Kinyinya Health Center	7	8	1	6	
Remera Health Center	14	16	2	11	
Kacyiru Health Center and Hospital	34	40	6	33	
Muhima Health Center and Hospital	30	35	9	50	
Cohabitation					0.21
Yes	82	96	16	89	
No	3	4	2	11	
Education (Female)					0.60
Secondary School & College/University	53	62	10	56	
No School & Primary School	32	38	8	44	
Religion (Female)					0.35
Catholic	19	22	2	11	
Non-Catholic	66	78	16	89	
Occupation (Female)					0.38
Employed	38	45	6	33	
Unemployed	47	55	12	67	
Literacy (Female)					
Read Kinyarwanda					0.14
Yes	80	94	15	83	
No	5	6	3	17	
Write Kinyarwanda					0.14
Yes	80	94	15	83	
No	5	6	3	17	
Mutuelle Health Insurance (Female)					1.00
Yes	79	93	17	94	
No	6	7	1	6	

Table 5. Continued

Previously Used Modern Methods****					
Intrauterine Device					1.00
Yes	3	4	0	0	
No	82	96	18	100	
Implant					0.73
Yes	14	16	2	11	
No	71	84	16	89	
Injectables					0.28
Yes	32	38	4	22	
No	53	62	14	78	
Oral Contraceptive Pills					0.07
Yes	22	26	1	6	
No	63	74	17	94	
None					0.07
Never used a modern method	36	42	12	67	
Used at least one modern	49	58	6	33	
Previously Used LARC Methods					0.51
Yes	17	20	2	11	
No	68	80	16	89	

*Statistically Siginficant ($p<0.05$)
**Income coverted from Rwandan Francs to USD using rate at time of data collection $1= 840 RWF
*** Not including current pregnancy
****Participants could choose more than one contraceptive method
IUD: intrauterine device**; LARC:** Long-acting Reversible Contraception

Table 6. Unprompted Benefits and Disadvantages of the postpartum IUD reported by women without their male partners stratified by postpartum IUD interest within 6 weeks after delivery

	Women-without male partner (N=103)				
	PPIUD interest=Yes n=85		PPIUD interest=No n=18		*p value*
Knowledge	**n**	**%**	**n**	**%**	
Benefits**					
No hormones	64	75	5	28	<.0001*
Pregnancy Prevention Effectiveness	53	62	7	39	0.07
Long-term Method	47	55	4	22	0.0179*
Delays Pregnancy/ Birth Spacing	27	32	7	39	0.56
None/ Don't Know	14	16	9	50	0.0019*
Ease of Logistics	7	8	2	11	0.65
Immediately fertile again after removal	6	7	0	0	0.59
Disadvantages**					
Unintended Pregnancy	39	46	5	28	0.16
None/ Don't Know	28	33	8	44	0.35
Irregular/ Heavy bleeding	15	18	1	6	0.29
Expulsion	14	16	0	0	0.12
Physical Side Effects	7	8	6	33	0.0036*
Infection	8	9	5	28	0.0330*
Cancer/Cysts	8	9	1	6	1.00
Sexual and Other Concerns	6	7	0	0	0.59
Ectopic Pregnancy	5	6	3	17	0.14

*Statistically Siginficant ($p<0.05$)

**Unprompted open ended questions

IUD: intrauterine device; **Pregnancy Prevention Effectiveness:** prevent pregnancy, effective immediately after insertion, highly effective, most effective at preventing pregnancy, cost-effective; **Ease of Logistics**: easy to use, easy to get, reduces appointment times, can easily go back to work, doesn't have disadvantages of other methods; **Physical Side Effects:** side effects in general, headache, backache, weight gain/loss, abdominal pain, vaginal dryness, affects the body; **Sexual and Other Concerns:** affects sexual intercourse, no hormones, concerned about IUD string, IUD disappears

Chapter III: Conclusion

Summary

Knowledge via respondent's self-reporting physical side effects and infection as disadvantages of the postpartum IUD were less likely to have interest in the postpartum IUD, while most demographic and behavioral characteristics were not associated with interest. For couples, self-reported 'long-term method as a benefit' was the only significant factor associated with the outcome. Although unintended pregnancy was the most frequently self-reported disadvantage of the postpartum IUD, there was no association between reporting this disadvantage and interest in the postpartum IUD. By contrast, effectiveness in preventing pregnancy was the most frequently self-reported benefit of the postpartum IUD.

Public Health Implications

Our findings implicate that postpartum contraceptive counseling should incorporate promotional messages that educate pregnant women and their partners about the postpartum IUD. Specifically, this message should include messages about benefits, but also explain potential disadvantages and address myths about the postpartum IUD. Doing so will provide women and their partners with comprehensive information about these methods to make an informed decision.

Current LARC Intervention

Since August 2017, the project's research team has been implementing an intervention at four health facilitates in Kigali, to increase postpartum IUD and implant uptake among women.

Providers (nurses) were trained to insert, remove, and counsel on postpartum IUDs, and community health workers were trained to counsel on postpartum IUDs and follow-up with IUD clients. Training is ongoing, and new providers and community health workers are being trained to implement these activities every month. This intervention includes a postpartum LARC counselling session (focused on the IUD), which provides information on the benefits and side effects of the IUD, dispels myths about the IUD, and provides information about the implant. The nurses provide counseling in the clinics, and record the method the participant is interested in (if any) at each counselling session they attend. Once the participant returns for delivery, they receive additional counselling and are asked if they are still interested in the method. If they are still interested in the method, they are asked to consent to receiving the method at a specific time period postpartum. For this intervention, the IUD insertion times coincide with those in this original study- immediately post placental (within 10 minutes after delivery), within 48 hours after delivery, and at 4-6 weeks after delivery (usually at the 6-week infant vaccination visit).

Future Directions

Using these study findings in collaboration with the results from the current intervention, we hope to be able to increase knowledge, awareness, and interest in LARC methods among women in the target population. Through doing so we hope to scale up this intervention country-wide, so that the unmet need for family planning can be addressed for all women in Rwanda who wish to prevent future or delay future pregnancies by up taking one of these highly effective long-acting contraceptive methods during the 6-week postpartum period.

Appendices

Appendix 1: Survey Instrument

Postpartum LARC Client/Couple Survey:					
Variable Name	**English Question**	**Kinyarwanda Question**	**English Answers**	**Kinyarwanda Answers**	**Skip Pattern**
Identifiers:					
STARTTIMEDATE	Start Time Date	--	Hours: Minutes	Hours: Minutes	Automatic
UIDCODE	Participant ID	--	--	--	All required to answer
STUDYSITE	Study Site	--	Remera HC, Kinyinya HC, Muhima, HC, Muhima Hospital, Other	Ikigo Nderubuzima cya Remera, Ikigo Nderubuzima cya Kinyinya, Ikigo Nderubuzima cya Muhima, Kubitaro cya Muhima, Ahandi	All required to answer

Introduction: Tubanje kubashimira kuko muduhaye umwanya wo kuvugana namwe uyu munsi, hakaba hari ibibazo twifuza kubabaza bijyanye nuburyo bwo kuboneza urubyaro bwigihe kirekire.kugirango hongerwe ubudakemwa bwitangwa rya serivisi zo kuboneza urubyaro nyuma yuko umubyeyi abyara. Akaba aragapira ko mukuboko nagapira ko mumura bashyiramo kuva umwana akivuka kugera kubyumweru 6 muri ibi bihe bikurukura:

- Uwo mwanya umubyeyi akimara kubyara: umugore azajya ahabwa agapira ko mumura cyangwa ko mukuboko akimara kubyara.
- Mumasaha 48: umugore azajya ahabwa agapira ko mumura cyangwa ko mukuboko bitarenze amasaha 48 amaze kubyara
- Kubyumweru 6 aje gukingiza: umugore azajya ahabwa agapira ko mumura cyangwa ko mukuboko bitarenze kubyumweru 6 amaze kubyara.ibi bikazajya bikorwa akenshi umugore aje gukingiza umwana kubyeru 6.

Introduction: Thank you so much for taking the time to speak with me today. I would like to ask you some questions about postpartum long-acting reversible contraception (or LARC) in order to improve postpartum LARC uptake and provision. We define 'Postpartum LARC methods' as intrauterine devices (IUDs) or implants started between the time the baby is delivered up to 6 weeks

after delivery, at any of the following times:

- *Immediately after delivery (post-placental):* A woman would receive an intrauterine device (IUD) or implant immediately after giving birth.
- *Within 48 hours of delivery:* A woman would receive an IUD or implant no later than 48 hours after giving birth. This would most likely be before she is leaves the clinic or hospital after delivery.

At the 6-week infant vaccination visit: A woman would receive an IUD or implant no later than 6 weeks after giving birth. This would most likely be at the time a woman would bring her baby in for the 6-week infant vaccination visit

Demographics:					
ANC_NUM	What is your ANC Number	Numero: Numero: Ifishi y'ubuzima gw'umwana n'umubyeyi	--	--	All required to answer
MALE_PRESENT	Male present?	Umugabo hano?	Yes, No	Yego, Oya	All required to answer
PREG_CURRENT	Are you currently pregnant?	Ubu uratwite?	Yes, No	Yego, Oya	All required to answer
F_YOB	What is your birth year?-female	Umugore: wavutse mu wuhe mwaka?	Year (4 digits) __ __ __ __	--	All required to answer
M_YOB	What is your birth year-male	Umugabo: wavutse mu wuhe mwaka?	Year (4 digits) __ __ __ __	--	ASK QUESTION IF MALE_PRESENT= YES
COHAB	Do you live with your partner? Cohabitation.	Ese murabana?	Yes, No	Yego, Oya	All required to answer
DIST	What district do you live in?	Utuye mukahe karere?	Gasabo, Kicukiro, Nyarugenge, Other	Gasabo, Kicukiro, Nyarugenge, Ibindi	All required to answer
SECT	What sector do you live in?	Utuye muwuhe murenge?	Text (open ended)	--	All required to answer

VILL	What village do you live in?	Utuye muwuhe mudugudu?	Text (open ended)	--	All required to answer
F_JOB_TITLE	What is your job?-female	Umugore: ukora iki (akazi)?	None (1), Agriculture (2), Professional (3), Sales (4), Skilled (5), Unskilled (6), Other (7)	--	All required to answer
M_JOB_TITLE	What is your job?-male (Umugabo, Ukora iki? akazi)	Umugabo: ukora iki (akazi)	None (1), Agriculture (2), Professional (3), Sales (4), Skilled (5), Unskilled (6), Other (7)	--	ASK QUESTION IF MALE_PRESENT= YES
F_RELIGION	What religion are you?- female	Umugore: usengera murihe torero (idini)?	Catholic (1), Pentecostal (2), Seventh Day Adventists (3), Jehovah's Witnesses (4), Anglican (5), Baptist (6), Muslim (7), Other (8), None (9)	Gatolika, Abapentekote, Badivantiste b'umunsi wa 7, Abahamya ba Yohova, Abangilikani, Ababatisita, Abisalamu, Ayindi mandi, Ntaryo	All required to answer
M_RELIGION	What religion are you?- male	Umugabo: usengera murihe torero (idini)?	Catholic (1), Pentecostal (2), Seventh Day Adventists (3), Jehovah's Witnesses (4), Anglican (5), Baptist (6), Muslim (7), Other (8), None (9)	Gatolika, Abapentekote, Badivantiste b'umunsi wa 7, Abahamya ba Yohova, Abangilikani, Ababatisita, Abisalamu, Ayindi mandi, Ntaryo	ASK QUESTION IF MALE_PRESENT= YES
F_EDUCATION	What is the highest level of formal school education you	Umugore: ni ikihe cyiciro cy'amashuli warangije?	None (1), Primary (2), Secondary (3),	Ntaryo, Amashuri abanza, Amashuri yisumbuye, Kaminuza	All required to answer

	completed?-female		College/University (4)		
M_EDUCATION	What is the highest level of formal school education you completed?-male	Umugabo: ni ikihe cyiciro cy'amashuli warangije?	None (1), Primary (2), Secondary (3), College/University (4)	Ntaryo, Amashuri abanza, Amashuri yisumbuye, Kaminuza	ASK QUESTION IF MALE_PRESENT= YES
INCOME	What is your household's monthly income? (RWF)	Ugereranije winjinza amafaranga angahe mu kwezi? (RWF)	Number in RWF	---	All recommended to answer
Literacy:					
F_KINYA_UND	Can you understand Kinyarwanda?-female (	Umugore: wumva ikinyarwanda?	Yes, No	Yego, Oya	All required to answer
M_KINYA_UND	Can you understand Kinyarwanda?-male	Umugabo: wumva ikinyarwanda?	Yes, No	Yego, Oya	ASK QUESTION IF MALE_PRESENT= YES
F_KINYA_READ	Can you read Kinyarwanda?-female	Umugore: ushobora gusoma ikinyarwanda?	Yes, No	Yego, Oya	All required to answer
M_KINYA_READ	Can you read Kinyarwanda?-male	Umugabo: ushobora gusoma ikinyarwanda?	Yes, No	Yego, Oya	ASK QUESTION IF MALE_PRESENT= YES
F_KINYA_WRITE	Can you write Kinyarwanda?-female	Umugore: ushobora kwandika ikinyarwanda?	Yes, No	Yego, Oya	All required to answer

M_KINYA_WRITE	Can you write Kinyarwanda?- male	Umugabo: ushobora kwandika ikinyarwanda?	Yes, No	Yego, Oya	ASK QUESTION IF MALE_PRESENT= YES
Medical History:					
F_MUTUELLE	Do you have mutuelle- female	Umugore: Ufite mutuelle?	Yes, No	Yego, Oya	All required to answer
F_INSURANCE OTHER	If no, do you have another type- select type	Niba ari oya, ufite ubndi?	RAMA/government (1), MMI/Military(2), Mediplan (3), Other (4), None (5)	RAMA/government (1), MMI/Military(2), Mediplan (3), Other (4), None (5)	ASK QUESTION IF F_MUTUELLE= NO
M_MUTUELLE	Do you have mutuelle- male	Umugabo: Ufite mutuelle?	Yes, No	Yego, Oya	ASK QUESTION IF MALE_PRESENT= YES
M_INSURANCE_OTHER	If no, do you have another type- select type	Niba ari oya, ufite ubndi?	RAMA/government (1), MMI/Military(2), Mediplan (3), Other (4), None (5)	RAMA/government (1), MMI/Military(2), Mediplan (3), Other (4), None (5)	ASK QUESTION IF M_MUTUELLE= NO
VISITS_CLINIC	How often do you visit this clinic? (Read all options)	Ni kangahe uza kuriri vuriro?	once a month (1), once every 3 months (2), twice a year (3), once a year (4), less than once a year (5)	1 mu kwezi, 1 buri amezi 3, 2 mumwaka, munsi y'umyaka 1	All required to answer
MAIN_CLINIC	Is this clinic your main health clinic?	Iri vuriro niryo ukunda kwivurizaho?	Yes, No	Yego, Oya	All required to answer
HOSP	How often do you visit the hospital? Choose one (Read all	Ni kangahe ujya kubitaro?	once a month (1), once every 3 months (2), twice a year (3), once a year (4), less than	1 ku kwezi, 1 buri amezi 3, 2 muyaka, munsi y'imyaka 1	All required to answer

	options)		once a year (5), Never (6)		
PREG_MONTH	How many months pregnant are you?	Niba utwite inda yawe ifite amezi angahe?	1, 2, 3, 4,5,6,7,8,9, I don't know (10)	1,2,3,4,5,6,7,8,9 Simbizi	All required to answer
ANC	Where do you receive Antenatal Care?	Nihehe wisuzumishiriza inda?	Remera HC, Kinyinya HC, Muhima HC, Muhima Hospital, Other (OTHER)	Remera HC, Kinyinya HC, Muhima HC, Kubitaro cya Muhima, Ahandi	All required to answer
BIRTH__LOCATION**	Where do you plan to give birth (if pregnant)/ or gave birth (if recently gave birth)?	Uteganya kubyarira hehe(niba utwite)?	Remera HC, Kinyinya HC, Muhima Hospital, Ahandi (OTHER)	Remera HC, Kinyinya HC, Kubitaro cya Muhima, Ahandi (OTHER)	All required to answer
BIRTH_LOCATION_OTHER	If other, what is the name of the hospital or health clinic where you plan to give birth?	Niba harahandi,ni ibihe bitaro cyangwa ikigo nderabuzima uteganya kuzabyariraho?	Text (open ended)	--	ASK QUESTION IF BIRTH_LOCATION= OTHER
GEN_METHOD	What types of contraceptive methods have you used? (Do not prompt participants) Check all that participant mentions.	Ni ubuhe buryo bwo kuboneza urubyaro wakoreshejeho?	Condoms, IUD, implant, breastfeeding (LAM), injectables, OCP, natural methods none	Agakingirizo, Agapira ko mu mura, Agapira ko mu kuboko, konsa, urushinge, ibinini, ntaryo	All required to answer
IUD_INSERT_TIME (Previously	How long after you gave birth did you start	Ni igihe kingana iki nyuma yo kubyara watangiriye	Immediately after delivery, Within 48 hours of	Ukimara kubyara, mu masaha 48 nyuma yo kubyara, amasaha 48	ASK QUESTION IF

PPIUD_AFTERBIRTH)	using the IUD?	gukoresha agapira ko mu mura?	delivery, 48hours to 6 weeks after delivery, > 6 weeks to 6 months after delivery, > 6 months-1 year after delivery, > 1 year after delivery, Never given birth	kugera kubyumweru 6 nyuma yo kubyara, ibyumweru 6 kugeza kumezi 6, amezi 6 kugeza kumwaka 1 nyuma yo kubyara,nyuma umwaka umwe,sinigeze mbyara	GEN_METHOD= IUD
IUD_REMOVAL_TIME (Previously PPIUD_YEARSUSED)	How long did you use the IUD for?	Wagakoresheje igihe kingana iki?	<1 year (1), 1-3 years (2), 4-6 years (3), 7-9 years (4), 10 years (5), >10 years (6)	---	ASK QUESTION IF GEN_METHOD=IUD
IUD_REMIOVAL_WHY	Why did you get your IUD removed?	Kuki agapira kawe ko mumura kavanywemo?	Text (open ended)	---	ASK QUESTION IF GEN_METHOD=IUD
IMP_INSERT_TIME (previously PPIMP_AFTERBIRTH)	How long after you gave birth did you start using the implant?	Nigihe kingana iki nyuma yo kubyara watangiriyeho gukoresha agapira ko mukuboko?	Immediately after delivery, Within 48 hours of delivery, 48hours to 6 weeks after delivery, > 6 weeks to 6 months after delivery, > 6 months-1 year after delivery, > 1 year after delivery, Never given birth	Ukimara kubyara, mu masaha 48 nyuma yo kubyara, amasaha 48 kugera kubyumweru 6 nyuma yo kubyara, ibyumweru 6 kugeza kumezi 6, amezi 6 kugeza kumwaka 1 nyuma yo kubyara,nyuma umwaka umwe, sinigeze mbyara	ASK QUESTION IF GEN_METHOD= IMPLANT
IMP_REMOVAL_TIME Previously PPIMP_YEARSUSED)	How long did you use the implant for?	Wagakoresheje igihe kingana iki?	<1 year (1), 1-2 years (2), 3-4 years (3) , 5 years (4) , >5 years (5)	--	ASK QUESTION IF GEN_METHOD= IMPLANT
IMP_REMIOVAL_	Why did you	Kuki agapira kawe	Text (open ended)	--	ASK

WHY	get your implant removed?	ko mukuboko kavanywemo?			QUESTION IF GEN_METHOD= IMPLANT
IMP_TYPE	Did you use a jadelle (5 year) implant or implanon (3 year) implant?	Jadelle (imyaka 5) cyangwa implanon (imyaka 3)?	Jadelle, implanon, I don't know (IDK)	Jadelle, implanon, Simbizi	ASK QUESTION IF GEN_METHOD= IMPLANT
CHILDREN	How many children do you have, not including your current pregnancy?	Ufite abana bangahe? (inda utite itarimo)	Number__ __	--	All required to answer
CHILDREN_PLANNED	How many of your children were not a surprise?	Ni bangahe mu bana bawe wabyaye udatunguwe?	Number__ __	--	ASK QUESTION IF CHILDREN NOT EQUAL TO 0
PREG_SPACE	How old is your youngest child?	Umwana wawe muto arangana ate?	Age (2 digits) __ __	--	ASK QUESTION IF CHILDREN IS NOT EQUAL TO ZERO
PREG_PLAN	Do you plan to have more children? (After your current pregnancy)	Uteganya kubyara abandi bana?	Yes, No, I don't know (IDK)	Yego, Oya, Simbizi	All required to answer
PREG_PLAN_NBR Also add total number of children want in family question	If yes, how many?	Niba ari yego, wifuza kubyara abandi bana bangahe?	Number (2 digits)	--	ASK QUESTION IF PREG_PLAN =YES

PREG_PLAN_WHEN	If yes, in how many years do you want to have your next child?	Niba ariyego, ni imyaka ingahe ushaka kuzagiriraho undi mwana?	Number (2 digits)	--	ASK QUESTION IF PREG_PLAN =YES
Before we get started, we would just like to ask you a few general questions.					
PPFP_IMPORTANT	Postpartum family planning is important. Do you: Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree?	Kuboneza urubaro nyuma yo kubyara ningenzi?- urabihakana cyane, urabihakana bisanzwe, ntubyemera ntunabihakana, urabyemera, urabyemera cyane?	Strongly disagree (1), disagree (2), neither agree nor disagree (3), agree (4), strongly agree (5)	urabihakana cyane, urabihakana bisanzwe, ntubyemera ntunabihakana, urabyemera, urabyemera cyane	All required to answer
PPFP_DECISION	Who is involved in postpartum family planning decisions?	Nibande bagira uruhare mugufata icyemezo kijyanye nuburyo bwakwifashishwa mukuboneza urubyaro rw'umubyeyi nyuma yokubyara?	Check all that participant mentions: doctors/nurses (1), counselors (2), CHWs (3) , Community Leaders (4), Male partners (5), Religious Groups (6), MIL (7), Other (8), None (9), Couple (10)	abaganga/ abaforomo, abajyanama b'abagore batwite, abajyanama b'ubuzima, abayobozi binzengo zibanze, umugabo wawe, Inteko yo gusenga/ itsinda isengeramo, Nyirabukwe, Ibindi, Ntawe	All required to answer
*Next, we would like to specifically discuss the **Postpartum intrauterine device (PPIUD).***					
PPIUD: Knowledge, Attitudes, & Practices					
PPIUD_BENEFITS	What are the benefits of postpartum IUDs? (Do not prompt participants)	Ni izihe nyungu zo gukoresha udupira twinjizwa mu mura nyuma yo kubyara?(Genza buke abitabiriye)	Check all that participant mentions: Prevent pregnancy (1), Delay pregnancy/birth spacing (2),	kahagarika gusama, gutinda gutwita/kunyuzamo igihe, gahita gakora uwo mwanya bakimara kukagushyiramo, umugore yongera kugira	All required to answer

			Effective immediately after insertion (3), Women are fertile again as soon as removed (4), Highly effective (5), Most effective at preventing pregnancy (6), Cost-effective (7), Easy to use (8), Easy to get (9),Other (10), I don't know (11), None (12), Long-term (13), No hormones (14), Reduces appointment times (15)	uburumbuke vuba cyane nyuma yo kukamukuramo, karizewe cyane mukurinda gusama, igiciro gikwiye, biroroshye kugakoresha, biroroshye kukabona, Ibindi, simbizi, ntazo, nakigihe kirekire	
PPIUD_BENEFITS_OTHER	If other, explain	Niba hari izindi nyungu, zivuge:	Text (open ended)	--	ASK QUESTION IF PPIUD_BENEFITS =OTHER

PPIUD_DISADV add other text section	What are the disadvantages of postpartum IUDs? (Do not prompt participants)	Ni izihe ngaruka zo gukoresha udupira twinjizwa mu mura nyuma yo kubyara? (Genza buke abitabiriye)	Check all that participant mentions: Side effects (1) Irregular bleeding (2), Heavy bleeding (3), Headache (4), Weight gain (5), Weight loss (6), Abdominal pain (7), Affect sexual intercourse (8), Expensive (9), Hard to use (10), Hard to get (11) Clinic loses money (12), Other (13), I don't know (14), None (15) No hormones (16) , can get pregnant on it (17), Expulsion (18), Ectopic Pregnancy (19), Infection (20), Backache (21)	Ingaruka, Imihango idasanzwe, kuva cyane,kubabara umutwe, kwiyongera ibiro, kugabanuka ibiro, kubangamirwa mugihe kimibonano mpuza bitsina, burahenze, birakomeye kugakoresha, ikigo nderubuzima gikoresha amafaranga, ntazo, ibindi, simbizi, imisemburo, wagatwitiraho	All required to answer
PPIUD_DISADV_OTHER	If other, explain	Niba hari izindi ngaruka mbi, zivuge:	Text (open ended)	--	ASK QUESTION IF PPIUD_DISADV =OTHER

PPIUD_TIMEINSERTED	When is the appropriate time to have a postpartum IUD inserted? (Read all options to participants)	Ese utekereza ko ari ryari bikwiriye ko umuntu ashyirwamo agapira kinjizwa mu mura nyuma yo kubyara? (soma byose)	-Not appropriate/never (1) -Immediately after delivery (2), -Before leaving clinic/hospital (3) -6 week infant vaccination visit (4)	-(1) Ntabwo yizewe -(2) Akokanya ukimara kubyara -(3) mbere yuko ava kwa muganga -(4) Gukingiza k'umwana ku byumweru 6	All required to answer
PPIUD_INTEREST_IMMEDIATE	Are you interested in getting an IUD **immediately** after you give birth? (right after placenta is removed)	Wimva ufite ubushake bwo guhabwa agapira ko mu mura ukimara kubyara?	Yes, No	Yego, Oya	All required to answer
PPIUD_INTEREST_TWODAYS	Are you interested in getting an IUD **within 48 hours** after you give birth?	Wimva ufite ubushake bwo guhabwa agapira ko mu mura **mu masaha 48** nyuma kubyara?	Yes, No	Yego, Oya	ASK QUESTION IF PPIUD_INTEREST_IMMEDIATE=No
PPIUD_INTEREST_INFANTVAX	Are you interested in getting an IUD **at the 6 week infant vaccination visit** after you give birth?	Wimva ufite ubushake bwo guhabwa agapira ko mu mura **kubyumweru 6 aje gukingiza** nyuma kubyara?	Yes, No	Yego, Oya	ASK QUESTION IF PPIUD_INTEREST_TWODAYS=No

PPIUD_INTEREST_WHY	If no interest in postpartum IUD, why?	Niba ari oya, kuberiki?	Text (open ended)	--	ASK QUESTION IF PPIUD_INTEREST_INFANTVAX=No
PPIUD_INFO	**Before today**, have you ever received postpartum IUD information?	**Mbere y'uyu munsi**,waba warigeze uhabwa amakuru ajyanye nagapira ko mu mura gakoreshwa nyuma yo kubyara?	Yes, No, I don't know	Yego, Oya, Simbizi	All required to answer
PPIUD_INFO_WHERE	If yes to receiving information, where?	Niba ari yego, wayaherewe hehe?	At home (1), community meeting (2), Health clinic (3), Hospital (4), Umuganda (5), Radio (6), TV (7), other (8)	Murugo, munama yimbaga nyamwinshi, kukigo ndera buzima, kubitaro, mumuganda,kuri radiyo, TV, ahandi	ASK QUESTION IF PPIUD_INFO=YES
*Next, we would like to specifically discuss the **Postpartum Implant (PPImplant).***					
PPImplant: Knowledge, Attitudes, & Practices					
PPIMP_BENEFITS	What are the benefits of postpartum implants? (Do not prompt participants)	Ni izihe nyungu zo gukoresha udupira twinjizwa mu kuboko nyuma yo kubyara? (Genza buke abitabiriye)	Check all that participant mentions: Check all that participant mentions: Prevent pregnancy (1), Delay pregnancy/birth spacing (2), Effective immediately after insertion (3), Women are fertile again as soon as removed (4), Highly	kahagarika gusama, gutinda gutwita/kunyuzamo igihe, gahita gakora uwo mwanya bakimara kukagushyiramo, umugore yongera kugira uburumbuke vuba cyane nyuma yo kukamukuramo, karizewe cyane mukurinda gusama, igiciro gikwiye, biroroshye kugakoresha, biroroshye kukabona, ibindi, simbizi, ntazo, nakigihe kirekire, ntamisemburo kagira,	All required to answer

			effective (5), Most effective at preventing pregnancy (6), Cost-effective (7), Easy to use (8), Easy to get (9),Other (10), I don't know (11), None (12), Long-term (13), No Hormones (14)		
PPIMP_BENEFITS_OTHER	If other, explain	Niba hari izindi nyungu, zivuge:	Text (open ended)	--	ASK QUESTION IF PPIMP_BENEFITS=OTHER
PPIMP_DISADV	What are the disadvantages of postpartum implants? (Do not prompt participants)	Ni izihe ngaruka zo gukoresha udupira twinjizwa mu kuboko nyuma yo kubyara? (ntukopeze abitabiriye)	Check all that participant mentions: Side effects (1), Irregular bleeding (2), Heavy bleeding (3), Headache (4), Weight gain (5), Weight loss (6), Abdominal pain (7), Affect sexual intercourse (8), Expensive (9), Clinic loses money (12), other (13), I don't know (14), None (15), Can't get pregnant on it (16), Hormones (17)	Imihango idasanzwe, kuva cyane,kubabara umutwe, kwiyongera ibiro, kugabanuka ibiro, kubangamirwa mugihe kimibonano mpuza bitsina, burahenze, wagatwitiraho, birakomeye kugakoresha, ntazo, ibindi, simbizi.	All required to answer
PPIMP_DISADV_OTHER	If other, explain	Niba hari izindi ngaruka mbi, zivuge:	Text (open ended)	--	ASK QUESTION

					IF PPIMP_DISADV =OTHER
PPIMP_TIMEINSERTED	How soon after birth can an implant be inserted?	Ni mugihe kingana iki nyuma yo kubyara agapira ko mukuboko kashyirwamo?	Text (open ended)	--	All required to answer
PPIMP_INTEREST_IMMEDIATE	Are you interested in getting an implant **immediately after you give birth**? (right after placenta is removed)	Wimva ufite ubushake bwo guhabwa agapira ko kuboko ukimara kubyara?	Yes No	Yego, Oya	ASK QUESTION IF PPIUD_INTEREST_INFANTVAX=No
PPIMP_INTEREST_DISCHARGE	Are you interested in getting an implant **before you go home with your baby**?	Wimva ufite ubushake bwo guhabwa agapira ko kuboko **mbere yuko ava kwa muganga n'umwana**?	Yes No	Yego, Oya	ASK QUESTION IF PPIMP_INTEREST_IMMEDIATE=No
PPIMP_INTEREST_INFANTVAX	Are you interested in getting an implant at your **6 week infant vaccination visit**?	Wimva ufite ubushake bwo guhabwa agapira ko kuboko **mbere yuko ava kwa muganga n'umwana**?	Yes No	Yego, Oya	ASK QUESTION IF PPIUD_INTEREST_DISCHARGE=No

PPIIMP_INTEREST_WHY	If no interest in postpartum implant, why?	Niba ari oya, kuberiki?	Text (open ended)	--	ASK QUESTION IF PPIMP_INTEREST_INFANTVAX=No
METHOD_ALT	If no interest in postpartum IUD or implant, how will you prevent pregnancy or space your next birth?	Niba udafite ubushake bwo gukoresha agapira ko mumura cyangwa ko mukuboko nyuma yo kubyara, ni gute uzirinda gusama cyangwa ugatinda gukurikiza?	Text (open ended)	--	ASK QUESTION IF PPIMP_INTEREST_INFANTVAX=No
LARC_PREFER	Why do you prefer the implant over the IUD?	Kuki wahitamo agapira ko mukuboko kurusha akomu mura?	Text (open ended)	--	ASK QUESTION IF PPIMP_INTEREST_IMMEDIATE or PPIMP_INTEREST_DISCHARGE or PPIMP_INTEREST_INFANTVAX=Yes
PPIMP_INFO	**Before today,** have you ever received postpartum implant information?	**Mbere y'uyu munsi** , waba warigeze uhabwa amakuru ajyanye nagapira ko mukuboko gakoreshwa nyuma yo kubyara?	Yes, No	Yego, Oya	All required to answer
PPIMP_INFO_WHERE	If yes to receiving information, where?	Niba ari yego, wayaherewe hehe?	At home (1), community meeting (2), Health clinic (3), Hospital (4), Umuganda (5), Radio (6), TV (7), other (8)	Murugo, munama yimbaga nyamwinshi, kukigo ndera buzima, kubitaro, mumuganda,kuri radiyo cg TV	All required to answer

Operations & Logistics:					
PPLARC_REFERRAL	Before today, have you received a referral to postpartum IUD or postpartum implant services ?	**Mbere y'uyu munsi** , Wigeze woherezwa muma serivisi ashinzwe udupira two mukuboko nutwo mumura dukoreshwa nyuma yo kubyara?	Yes, No	Yego, Oya	All required to answer
PPLARC_INFO_WHERE	Where would you like to receive postpartum IUD and postpartum implant information? (Do not prompt participants, select all that apply)	Wumva arihehe wahererwa amakuru ajyanye nagapira ko mumura ndetse nako mukuboko bikoreshwa byuma yo kubyara?	At home (1), community meeting (2), Health clinic (3), Hospital (4), Umuganda (5), Radio (6), TV (7), other (8)	Murugo, munama yimbaga nyamwinshi, kukigo ndera buzima, kubitaro, mumuganda,kuri radiyo, TV, ahandi	All required to answer
PPLARC_INFO_WHO	Who you would like to give you postpartum IUD and postpartum implant information? (Do not prompt participants, select all that apply)	Wumva arinde waguha amakuru ajyendanye nagapira ko mumura ndetse nako mukuboko bikoreshywa nyuma yo kubyara?	Check all that participant mentions: doctors/nurses (1), counselors (2), CHWs (3) , Community Leaders (4), Male partners (5), Religious Groups (6), MIL (7), Other (8), None (9)	abaganga/ abaforomo, abajyanama b'abagore batwite, abajyanama b'ubuzima, abayobozi binzengo zibanze, umugabo wawe, Inteko yo gusenga/ itsinda isengeramo, Nyirabukwe, Ibindi, Ntawe	All required to answer
Communication & Resources:					
INFO_INTEREST	Are you interested in receiving information about postpartum family planning through monthly phone	Wumva ushishikajwe no kubona amakuru ajyendanye no kuboneza urubyaro nyuma yo kubyara binyuze muguhamagarwa kuri fone buri kwezi	Yes, No	Yego, Oya	All required to answer

	calls or text SMS messages?	cyangwa kohereza ubutumwa bugufi?			
DOMINANT	DO NOT ASK COUPLE, JUST OBSERVE: Who spoke more during the interview?		Woman (yes), Man (no) neither)		ASK QUESTION IF MALE_PRESENT=YES
COMMENTS	Interviewer's Comments	Igitekerezo	Text (open ended)	--	Not required
INITIALS	Interview Completed by:	Ibazamvugo ryujujwe na:	Text (open ended)	--	All required to answer
ENDTIME	End time	--	Hours:minutes	--	Automatic

Appendix 2: SAS Code

```
*************** MPH THESIS*****************;
***********Client/Couple Surveys***********;
***********Cleaning & Analysis ************;
*************Vanessa Da Costa**************;
*****************************************;

****************NOTES**********************;
**********TOTAL OBSERVATIONS:150***********;
***************COMBID=primary key**********;
*****************1=yes and 0=no************;
*****************************************;

*************Table of Contents*******************;
*1. Data Import*********************************;
*2. Variables to Review ************************;
*3. Data Step with Cleaning ********************;
*4. Checking Cleaned Variables *****************;
*5. PROC FORMAT to rearrange tables for Analysis*;
*6. PROC CONTENTS & PROC PRINT OF NEW DATASET****;
*7. Table 1  Demographics-N=150, N=47************;
*8. Table 2 Benefits & Disadvantages-N=150, N=47*;
*9. Table 3 Unadjusted Logistic Regression*******;
*10. Checking for Multicollinearity**************;
*11.Table 4 Adjusted Logistic Regression*********;
*12.Women Only Analyses (Tables 5 & 6) N=103*****;
*13.Testing Normality Continuous Variables*******;
*14. Overall (Not Stratified) Results************;

***************;
*1.DATA IMPORT*;
***************;
PROC IMPORT OUT= WORK.ClientCouple
            DATAFILE= [redacted]

            DBMS=EXCEL REPLACE;
     RANGE[redacted]
     GETNAMES=YES;
     MIXED=NO;
     SCANTEXT=YES;
     USEDATE=YES;
     SCANTIME=YES;
RUN;

LIBNAME [redacted]
```

```
*********************************;
*2.VARIABLES TO REVIEW***********;
*********************************;

*CHECKING FOR DUPLICATE UIDCODE;
      PROC FREQ DATA= CC.clientcouple_clean;
      Tables UIDCODE*STUDYSITE*STARTTIME;
      WHERE UIDCODE='01MUH' OR UIDCODE='02MUH' OR UIDCODE='03MUH'
            OR UIDCODE='04MUH' OR UIDCODE='05MUH' OR UIDCODE='06MUH' OR
            UIDCODE='07MUH' OR UIDCODE='08MUH' OR UIDCODE='09MUH' OR
UIDCODE='10MUH'
            OR UIDCODE='11MUH' OR UIDCODE='12MUH' OR UIDCODE='16REM' OR
UIDCODE='47KRUHC' ;
      RUN;
      *ERROR- Same IDs but different confirmed they're ppts, make new COMBID
Variable
            01MUH (2 with same code)
            02MUH (2 with same code)
            03MUH (2 with same code)
            04MUH (3 with same code)
            05MUH (2 with same code)
            06MUH (2 with same code)
            07MUH (2 with same code)
            08MUH (2 with same code)
            09MUH (2 with same code)
            10MUH (3 with same code)
            11MUH (2 with same code)
            12MUH (2 with same code)
            16REM (2 with same code)
            47KRUHC (2 with same code);

 *Check 3 separate levels of  PPIUD outcome before cleaning into one
variable;
      PROC FREQ DATA= work.ClientCouple;
      Tables   PPIUD_INTEREST_IMMEDIATE PPIUD_INTEREST_TWODAYS
PPIUD_INTEREST_INFANTVAX;
      RUN;


*Check UIDCODE FOR HOSPITAL/ CLINIC TO MAKE NEW  CATEGORY IN STUDYSITE
VARIABLE;
      PROC FREQ DATA= work.ClientCouple;
      Tables   STUDYSITE*UIDCODE;
      WHERE STUDYSITE='OTHER';
      RUN;

*********************************;
*3. DATA STEP WITH CLEANING******;
*********************************;
```

```
DATA CC.clientcouple_clean;
      set work.ClientCouple;

*CREATE OUTCOME VARIABLE called PPIUD_INTEREST_ALL;
IF PPIUD_INTEREST_IMMEDIATE= 'YES'  THEN
PPIUD_INTEREST_ALL=1;

IF PPIUD_INTEREST_TWODAYS= 'YES'  THEN
PPIUD_INTEREST_ALL=1;

IF PPIUD_INTEREST_INFANTVAX= 'YES'  THEN
PPIUD_INTEREST_ALL=1;

IF PPIUD_INTEREST_INFANTVAX= 'NO'  THEN
PPIUD_INTEREST_ALL=0;

*CREATE STATUS VARIABLE FOR TABLE 1 STRATIFICATION;
IF MALE_PRESENT= 'NO'  THEN
STATUS=0; *This is for women are alone;
IF MALE_PRESENT= 'YES'  THEN
STATUS=1; *This is for when women are in couple or when men are in couple;

*ADD KACYIRUHC AND KACYIRUHOSP AS CATEGORIES TO STUDYSITE, AND RECODE 50
'OTHER' TO CORRECT STUDYSITE USING UIDCODE;

*Recode OTHER to Kacyiru Health Center;
IF UIDCODE= '01KRUHC' or UIDCODE= '02CKRUHC'  or UIDCODE= '03CKRUHC'  or
UIDCODE= '04KRUHC'  or UIDCODE= '05KRUHC'
 or UIDCODE= '06KRUHC'  or UIDCODE= '07KRUHC' or UIDCODE= '11KRUHC'  or
UIDCODE= '12CKRUHC'  or UIDCODE= '13CKRUHC'
 or UIDCODE= '14KRUHC'  or UIDCODE= '15KRUHC'  or UIDCODE= '16KRUHC'  or
UIDCODE= '17KRUHC'  or UIDCODE= '18KRUHC'
 or UIDCODE= '19CKRUHC'  or UIDCODE= '20KRUHC'  or UIDCODE= '21KRUHC'  or
UIDCODE= '44KRUHC'  or UIDCODE= '45KRUHC'
 or UIDCODE= '46KRUHC'  or UIDCODE= '47KRUHC'  or UIDCODE= '49KRUHC'  or
UIDCODE= '50KRUHC'  or UIDCODE= '31KRUHC'
 or UIDCODE= '32KRUHC'  or UIDCODE= '33KRUHC'  or UIDCODE= '34CKRUHC'  or
UIDCODE= '35CKRUHC' or UIDCODE='36CKRUHC'
 or UIDCODE= '37KRUHC'  or UIDCODE= '38KRUHC'  or UIDCODE= '39KRUHC'  or
UIDCODE= '40CKRUHC'  or UIDCODE= '41KRUHC'
or UIDCODE= '42KRUHC'  THEN STUDYSITE= 'KACYIRUHC';

*Recode OTHER to Kacyiru Hospital;
IF UIDCODE= '08KRUHOSP ' or UIDCODE= '09KRUHOSP'  or UIDCODE= '10KRUHOSP'  or
UIDCODE= '22KRUHOSP'  or UIDCODE= '23KRUHOSP'
 or UIDCODE= '24KRUHOSP'  or UIDCODE= '25KRUHOSP' or UIDCODE= '26KRUHOSP'  or
UIDCODE= '27KRUHOSP'  or UIDCODE= '28KRUHOSP'
```

```
or UIDCODE='29KRUHOSP' or UIDCODE= '30KRUHOSP' or UIDCODE= '43KRUHOSP' THEN
STUDYSITE= 'KACYIRUHOS';

*ADD PREG_PLAN 'NO' TO PREG_PLAN_NBR;
IF PREG_PLAN= 'NO' THEN PREG_PLAN_NBR= 0;


*Make new numeric categories for COHAB;
IF COHAB= 'NO'  THEN COHAB2=0;
IF COHAB= 'YES'  THEN COHAB2=1;

*Make new numeric categories for FEMALE KINYARWANDA UNDERSTAND,READ, & WRITE
VARIABLES;
IF F_KINYA_UND= 'NO'  THEN F_KINYA_UND2=0;
IF F_KINYA_UND= 'YES'  THEN F_KINYA_UND2=1;

IF F_KINYA_READ= 'NO'  THEN F_KINYA_READ2=0;
IF F_KINYA_READ= 'YES'  THEN F_KINYA_READ2=1;


IF F_KINYA_WRITE= 'NO'  THEN F_KINYA_WRITE2=0;
IF F_KINYA_WRITE= 'YES'  THEN F_KINYA_WRITE2=1;

*Make new numeric categories for FEMALE MUTUELLE VARIABLES;
IF F_MUTUELLE= 'NO'  THEN  F_MUTUELLE2=0;
IF  F_MUTUELLE= 'YES'  THEN F_MUTUELLE2=1;

*Make new numeric categories for MALE KINYARWANDA UNDERSTAND,READ, & WRITE
VARIABLES;

IF M_KINYA_UND= 'NO'  THEN M_KINYA_UND2=0;
IF M_KINYA_UND= 'YES'  THEN M_KINYA_UND2=1;


IF M_KINYA_READ= 'NO'  THEN M_KINYA_READ2=0;
IF M_KINYA_READ= 'YES'  THEN M_KINYA_READ2=1;


IF M_KINYA_WRITE= 'NO'  THEN M_KINYA_WRITE2=0;
IF M_KINYA_WRITE= 'YES'  THEN M_KINYA_WRITE2=1;

*Make new numeric categories for MALE MUTUELLE VARIABLES;
IF M_MUTUELLE= 'NO'  THEN  M_MUTUELLE2=0;
IF M_MUTUELLE= 'YES'  THEN M_MUTUELLE2=1;

*Make new numeric categories for FEMALE RELIGION VARIABLES
F_RELIGION 2: 1= Catholic, 0=Non-Catholic;

IF F_RELIGION= 1 THEN F_RELIGION2=1;
```

```
IF F_RELIGION= 2 THEN F_RELIGION2=0;
IF F_RELIGION= 3 THEN F_RELIGION2=0;
IF F_RELIGION= 4 THEN F_RELIGION2=0;
IF F_RELIGION= 5 THEN F_RELIGION2=0;
IF F_RELIGION= 6 THEN F_RELIGION2=0;
IF F_RELIGION= 7 THEN F_RELIGION2=0;
IF F_RELIGION= 8 THEN F_RELIGION2=0;
IF F_RELIGION= 9 THEN F_RELIGION2=0;



*Make new numeric categories for FEMALE JOB TITLE VARIABLES
F_JOBTITLE2: 0= Unemployed, 1= Employed ;
IF F_JOBTITLE= 1 THEN F_JOBTITLE2=0;
IF F_JOBTITLE= 2 THEN F_JOBTITLE2=1;
IF F_JOBTITLE= 3 THEN F_JOBTITLE2=1;
IF F_JOBTITLE= 4 THEN F_JOBTITLE2=1;
IF F_JOBTITLE= 5 THEN F_JOBTITLE2=1;
IF F_JOBTITLE= 6 THEN F_JOBTITLE2=1;
IF F_JOBTITLE= 7 THEN F_JOBTITLE2=1;

*Make new numeric categories for FEMALE RELIGION VARIABLES
F_RELIGION 2: 1= Catholic, 0=Non-Catholic;
IF M_RELIGION= 1 THEN M_RELIGION2=1;
IF M_RELIGION= 2 THEN M_RELIGION2=0;
IF M_RELIGION= 3 THEN M_RELIGION2=0;
IF M_RELIGION= 4 THEN M_RELIGION2=0;
IF M_RELIGION= 5 THEN M_RELIGION2=0;
IF M_RELIGION= 6 THEN M_RELIGION2=0;
IF M_RELIGION= 7 THEN M_RELIGION2=0;
IF M_RELIGION= 8 THEN M_RELIGION2=0;
IF M_RELIGION= 9 THEN M_RELIGION2=0;



*Make new numeric categories for MALE JOB TITLE VARIABLES
F_JOBTITLE2: 0= Unemployed, 1= Employed ;
IF M_JOBTITLE= 1 THEN M_JOBTITLE2=0;
IF M_JOBTITLE= 2 THEN M_JOBTITLE2=1;
IF M_JOBTITLE= 3 THEN M_JOBTITLE2=1;
IF M_JOBTITLE= 4 THEN M_JOBTITLE2=1;
IF M_JOBTITLE= 5 THEN M_JOBTITLE2=1;
IF M_JOBTITLE= 6 THEN M_JOBTITLE2=1;
IF M_JOBTITLE= 7 THEN M_JOBTITLE2=1;

*Making condensed STUDYSITE2 Variable;
IF STUDYSITE= 'MUHIMAHC' OR STUDYSITE= 'MUHIMAHOSP'  THEN
STUDYSITE2='MUHIMA_ALL'; *Combining MuhimaHC & MuhimaHosp;
```

```
IF STUDYSITE= 'KACYIRUHC' OR STUDYSITE= 'KACYIRUHOS'  THEN
STUDYSITE2='KACYIRU_ALL'; *Combining KacyiruHC & KacyiruHosp;
IF STUDYSITE= 'REMERAHC' THEN STUDYSITE2='REMERAHC'; *Remera same STUDYSITE/
STUDYSITE2 CODES;
IF STUDYSITE= 'KINYINYAHC' THEN STUDYSITE2='KINYINYAHC'; *Kinyinya same
STUDYSITE/ STUDYSITE2 CODES;


*Making LARC versus no LARC variable (1=Yes, 0=No);
IF GEN_METHOD_IUD=1 OR GEN_METHOD_IMPLANT=1 THEN LARC= 1;
ELSE  LARC= 0;

*Making condensed FEMALE EDUCATION Variable;
*0= none/primary, 1=secondary/college;
IF F_EDUCATION= 1 THEN F_EDUCATION2=0;
IF F_EDUCATION= 2 THEN F_EDUCATION2=0;
IF F_EDUCATION= 3 THEN F_EDUCATION2=1;
IF F_EDUCATION= 4 THEN F_EDUCATION2=1;


*Making condensed MALE EDUCATION Variable;
*0= none/primary, 1=secondary/college;
IF M_EDUCATION= 1 THEN M_EDUCATION2=0;
IF M_EDUCATION= 2 THEN M_EDUCATION2=0;
IF M_EDUCATION= 3 THEN M_EDUCATION2=1;
IF M_EDUCATION= 4 THEN M_EDUCATION2=1;

*Making new FEMALE & MALE age Variables;

MAT_AGE = 2017- F_YOB;

PAT_AGE= 2017- M_YOB;

*Make new IDENTIFICATION VARIABLE called COMBID;
*Combines a unique number with the studysite;
      UIDCODE2=_n_;
      COMBID = catt(of UIDCODE2 STUDYSITE);


*CLEANING BENEFITS CATEGORIES;
      *NEW VARIABLE=PPIUD_BENEFTS_PREGPREV from PPIUD_BENEFITS_1,3,5,6,7
      (Pregnancy Prevention Effectiveness);
      IF PPIUD_BENEFITS_1= 1 OR  PPIUD_BENEFITS_3= 1 OR PPIUD_BENEFITS_5= 1
OR
      PPIUD_BENEFITS_6= 1 OR  PPIUD_BENEFITS_7= 1  THEN
PPIUD_BENEFITS_PREGPREV= 1;
      ELSE  PPIUD_BENEFITS_PREGPREV= 0;

      *NEW VARIABLE=PPIUD_BENEFTS_NONE from PPIUD_BENEFITS_11, 12
```

```
      (No Benefits/ Don't Know Benefits);
      IF PPIUD_BENEFITS_11= 1 OR  PPIUD_BENEFITS_12= 1
      THEN PPIUD_BENEFITS_NONE= 1;
      ELSE  PPIUD_BENEFITS_NONE= 0;

      *NEW VARIABLE= PPIUD_BENEFTS_EASE from PPIUD_BENEFITS_8, 9, 10, 15
      (Ease of Logistics);
      IF PPIUD_BENEFITS_8= 1 OR  PPIUD_BENEFITS_9= 1 OR  PPIUD_BENEFITS_10= 1
      OR  PPIUD_BENEFITS_15= 1 THEN PPIUD_BENEFITS_EASE= 1;
      ELSE  PPIUD_BENEFITS_EASE= 0;


*CLEANING DISADVANTAGE CATEGORIES;
      *Putting other categories into pre-existing categories;
      IF COMBID="142KINYINYAHC" THEN PPIUD_DISADV_7=1;
      IF COMBID="36MUHIMAHC" THEN PPIUD_DISADV_18=1;
      IF COMBID="33MUHIMAHC" THEN PPIUD_DISADV_21=1;
      IF COMBID="110REMERAHC" OR COMBID= "142KINYINYAHC"
            OR COMBID= "148KINYINYAHC" OR COMBID= "23MUHIMAHC"
            THEN PPIUD_DISADV_8=1;

*MAKE NEW DISADVNATAGE CATEGORIES;;

*NEW VARIABLE=PPIUD_DISADV_NONE from PPIUD_DISADV_14, 15
      (No Disadvantages/ Don't Know Disadvantages);
      IF PPIUD_DISADV_14= 1 OR  PPIUD_DISADV_15= 1
      THEN PPIUD_DISADV_NONE= 1;
      ELSE  PPIUD_DISADV_NONE= 0;

      *NEW VARIABLE=PPIUD_DISADV_BLEED from PPIUD_DISADV_2, 3;
      *(Irregular bleeding/ heavy bleeding);
      IF PPIUD_DISADV_2= 1 OR  PPIUD_DISADV_3= 1
      THEN PPIUD_DISADV_BLEED= 1;
      ELSE  PPIUD_DISADV_BLEED= 0;


      *NEW VARIABLE=PPIUD_DISADV_SE from PPIUD_DISADV_1,4, 5, 6 ,7, 21, two
from other;
      *(Physical side effects);
      IF PPIUD_DISADV_1= 1 OR  PPIUD_DISADV_4= 1 OR PPIUD_DISADV_5= 1 OR
            PPIUD_DISADV_6= 1 OR PPIUD_DISADV_7= 1 OR PPIUD_DISADV_21= 1 OR
            PPIUD_DISADV_OTHER= "Vaginal dryness" OR
            PPIUD_DISADV_OTHER= "She has had curutage and lost babies she is
worried on how it would affect her body"
      THEN PPIUD_DISADV_SE= 1;
      ELSE  PPIUD_DISADV_SE= 0;
```

```
      *NEW VARIABLE=PPIUD_DISADV_CANCER from PPIUD_DISADV_OTHER 14 from
other;
      IF
            COMBID= "101REMERAHC" OR
            COMBID= "13MUHIMAHOSP" OR
            COMBID= "144KINYINYAHC" OR
            COMBID= "145KINYINYAHC" OR
            COMBID= "146KINYINYAHC" OR
            COMBID= "21MUHIMAHC" OR
            COMBID= "31MUHIMAHC" OR
            COMBID= "33MUHIMAHC" OR
            COMBID= "34MUHIMAHC" OR
            COMBID= "40KACYIRUHC" OR
            COMBID= "47KACYIRUHC" OR
            COMBID= "50KACYIRUHOS" OR
            COMBID= "55KACYIRUHC" OR
            COMBID= "59KACYIRUHC"
      THEN PPIUD_DISADV_CANCER= 1;
      ELSE  PPIUD_DISADV_CANCER= 0;


      *NEW VARIABLE=PPIUD_DISADV_ALT from PPIUD_DISADV_8, PPIUD_DISADV_16,
two from other (string, disappear);
      *(OTHER CONCERN WITH IUD);
      IF PPIUD_DISADV_16= 1 OR
            COMBID= "1MUHIMAHC" OR
            COMBID= "59KACYIRUHC" OR
            PPIUD_DISADV_8=1
      THEN PPIUD_DISADV_ALT= 1;
      ELSE  PPIUD_DISADV_ALT= 0;

      RUN;

**************************;
*****END OF DATA STEP******;
**************************;

*******************************;
*4.CHECKING CLEANED VARIABLES****;
*******************************;

*Check new Identification variables after cleaning;
      PROC PRINT DATA=CC.clientcouple_clean;
      VAR UIDCODE*UIDCODE2*COMBID*STUDYSITE*STUDYSITE2;
      RUN;

*Check 3 seperate levels of outcome*PPIUD_INTEREST_ALL after cleaning;

      PROC FREQ DATA=CC.clientcouple_clean;
```

```
      Tables PPIUD_INTEREST_ALL*PPIUD_INTEREST_IMMEDIATE
           PPIUD_INTEREST_ALL*PPIUD_INTEREST_TWODAYS
             PPIUD_INTEREST_ALL*PPIUD_INTEREST_INFANTVAX;
      RUN;
*Check new STATUS varible (1= male present 0= woman only)
      PROC FREQ DATA=  CC.clientcouple_clean;
      Tables   MALE_PRESENT*STATUS;
      RUN;

*Check STUDYSITE WITH NEW KACYIRUHC & KACYIRU HOSP CATEGORIES (37 to Kacyiru
HC 13 to Kacyiru Hosp PREVIOUSLY 50 OTHER);
      PROC FREQ DATA=  CC.clientcouple_clean;
      Tables   STUDYSITE;
      RUN;
*Check PREG_PLAN_NBR where 61 who said no to additional children now have 0
as their PREG_PLAN_NBR;
      PROC FREQ DATA=  CC.clientcouple_clean;
      Tables   PREG_PLAN*PREG_PLAN_NBR PREG_PLAN_NBR;
      RUN;

*Check RECODE COHAB KINYA UND, KINYA-READ, KINYA-WRITE, MUTUELLE TO NO=0,
YES=1;

            PROC FREQ DATA=  CC.clientcouple_clean;
      Tables   COHAB*COHAB2 F_KINYA_UND*F_KINYA_UND2
F_KINYA_READ*F_KINYA_READ2 F_KINYA_WRITE*F_KINYA_WRITE2
                  M_KINYA_UND*M_KINYA_UND2 M_KINYA_READ*M_KINYA_READ2
M_KINYA_WRITE*M_KINYA_WRITE2
                  F_MUTUELLE*F_MUTUELLE2 M_MUTUELLE*M_MUTUELLE2;
      RUN;

*Check RECODE of female and male RELIGION to female and male RELIGION2
variable, & STUDYSITE;
      PROC FREQ DATA= CC.clientcouple_clean;
            Tables F_RELIGION*F_RELIGION2 M_RELIGION*M_RELIGION2
STUDYSITE*STUDYSITE2 ;
      RUN;

*Check RECODE of femle and male EDUCATION to female and male EDUCATION2
variable;

      PROC FREQ DATA= CC.clientcouple_clean;
            Tables F_EDUCATION*F_EDUCATION2 M_EDUCATION*M_EDUCATION2;
      RUN;


*Checking Recode Variables for Education categories;
PROC FREQ DATA= CC.clientcouple_clean;
      Tables   F_EDUCATION*F_EDUCATION2 M_EDUCATION*M_EDUCATION2;
```

```
      RUN;

PROC FREQ DATA= CC.clientcouple_clean;
TABLES GEN_METHOD_IUD;
      RUN;

PROC FREQ DATA= CC.clientcouple_clean;
TABLES GEN_METHOD_IMPLANT;
      RUN;

*Checking Variables for IUD BY UIDCODE;
PROC FREQ DATA= CC.clientcouple_clean;
TABLES GEN_METHOD_IUD*GEN_METHOD_IMPLANT;
WHERE GEN_METHOD_IMPLANT=1 or GEN_METHOD_IUD=1;
      RUN;


*Checking new LARC variable;
PROC FREQ DATA= CC.clientcouple_clean;
TABLES GEN_METHOD_IUD*GEN_METHOD_IMPLANT*LARC;
RUN;

*Checking new LARC variable;
PROC FREQ DATA= CC.clientcouple_clean;
TABLES LARC;
RUN;

*Check new MAT_AGE, PAT_AGE variables;

PROC FREQ DATA = CC.clientcouple_clean;
TABLES MAT_AGE*F_YOB PAT_AGE*M_YOB;

RUN;


*Yes= woman dominant=0, No= man dominant=1, NEITHER= 2;
PROC FREQ DATA = CC.clientcouple_clean;
TABLES  DOMINANT*DOMINANT2;
RUN;


*Checking new JOBTITLE2 variable;
PROC FREQ DATA = CC.clientcouple_clean;
TABLES F_JOBTITLE*F_JOBTITLE2 M_JOBTITLE*M_JOBTITLE2 ;

RUN;

** Checking PPIUD_BENEFITS;
PROC FREQ DATA= CC.clientcouple_clean ;
```

```
Tables PPIUD_BENEFITS_1 PPIUD_BENEFITS_2 PPIUD_BENEFITS_3 PPIUD_BENEFITS_4
PPIUD_BENEFITS_5 PPIUD_BENEFITS_6 PPIUD_BENEFITS_7 PPIUD_BENEFITS_8
PPIUD_BENEFITS_9
PPIUD_BENEFITS_10 PPIUD_BENEFITS_11 PPIUD_BENEFITS_12 PPIUD_BENEFITS_13
PPIUD_BENEFITS_14
PPIUD_BENEFITS_15 PPIUD_BENEFITS_OTHER;
RUN;


** Checking PPIUD_DISADV****;
PROC FREQ DATA= CC.clientcouple_clean ;
Tables PPIUD_DISADV_1 PPIUD_DISADV_2 PPIUD_DISADV_3 PPIUD_DISADV_4
PPIUD_DISADV_5 PPIUD_DISADV_6 PPIUD_DISADV_7 PPIUD_DISADV_8 PPIUD_DISADV_9
PPIUD_DISADV_10 PPIUD_DISADV_11 PPIUD_DISADV_12 PPIUD_DISADV_13
PPIUD_DISADV_14
PPIUD_DISADV_15 PPIUD_DISADV_16 PPIUD_DISADV_17 PPIUD_DISADV_18
PPIUD_DISADV_19
PPIUD_DISADV_20 PPIUD_DISADV_21 PPIUD_DISADV_OTHER;
RUN;

*Changed PPIUD_DISADV_18 to 1 (Expulsion yes) for  COMBID 36MUHIMAHC;
PROC FREQ DATA= CC.clientcouple_clean ;
Tables COMBID*PPIUD_DISADV_18;
WHERE PPIUD_DISADV_OTHER= "Expulsion";
RUN;

*Changed PPIUD_DISADV_7 to 1 (abdominal pain yes) for  COMBID 142KINYINYAHC;
PROC FREQ DATA= CC.clientcouple_clean ;
Tables COMBID*PPIUD_DISADV_7;
WHERE PPIUD_DISADV_OTHER= "Discomfort during sexual intercourse, abdominal
pain";
RUN;

*Changed PPIUD_DISADV_8 to 1 (affect sexual intercourse yes) for  COMBID
110REMERAHC 142KINYINYAHC 148KINYINYAHC 23MUHIMAHC;
PROC FREQ DATA= CC.clientcouple_clean ;
Tables COMBID*PPIUD_DISADV_8;
WHERE PPIUD_DISADV_OTHER= "Discomfort during sexual intercourse, abdominal
pain"
OR PPIUD_DISADV_OTHER= "Discomfort during sexual intercourse";
RUN;

*Changed PPIUD_DISADV_21 to 1 (backache yes) for  COMBID 33MUHIMAHC;
PROC FREQ DATA= CC.clientcouple_clean ;
Tables COMBID*PPIUD_DISADV_21;
WHERE PPIUD_DISADV_OTHER= "Can cause cancer, backache";
RUN;

**Checking Variables for Table 2 BENEFITS, including new variables;
```

```
PROC FREQ DATA= CC.clientcouple_clean;
            Tables PPIUD_BENEFITS_14 PPIUD_BENEFITS_4 PPIUD_BENEFITS_13
PPIUD_BENEFITS_2
                  PPIUD_BENEFITS_PREGPREV PPIUD_BENEFITS_NONE
PPIUD_BENEFITS_EASE;
                        RUN;


**Checking Variables for Table 2 DISADVANTAGES, including new variables;
PROC FREQ DATA= CC.clientcouple_clean;
            Tables PPIUD_DISADV_17 PPIUD_DISADV_NONE PPIUD_DISADV_BLEED
PPIUD_DISADV_18
                        PPIUD_DISADV_SE PPIUD_DISADV_20 PPIUD_DISADV_CANCER
PPIUD_DISADV_19
                        PPIUD_DISADV_ALT;
                        RUN;
PROC FREQ DATA= CC.clientcouple_clean;
            Tables PPIUD_DISADV_CANCER*PPIUD_DISADV_OTHER*COMBID;
                  WHERE PPIUD_DISADV_CANCER=1;
                        RUN;

PROC FREQ DATA= CC.clientcouple_clean;
            Tables PPIUD_DISADV_OTHER*COMBID;
                        WHERE PPIUD_DISADV_OTHER NE "";
                        RUN;



************************************;
*5. PROC FORMATS TO REARRANGE TABLES*;
************************************;

LIBNAME LIBRARY [redacted]
[redacted]
PROC FORMAT LIBRARY= LIBRARY;

VALUE YESNOF
      0 = 'No'
      1 = 'AYes';

      VALUE JOB
      0 = 'Unemployed'
      1 = 'Employed';

      VALUE RELIGION
      0 = 'Non-Catholic'
      1 = 'Catholic';

RUN;
```

```
*********************************;
*6. PROC CONTENTS & PROC PRINT***;
**********CLEAN dataset**********;

PROC contents DATA= CC.clientcouple_clean;
RUN;

PROC PRINT DATA= CC.clientcouple_clean;
RUN;


*********************************;
*7. Table 1 Chi Square Analyses**;
*BY PPIUD_INTEREST***************;
*********************************;

*Couples (STATUS=1), N=47*;

PROC FREQ DATA= CC.clientcouple_clean;
Tables PPIUD_INTEREST_ALL;
WHERE STATUS=1;
RUN;


*YES/ NO  variables: MEN AND WOMEN  COHAB KINYA UND, KINYA-READ, KINYA-WRITE,
MUTUELLE EDUCATION, RELIGION, STUDYSITE;
      PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
                  Tables
                        STUDYSITE2*PPIUD_INTEREST_ALL
                        COHAB2*PPIUD_INTEREST_ALL
                        F_EDUCATION2*PPIUD_INTEREST_ALL
                        F_RELIGION2*PPIUD_INTEREST_ALL
                        F_JOBTITLE2*PPIUD_INTEREST_ALL
                        F_KINYA_READ2*PPIUD_INTEREST_ALL
                        F_KINYA_WRITE2*PPIUD_INTEREST_ALL
                        F_MUTUELLE2*PPIUD_INTEREST_ALL

                        M_EDUCATION2*PPIUD_INTEREST_ALL
                        M_RELIGION2*PPIUD_INTEREST_ALL
                        M_JOBTITLE2*PPIUD_INTEREST_ALL
                        M_KINYA_READ2*PPIUD_INTEREST_ALL
                        M_KINYA_WRITE2*PPIUD_INTEREST_ALL
                        M_MUTUELLE2*PPIUD_INTEREST_ALL

                        GEN_METHOD_IUD*PPIUD_INTEREST_ALL
                        GEN_METHOD_IMPLANT*PPIUD_INTEREST_ALL
                        GEN_METHOD_INJECTABLES*PPIUD_INTEREST_ALL
                        GEN_METHOD_PILLS*PPIUD_INTEREST_ALL
```

```
                        GEN_METHOD_NONE*PPIUD_INTEREST_ALL

                        LARC*PPIUD_INTEREST_ALL/chisq exact; *Used Fisher's
Exact Test;

                        WHERE STATUS= 1;

                              FORMAT COHAB2 F_KINYA_READ2 F_KINYA_WRITE2
F_MUTUELLE2 PPIUD_INTEREST_ALL
                        GEN_METHOD_IUD GEN_METHOD_IMPLANT
GEN_METHOD_INJECTABLES GEN_METHOD_PILLS
                        GEN_METHOD_NATURAL GEN_METHOD_NONE LARC F_EDUCATION2
M_EDUCATION_2 M_KINYA_READ2 M_KINYA_WRITE2 M_MUTUELLE2 YESNOF.
                        F_JOBTITLE2 M_JOBTITLE2 JOB.
                        F_RELIGION2 M_RELIGION2 RELIGION. ;
                        RUN;

* COUPLES ONLY ONLY- AVERAGES & p values: Yes or NO IUD INTEREST;
PROC TTEST DATA = CC.clientcouple_clean;
CLASS PPIUD_INTEREST_ALL;
VAR  MAT_AGE;
WHERE STATUS=1;
RUN;

*MANN WHITNEY TEST;
PROC NPAR1WAY DATA= CC.clientcouple_clean;
CLASS PPIUD_INTEREST_ALL;
VAR PREG_PLAN_NBR PREG_PLAN_WHEN INCOME CHILDREN CHILDREN_PLANNED PREG_SPACE
PREG_MONTH PAT_AGE;
WHERE STATUS=1;
RUN;


*MEDIAN AND IQR;
PROC UNIVARIATE DATA = CC.clientcouple_clean;
CLASS PPIUD_INTEREST_ALL;
VAR  MAT_AGE PAT_AGE INCOME PREG_MONTH  CHILDREN CHILDREN_PLANNED
PREG_SPACE PREG_PLAN_NBR PREG_PLAN_WHEN;
WHERE STATUS=1;
RUN;

*Women with or without male partners N=150*;
PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables
                        STUDYSITE2*PPIUD_INTEREST_ALL
                        COHAB2*PPIUD_INTEREST_ALL
                        F_EDUCATION2*PPIUD_INTEREST_ALL
                        F_RELIGION2*PPIUD_INTEREST_ALL
                        F_JOBTITLE2*PPIUD_INTEREST_ALL
```

```
                        F_KINYA_READ2*PPIUD_INTEREST_ALL
                        F_KINYA_WRITE2*PPIUD_INTEREST_ALL
                        F_MUTUELLE2*PPIUD_INTEREST_ALL


                        GEN_METHOD_IUD*PPIUD_INTEREST_ALL
                        GEN_METHOD_IMPLANT*PPIUD_INTEREST_ALL
                        GEN_METHOD_INJECTABLES*PPIUD_INTEREST_ALL
                        GEN_METHOD_PILLS*PPIUD_INTEREST_ALL
                        GEN_METHOD_NONE*PPIUD_INTEREST_ALL

                        LARC*PPIUD_INTEREST_ALL/chisq exact; *Used Fisher's
Exact Test;

                              FORMAT COHAB2 F_KINYA_READ2 F_KINYA_WRITE2
F_MUTUELLE2 PPIUD_INTEREST_ALL
                        GEN_METHOD_IUD GEN_METHOD_IMPLANT
GEN_METHOD_INJECTABLES GEN_METHOD_PILLS
                        GEN_METHOD_NATURAL GEN_METHOD_NONE LARC F_EDUCATION2
YESNOF. F_JOBTITLE2 JOB. F_RELIGION2 RELIGION.  ;
                        RUN;


***** ALL WOMEN N=150;
PROC TTEST DATA = CC.clientcouple_clean;
CLASS PPIUD_INTEREST_ALL;
VAR  MAT_AGE;
RUN;


*MANN WHITNEY TEST;

PROC NPAR1WAY DATA= CC.clientcouple_clean;
CLASS PPIUD_INTEREST_ALL;
VAR INCOME PREG_MONTH  CHILDREN CHILDREN_PLANNED
PREG_SPACE PREG_PLAN_NBR PREG_PLAN_WHEN;
RUN;

*MEDIAN AND IQR;
PROC UNIVARIATE DATA = CC.clientcouple_clean;
CLASS PPIUD_INTEREST_ALL;
VAR  MAT_AGE INCOME PREG_MONTH  CHILDREN CHILDREN_PLANNED
PREG_SPACE PREG_PLAN_NBR PREG_PLAN_WHEN;;
RUN;
*****************************************;
*8. Table 2 Chi Square Analyses**********;
***********BY PPIUD_INTEREST==**********;
*****************************************;
```

```
*Women Only (STATUS=0), N=103*;
*BENEFITS;
PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables PPIUD_BENEFITS_14*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_4*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_13*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_2*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_PREGPREV*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_NONE*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_EASE*PPIUD_INTEREST_ALL    /chisq exact; *Used
Fisher's Exact Test;
                        WHERE STATUS= 0;
FORMAT PPIUD_INTEREST_ALL PPIUD_BENEFITS_14 PPIUD_BENEFITS_4
PPIUD_BENEFITS_13
PPIUD_BENEFITS_2 PPIUD_BENEFITS_PREGPREV PPIUD_BENEFITS_NONE
PPIUD_BENEFITS_EASE YESNOF. ;
      RUN;

*DISADVANTAGES;
      PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables  PPIUD_DISADV_17*PPIUD_INTEREST_ALL
PPIUD_DISADV_NONE*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_BLEED*PPIUD_INTEREST_ALL
PPIUD_DISADV_18*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_SE*PPIUD_INTEREST_ALL
PPIUD_DISADV_20*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_CANCER*PPIUD_INTEREST_ALL
PPIUD_DISADV_19*PPIUD_INTEREST_ALL
                         PPIUD_DISADV_ALT*PPIUD_INTEREST_ALL
                  /chisq exact;
            WHERE STATUS=0;
FORMAT PPIUD_INTEREST_ALL PPIUD_DISADV_17 PPIUD_DISADV_NONE
PPIUD_DISADV_BLEED PPIUD_DISADV_18
                        PPIUD_DISADV_SE PPIUD_DISADV_20 PPIUD_DISADV_CANCER
PPIUD_DISADV_19
                         PPIUD_DISADV_ALT YESNOF. ;
      RUN;


*Couples (STATUS=1), N=47*;
*BENEFITS;
PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables PPIUD_BENEFITS_14*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_4*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_13*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_2*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_PREGPREV*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_NONE*PPIUD_INTEREST_ALL
```

```
            PPIUD_BENEFITS_EASE*PPIUD_INTEREST_ALL    /chisq exact; *Used
Fisher's Exact Test;
                        WHERE STATUS= 1;
FORMAT PPIUD_INTEREST_ALL PPIUD_BENEFITS_14 PPIUD_BENEFITS_4
PPIUD_BENEFITS_13
PPIUD_BENEFITS_2 PPIUD_BENEFITS_PREGPREV PPIUD_BENEFITS_NONE
PPIUD_BENEFITS_EASE YESNOF. ;
      RUN;

*DISADVANTAGES;
PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables  PPIUD_DISADV_17*PPIUD_INTEREST_ALL
PPIUD_DISADV_NONE*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_BLEED*PPIUD_INTEREST_ALL
PPIUD_DISADV_18*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_SE*PPIUD_INTEREST_ALL
PPIUD_DISADV_20*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_CANCER*PPIUD_INTEREST_ALL
PPIUD_DISADV_19*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_ALT*PPIUD_INTEREST_ALL
                  /chisq exact;
            WHERE STATUS=1;
FORMAT PPIUD_INTEREST_ALL PPIUD_DISADV_17 PPIUD_DISADV_NONE
PPIUD_DISADV_BLEED PPIUD_DISADV_18
                        PPIUD_DISADV_SE PPIUD_DISADV_20 PPIUD_DISADV_CANCER
PPIUD_DISADV_19
                        PPIUD_DISADV_ALT YESNOF. ;
      RUN;


*Women with or without male partners N=150*;
*BENEFITS;
PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables PPIUD_BENEFITS_14*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_4*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_13*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_2*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_PREGPREV*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_NONE*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_EASE*PPIUD_INTEREST_ALL    /chisq exact; *Used
Fisher's Exact Test;

FORMAT PPIUD_INTEREST_ALL PPIUD_BENEFITS_14 PPIUD_BENEFITS_4
PPIUD_BENEFITS_13
PPIUD_BENEFITS_2 PPIUD_BENEFITS_PREGPREV PPIUD_BENEFITS_NONE
PPIUD_BENEFITS_EASE YESNOF. ;
      RUN;

*DISADVANTAGES;
```

```
PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables  PPIUD_DISADV_17*PPIUD_INTEREST_ALL
PPIUD_DISADV_NONE*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_BLEED*PPIUD_INTEREST_ALL
PPIUD_DISADV_18*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_SE*PPIUD_INTEREST_ALL
PPIUD_DISADV_20*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_CANCER*PPIUD_INTEREST_ALL
PPIUD_DISADV_19*PPIUD_INTEREST_ALL
                         PPIUD_DISADV_ALT*PPIUD_INTEREST_ALL
                  /chisq exact;

FORMAT PPIUD_INTEREST_ALL PPIUD_DISADV_17 PPIUD_DISADV_NONE
PPIUD_DISADV_BLEED PPIUD_DISADV_18
                        PPIUD_DISADV_SE PPIUD_DISADV_20 PPIUD_DISADV_CANCER
PPIUD_DISADV_19
                         PPIUD_DISADV_ALT YESNOF. ;
      RUN;


*****************************************;
*9. Table 3 Unadjusted Logistic Regression*;
***********BY PPIUD_INTEREST*************;
*****************************************;


*Couples (STATUS=1), N=47*;

*PPIUD_BENEFITS_13 (Benefits-Long-Term Method);
            PROC logisitic data=CC.clientcouple_clean;
            WHERE STATUS=1;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_13;
            RUN;

*Women with or without male partners N=150*;
*PREG_MONTH;
      PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PREG_MONTH;
            RUN;


*PPIUD_BENEFITS_14 (Benefits-No Hormones) ;
            PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_14;
            RUN;

*PPIUD_BENEFITS_13 (Benefits-Long-Term Method);
            PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_13;
```

```
            RUN;

*PPIUD_BENEFITS_NONE (Benefits-None/Don't Know);
            PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_NONE;
            RUN;

*PPIUD_DISADV_SE (Disadvantage-Physical Side effects);

            PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_DISADV_SE;
            RUN;
*PPIUD_DISADV_20 (Disadvantage-Infection);

            PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_DISADV_20;
            RUN;


************************************;
*10.Checking for Multicollinearity*****;
************************************;
%include [redacted]


*Women with or without male partners N=150*;
      PROC logistic data=CC.clientcouple_clean  covout outest=comparison3;
      model PPIUD_INTEREST_ALL (event = '1')= PREG_MONTH PPIUD_BENEFITS_14
                  PPIUD_BENEFITS_13 PPIUD_BENEFITS_NONE PPIUD_DISADV_SE
PPIUD_DISADV_20
                  INCOME;
      RUN; %COLLIN(COVDSN=comparison3, OUTPUT=work.thesis3);
*No multicollinearity issue;


*Women Only (STATUS=0), N=103**;
PROC logistic data=CC.clientcouple_clean covout outest=comparison1;
            WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PREG_MONTH
PPIUD_BENEFITS_14
                  PPIUD_BENEFITS_13 PPIUD_BENEFITS_NONE PPIUD_DISADV_SE
PPIUD_DISADV_20;
RUN; %COLLIN(COVDSN=comparison1, OUTPUT=work.thesis1);
*No multicollinearity issue;

*****************************;
*11. TABLE 4: Adjusted ORs ****;
******BY PPIUD_INTEREST********;
*****************************;
```

```
*Women with or without male partners N=150*;
*PREG_MONTH;
      PROC logistic data=CC.clientcouple_clean ;
            model PPIUD_INTEREST_ALL (event = '1')= PREG_MONTH
PPIUD_BENEFITS_14
                  PPIUD_BENEFITS_13 PPIUD_BENEFITS_NONE PPIUD_DISADV_SE
PPIUD_DISADV_20;
            RUN;
*PPIUD_BENEFITS_14 (Benefits-No Hormones) ;
            PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_14
PREG_MONTH
                  PPIUD_BENEFITS_13 PPIUD_BENEFITS_NONE PPIUD_DISADV_SE
PPIUD_DISADV_20;
            RUN;
*PPIUD_BENEFITS_13 (Benefits-Long-Term Method);
            PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_13
PREG_MONTH
                  PPIUD_BENEFITS_14 PPIUD_BENEFITS_NONE PPIUD_DISADV_SE
PPIUD_DISADV_20;
            RUN;
*PPIUD_BENEFITS_NONE (Benefits-None/Don't Know);
            PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_NONE
PREG_MONTH
                  PPIUD_BENEFITS_14 PPIUD_BENEFITS_13 PPIUD_DISADV_SE
PPIUD_DISADV_20;
            RUN;
*PPIUD_DISADV_SE (Disadvantage-Physical Side effects);

            PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_DISADV_SE
PREG_MONTH
                  PPIUD_BENEFITS_14 PPIUD_BENEFITS_13 PPIUD_BENEFITS_NONE
PPIUD_DISADV_20;
            RUN;
*PPIUD_DISADV_20 (Disadvantage-Infection);

            PROC logistic data=CC.clientcouple_clean;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_DISADV_20
PREG_MONTH
                  PPIUD_BENEFITS_14 PPIUD_BENEFITS_13 PPIUD_BENEFITS_NONE
PPIUD_DISADV_SE;
            RUN;


****************************************;
```

```
*12.Women Only Analyses (Apppendix) N=103*;
**************BY PPIUD_INTEREST************;
************Tables 5 & 6******************;
*****************************************;
*WOMEN ONLY CATEGORICAL VARIABLES;
      PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables
                        STUDYSITE2*PPIUD_INTEREST_ALL
                        COHAB2*PPIUD_INTEREST_ALL
                        F_EDUCATION2*PPIUD_INTEREST_ALL
                        F_RELIGION2*PPIUD_INTEREST_ALL
                        F_JOBTITLE2*PPIUD_INTEREST_ALL
                        F_KINYA_READ2*PPIUD_INTEREST_ALL
                        F_KINYA_WRITE2*PPIUD_INTEREST_ALL
                        F_MUTUELLE2*PPIUD_INTEREST_ALL


                        GEN_METHOD_IUD*PPIUD_INTEREST_ALL
                        GEN_METHOD_IMPLANT*PPIUD_INTEREST_ALL
                        GEN_METHOD_INJECTABLES*PPIUD_INTEREST_ALL
                        GEN_METHOD_PILLS*PPIUD_INTEREST_ALL
                        GEN_METHOD_NONE*PPIUD_INTEREST_ALL

                        LARC*PPIUD_INTEREST_ALL/chisq exact; *Used Fisher's
Exact Test;

                        WHERE STATUS= 0;

                              FORMAT COHAB2 F_KINYA_READ2 F_KINYA_WRITE2
F_MUTUELLE2 PPIUD_INTEREST_ALL
                        GEN_METHOD_IUD GEN_METHOD_IMPLANT
GEN_METHOD_INJECTABLES GEN_METHOD_PILLS
                        GEN_METHOD_NATURAL GEN_METHOD_NONE LARC F_EDUCATION2
YESNOF. F_JOBTITLE2 JOB. F_RELIGION2 RELIGION.  ;
                        RUN;
* WOMEN ONLY- CONTINUOUS VARIABLES N=103;
PROC TTEST DATA = CC.clientcouple_clean;
CLASS PPIUD_INTEREST_ALL;
VAR  MAT_AGE;
WHERE STATUS=0;
RUN;

*MANN WHITNEY TEST;
PROC NPAR1WAY DATA= CC.clientcouple_clean;
CLASS PPIUD_INTEREST_ALL;
VAR INCOME PREG_MONTH  CHILDREN CHILDREN_PLANNED
PREG_SPACE PREG_PLAN_NBR PREG_PLAN_WHEN;
WHERE STATUS=0;
RUN;
```

```
*MEDIAN AND IQR;
PROC UNIVARIATE DATA = CC.clientcouple_clean;
CLASS PPIUD_INTEREST_ALL;
VAR  MAT_AGE  INCOME PREG_MONTH  CHILDREN CHILDREN_PLANNED
PREG_SPACE PREG_PLAN_NBR PREG_PLAN_WHEN;
WHERE STATUS=0;
RUN;

* WOMEN ONLY- BENEFITS;
PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables PPIUD_BENEFITS_14*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_4*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_13*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_2*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_PREGPREV*PPIUD_INTEREST_ALL
PPIUD_BENEFITS_NONE*PPIUD_INTEREST_ALL
            PPIUD_BENEFITS_EASE*PPIUD_INTEREST_ALL    /chisq exact; *Used
Fisher's Exact Test;
                        WHERE STATUS= 0;
FORMAT PPIUD_INTEREST_ALL PPIUD_BENEFITS_14 PPIUD_BENEFITS_4
PPIUD_BENEFITS_13
PPIUD_BENEFITS_2 PPIUD_BENEFITS_PREGPREV PPIUD_BENEFITS_NONE
PPIUD_BENEFITS_EASE YESNOF. ;
      RUN;

* WOMEN ONLY- DISADVANTAGES;
      PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables  PPIUD_DISADV_17*PPIUD_INTEREST_ALL
PPIUD_DISADV_NONE*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_BLEED*PPIUD_INTEREST_ALL
PPIUD_DISADV_18*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_SE*PPIUD_INTEREST_ALL
PPIUD_DISADV_20*PPIUD_INTEREST_ALL
                        PPIUD_DISADV_CANCER*PPIUD_INTEREST_ALL
PPIUD_DISADV_19*PPIUD_INTEREST_ALL
                         PPIUD_DISADV_ALT*PPIUD_INTEREST_ALL
                  /chisq exact;
            WHERE STATUS=0;
FORMAT PPIUD_INTEREST_ALL PPIUD_DISADV_17 PPIUD_DISADV_NONE
PPIUD_DISADV_BLEED PPIUD_DISADV_18
                        PPIUD_DISADV_SE PPIUD_DISADV_20 PPIUD_DISADV_CANCER
PPIUD_DISADV_19
                         PPIUD_DISADV_ALT YESNOF. ;
      RUN;

*WOMEN-ONLY UNADJUSTED LOGISTIC REGRESSION;
*PREG_MONTH;
PROC logistic data=CC.clientcouple_clean;
```

```
            WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')=PREG_MONTH;
            RUN;
*PPIUD_BENEFITS_14 (Benefits-No Hormones) ;
            PROC logistic data=CC.clientcouple_clean;
            WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_14;
            RUN;
*PPIUD_BENEFITS_13 (Benefits-Long-Term Method);
            PROC logistic data=CC.clientcouple_clean;
            WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_13;
            RUN;

*PPIUD_BENEFITS_NONE (Benefits-None/Don't Know);
            PROC logistic data=CC.clientcouple_clean;
            WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_NONE;
            RUN;
*PPIUD_DISADV_SE (Disadvantage-Physical Side effects);
            PROC logistic data=CC.clientcouple_clean;
            WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_DISADV_SE;
            RUN;
*PPIUD_DISADV_20 (Disadvantage-Infection);
            PROC logistic data=CC.clientcouple_clean;
            WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_DISADV_20;
            RUN;

*WOMEN-ONLY ADJUSTED LOGISTIC REGRESSION;
*PREG_MONTH;
      PROC logistic data=CC.clientcouple_clean covout outest=info;
      WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PREG_MONTH
PPIUD_BENEFITS_14
                  PPIUD_BENEFITS_13 PPIUD_BENEFITS_NONE PPIUD_DISADV_SE
PPIUD_DISADV_20;
            RUN;

*PPIUD_BENEFITS_14 (Benefits-No Hormones) ;
            PROC logistic data=CC.clientcouple_clean;
                  WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_14
PREG_MONTH
                  PPIUD_BENEFITS_13 PPIUD_BENEFITS_NONE PPIUD_DISADV_SE
PPIUD_DISADV_20;
RUN;
*PPIUD_BENEFITS_13 (Benefits-Long-Term Method);
```

```
            PROC logistic data=CC.clientcouple_clean;
            WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_13
PREG_MONTH
                  PPIUD_BENEFITS_14 PPIUD_BENEFITS_NONE PPIUD_DISADV_SE
PPIUD_DISADV_20;
            RUN;
*PPIUD_BENEFITS_NONE (Benefits-None/Don't Know);
            PROC logistic data=CC.clientcouple_clean;
                  WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_BENEFITS_NONE
PREG_MONTH
                  PPIUD_BENEFITS_14 PPIUD_BENEFITS_13 PPIUD_DISADV_SE
PPIUD_DISADV_20;
            RUN;
*PPIUD_DISADV_SE (Disadvantage-Physical Side effects);

            PROC logistic data=CC.clientcouple_clean;
                  WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_DISADV_SE
PREG_MONTH
                  PPIUD_BENEFITS_14 PPIUD_BENEFITS_13 PPIUD_BENEFITS_NONE
PPIUD_DISADV_20;
            RUN;
*PPIUD_DISADV_20 (Disadvantage-Infection);
            PROC logistic data=CC.clientcouple_clean;
                  WHERE STATUS=0;
            model PPIUD_INTEREST_ALL (event = '1')= PPIUD_DISADV_20
PREG_MONTH
                  PPIUD_BENEFITS_14 PPIUD_BENEFITS_13 PPIUD_BENEFITS_NONE
PPIUD_DISADV_SE;
            RUN;


*****************************************;
*13.Testing Normality Continuous Variables*;
*****************************************;

*Test for Normality N=150;
            *Only female age is normal;
PROC univariate DATA = CC.clientcouple_clean NORMAL;
VAR PREG_PLAN_NBR PREG_PLAN_WHEN INCOME CHILDREN CHILDREN_PLANNED PREG_SPACE
PREG_MONTH MAT_AGE PAT_AGE;
RUN;

*Test for Normality N=47;
            *Only female age is normal;
PROC univariate DATA = CC.clientcouple_clean NORMAL;
VAR PREG_PLAN_NBR PREG_PLAN_WHEN INCOME CHILDREN CHILDREN_PLANNED PREG_SPACE
```

```
PREG_MONTH MAT_AGE PAT_AGE;
WHERE STATUS=1;
RUN;


*Checking 'Other'category definitions;
PROC FREQ DATA= CC.clientcouple_clean;
TABLES PPIUD_BENEFITS_10*PPIUD_BENEFITS_OTHER PPIUD_DISADV_OTHER;
RUN;

*****************************************;
*14.Overall (Not Stratified) Results*******;
*****************************************;

*Cross-tab of religion and method use;
PROC FREQ DATA= CC.clientcouple_clean ORDER=FORMATTED;
            Tables
                        F_RELIGION2*LARC
                        F_RELIGION2*GEN_METHOD_IUD
                        F_RELIGION2*GEN_METHOD_IMPLANT
                        F_RELIGION2*GEN_METHOD_INJECTABLES
                        F_RELIGION2*GEN_METHOD_PILLS
                        F_RELIGION2*GEN_METHOD_NONE

                        M_RELIGION2*LARC
                        M_RELIGION2*GEN_METHOD_IUD
                        M_RELIGION2*GEN_METHOD_IMPLANT
                        M_RELIGION2*GEN_METHOD_INJECTABLES
                        M_RELIGION2*GEN_METHOD_PILLS
                        M_RELIGION2*GEN_METHOD_NONE
                        /chisq exact;

                              FORMAT GEN_METHOD_IUD GEN_METHOD_IMPLANT
GEN_METHOD_INJECTABLES GEN_METHOD_PILLS
                        GEN_METHOD_NATURAL GEN_METHOD_NONE LARC  YESNOF.
F_RELIGION2 M_RELIGION2 RELIGION.  ;
                        RUN;

*Overall  results table 1;
PROC univariate DATA = CC.clientcouple_clean;
VAR MAT_AGE PAT_AGE;
RUN;

PROC FREQ DATA= CC.clientcouple_clean;
            Tables
                        F_EDUCATION2
                        M_EDUCATION2
                        COHAB2
                        F_KINYA_READ2
```

```
                        F_KINYA_WRITE2

                        M_KINYA_READ2
                        M_KINYA_WRITE2

                        F_MUTUELLE2
                        M_MUTUELLE2

                        F_RELIGION2
                        M_RELIGION2

                        F_JOBTITLE2
                        M_JOBTITLE2

                        GEN_METHOD_NONE;

                        FORMAT COHAB2 F_KINYA_READ2 F_KINYA_WRITE2
                        M_KINYA_READ2 M_KINYA_WRITE2 F_MUTUELLE2 M_MUTUELLE2
                        GEN_METHOD_NONE  F_EDUCATION2 M_EDUCATION2 YESNOF.
F_JOBTITLE2 M_JOBTITLE2 JOB.  F_RELIGION2 M_RELIGION2 RELIGION.  ;
                        RUN;



*****************************************;
**********************END OF SAS CODE******;
*****************************************;
```