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DISCONTINUITY OF FAMILY PLANNING METHODS AND ASSOCIATED FACTORS AMONG WOMEN OF REPRODUCTIVE AGE (15–49 YEARS) IN NGOMA DISTRICT, RWANDA

[1]Hategekimana Jean Baptiste & [2]Dr. Kevin Nwanna, PhD

[1]Post graduate student, Mount Kigali University, Rwanda
[2]Lecturer, University of Rwanda

Abstract:

Background: Discontinuity of family planning methods shortly after initiation poses a significant public health challenge in low and middle-income countries. According to the 2019–2020 Rwanda Demographic and Health Survey, 30% of family planning users in Rwanda discontinued their method within 12 months of starting. Ngoma District reported the highest discontinuation rate at 31%. This study aimed to investigate the factors contributing to the discontinuation of family planning methods among women of reproductive age in Ngoma District, Rwanda.

Materials and Methods: A cross-sectional study was conducted at seven key health centers in Ngoma District, chosen for their high utilization by women using family planning methods. A total of 323 women participated voluntarily, completing a pre-tested self-administered questionnaire through systematic sampling. Collected data were carefully checked, coded, and analyzed using SPSS version 25. Descriptive statistics, such as frequency, mean, standard deviation, and percentage, were computed. Bivariate and multiple logistic regression analyses were performed to explore factors influencing discontinuity of family planning methods. Variables with p-values less than 0.05 in the bivariate analysis were included in the multiple logistic regression to control for potential confounding factors, with statistical significance set at $p < 0.05$.

Results: The study revealed that a majority of respondents were aged 26-35 years (50.5%), married (89.8%), and had health insurance coverage (98.5%). Most had primary education (82.7%) with a smaller proportion having secondary education (9.0%). Additionally, nearly all were engaged in farming (98.5%) and identified as Christian (96.6%). The prevalence of discontinuity in family planning methods in Ngoma District was 31%, while 69% continued to use contraceptives. Respondents demonstrated a high overall knowledge score of 94.1% on family planning. Factors significantly linked to discontinuity included possession of health insurance, religious affiliation, experience of side effects, partner opposition, and desire for additional children.

Discussion: The findings underscore the importance of addressing factors such as health insurance coverage, religious beliefs, side effects, partner dynamics, and reproductive desires in ensuring sustained use of family planning methods among women in Ngoma District. Strategies to improve counseling for new users, reminder systems for method resupply appointments, and support for dissatisfied users could potentially mitigate discontinuation rates. Engaging religious leaders and

sensitizing husbands about the benefits of family planning may also enhance acceptance and support for contraceptive use among women.
Conclusion: The study concludes that possession of health insurance, religious affiliation, partner opposition, and desire for more children significantly influence discontinuity of family planning methods among women of reproductive age in Ngoma District, Rwanda. Counseling strategies addressing side effects and switching options, along with involvement of religious and community leaders, are recommended to improve continuity and sustainability of family planning services.

Keywords: *Discontinuity of Family Planning Methods, Associated Factors, Women of Reproductive Age, Rwanda*

1. Introduction

According to Khan,Mishra and Abderrahim (2007), Contraceptive discontinuation is explained in term of women who were using family planning and stopped without shifting to other methods. DHS report regarding contraceptive discontinuation shows that 12 months discontinuation rates in Kenya at 36%, Zimbabwe 17.7%, Armenia 30.6%, Egypt 32% and Colombia 43.8% (Askew, 2015). Without taking another alternative in term of shifting from one method to the other, ladies discontinue using modern contraceptive family planning methods for several reasons. This frequently leads to avoidable health risks like unwanted pregnancies, undesired childbearing, miscarriage, morbidity and mortality among mothers, newborns or both while mothers keep in mind and think about some factors which could decrease the burden of these effects. Moreover, there is limited knowledge in term prevalence and factors which are connected with modern family planning drop out (Sedgh, Singh & Hussain, 2014).
Globally, 58% of women in reproductive age are utilizing the modern contraceptive methods including 92% of all users and amongst these women reproductive age users, 78% of them are satisfied, 56% in Africa and more than 75% in other regions. About 225 million women do not adhere to contraception while avoiding pregnancy. These include reproductive age women who avoid pregnancy and are not users of contraception have an unmet need for contraception (Singh et al., 2014). Therefore, contraceptive methods program uses different contraceptive methods including both the modern and traditional. The report showed that 63% of reproductive age women in the world, aged between 15-49 years, married, single and in a union, were adopting contraceptive methods in 2017. Within European countries like Latin America, Caribbean and northern America, the contraceptive use is above 70% and below 25% in middle and Western Africa (United Nations, 2017).

Globally, 25 million of the 75 million unintended births are due to contraceptive discontinuation (Jain AK, Winfrey W, 2017). Studies show discontinuation rates between 6 and 56% after just 12

months of contraceptive use (Alvergne A, Stevens R, Gurmu E, 2017). Discontinuation, while still in need of pregnancy protection, increases with time beyond the most common measure of after 12 months of use. Discontinuation has been reported as significantly more common in sub-Saharan Africa compared to other world regions (Barden et al, 2018).

In Rwanda, a Family Planning barriers study conducted in 2017 found that 74.6% women who have ever used contraceptives, also stopped using them. The discontinuation was more prevalent among women age 35-39(82.9%), in urban area (75.8%), illiterate women (80.2%) women. The 2019–2020 Rwanda Demographic and Health Survey show that 30% of family planning users in the country discontinued a method within 12 months of initiating use. NISR (2019-2020),

According to the MCCH annual report 2019/2020 Ngoma District had the highest number (31%) of women who discontinued the use of modern contraceptive methods. Similar situation prevails in Ngoma District (2019), one of seven districts of Eastern Province of Rwanda, where the number of users of family planning contraceptive methods decreased considerably from 53,032 users in 2018 to 44,637 users in 2019, and the number of FP dropout cases has increased from 8% in 2018 to 19% in 2019. According to Ngoma District report (2020), family planning users discontinued a method within 12 months of initiating use with 27% discontinuing. As far as there has been no similar study focusing on discontinuity of Family Planning methods and associated factors among women of reproductive age in Ngoma District. Thus, our study aimed to assess discontinuity of Family Planning methods and associated factors among women of reproductive age (15-49 years) in Ngoma District, Rwanda.

2. Materials and Methods

2.1 Study Design and Settings

A quantitative, cross-sectional study was conducted to assess discontinuity of Family Planning methods and associated factors among women of reproductive age (15-49 years) in Ngoma District, Rwanda. This study was conducted in Ngoma district located in Eastern Province of Rwanda and it is divided into 15 Health Centres, which are Remera, Gasetsa, Rubona, Gituku, Rukira, Kibungo, Mutenderi, Kirwa, Gashanda, Zaza, Nyange, Sangaza, Rukoma-Sake, Rukumbeli, and Jarama. The researcher used a Systematic sampling technique, the sample size was calculated using the Fisher Formula, the study considered a degree of confidence of 95% and a margin error of 5%. And the sample size for this study was 323 women in reproductive age (15-49 years). We collected primary data by using questionnaire comprise closed-end questions by distribution to women with reproductive age 15-49 years, at the household level and was translated from English to Kinyarwanda (local language). Instructions as how to answer the questions were provided to facilitate respondents to give appropriate answers for all the research questions. This tool contains four sections, Section A: Socio-demographic information, Section B: Family

Planning methods discontinuity among women with reproductive age, Section C: Level of knowledge and Section D: Factors associated with family planning discontinuation

2.2 Participants

The target population in this study was all women of reproductive age 15-49 years who use family planning methods (new acceptors and old cases) in Health centres of Ngoma District, from July 2022 to June 2023. In this research, the target population was 30,476 women with reproductive age enrolled in Family planning services of seven Health Centres selected as users of Family Planning methods. Eligibility criteria for participation in the study were every woman with reproductive age (15-49 years), women residing in Ngoma district, previous use of FP method: Women who have used any form of FP method within the last 12 months (Enrolled in family planning service from July 2022 to June 2023). We excluded women who have never used any form of FP method and women who were unable to provide consent due to mental incapacity or other reason.

2.3 Data Collection

Data were collected daily, for six day of the week for 9 Weeks starting from 9:am up to 5: pm. Data was collected at household level by researcher and five trained research assistants.

2.4 Ethics Approval

Approval by an ethics committee was provided (Approval Number: 022/11/2023). participants were given information about the purpose of study and sign the consent form to participate in the study. And they have been informed that they can withdraw any time from the study without any consequence or punishment. The researcher maintained the protection of human rights during this study.

2.5 Data Analysis

Categorical variables were analysed by descriptive statistics, including frequencies and percentages. Secondly, the bivariate analysis was done using the chi-square test to establish factors associated with discontinuity of FP methods. The reported p values were two-sided, and a value of $p < 0.05$ indicated statistical significance. Two binary logistic regression models were used to calculate odds ratios (ORs) and 95% confidence intervals (CIs) to analyse the factors associated with family planning methods discontinuity.

3. Results

3.1 Characteristics of the Participants

Table 1 shows that majority of the respondents (50.5%) were aged between 26 and 35 years old. Regarding on the side of health insurance, majority (98.5%) of the respondents possessed health insurance, on the side of education, majority of the women (82.7%) did primary school, 9.0% did secondary school, while 8.3% didn't have formal education. The most respondents (89.8%) were married, (98.5 %) farmer and 96.6 % were Christian.

Table 1. Sociodemographic characteristics of the respondents

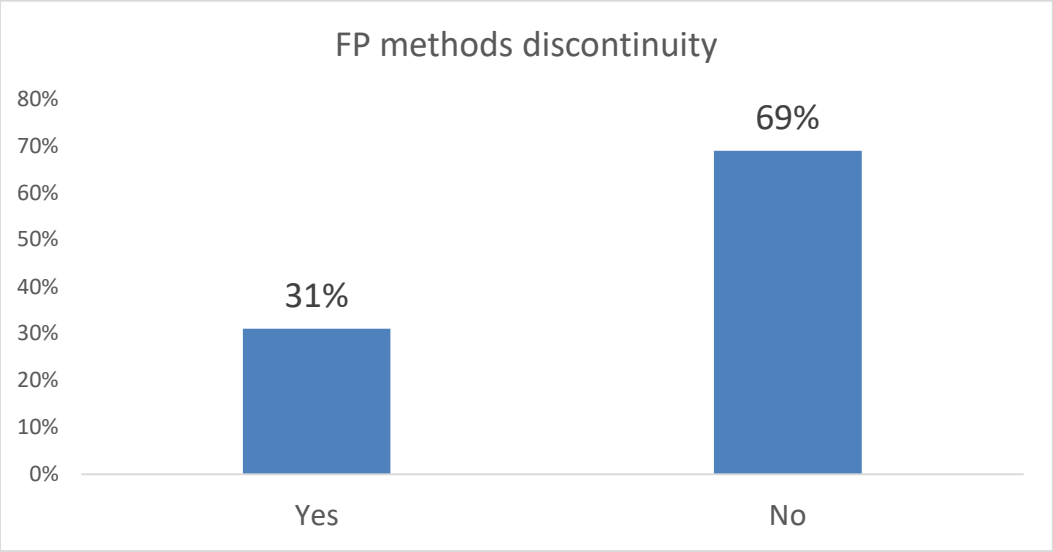
Variables	Frequency(n=323)	Percentage (%)
Age of respondent		
18-25 years	56	17.3
26-35 years	163	50.5
36-49 years	104	32.2
Level of education		
Never attended school	27	8.3
Primary school	267	82.7
Secondary school	29	9.0
Have health insurance?		
Yes	318	98.5
No	5	1.5
Marital status		
Single	31	9.6
Married	290	89.8
Divorced	1	0.3
Widowed	1	0.3
Occupational status		
Farmer	318	98.5
Trader	3	0.9
Civil servant	2	0.6
Religion		
Christian	312	96.6
Muslim	11	3.4

Source: Primary data (2023)

3.2 Prevalence of FP methods discontinuity among women with reproductive age in Ngoma District

Figure 1, Illustrates that, one hundred (100) respondents (31%) were no longer using family planning methods and 223 (69%) are still using contraceptive methods.

Figure 1. Prevalence of Family Planning methods discontinuity



Legend:
Yes: Respondents were no longer using family planning methods
No: Respondents are still using contraceptive methods

Source: Primary data (2023)

3.3 Level of knowledge of FP methods among women with reproductive age in Ngoma District

Table 2 shows that, all respondents (100 percent) heard message on Family planning methods, they knew some FP methods used at Health Facility, and they knew benefits of using them. The majority (94.1 percent) of respondents knew that some FP methods can cause side effects and they knew some side effects, while 5.9 percent knew that FP can't cause side effects and they don't know some side effects which can cause by FP methods use. The majority (75.2 percent) of

respondents knew that some side effect can be managed by Health care providers while 24.8 percent of respondents don't know.

Table 2. Responses-related to the respondent's knowledge towards FP methods

Variables	Frequency (n)	Percent (%)
Message heard on Family planning methods		
Yes	323	100.0
Knowledge of some Family planning methods		
Corrects answers	323	100.0
Knowledge benefits of using Family planning methods		
Yes	323	100.0
Knowledge of benefits of using Family Planning methods		
Corrects answers	323	100.0
Knowledge that some FP methods can cause side effects		
Yes	304	94.1
No	19	5.9
Knowledge of some side effects		
Corrects answers	304	94.1
Missing answers	19	5.9
Side effects can be managed by Health care workers		
Yes	243	75.2
No	80	24.8

Source: Primary data (2023)

3.3.1 Overall knowledge score of FP methods

Table 3 shows that, the 94.1 percent of respondents had a high level of knowledge about FP methods, while 5.9 percent had a low level of knowledge about FP methods. The mean knowledge score for all respondents was 13.2 out of a possible 14 (standard deviation = 1.5). The minimum and maximum scores were 8 and 14, respectively.

Table 3. Distribution of respondents' knowledge towards FP methods

Level of knowledge	Frequency (n)	Percent (%)
Low (Score < 60%)	19	5.9
High (Score ≥ 80%)	304	**94.1**
Minimum score: 8.0	**Mean score:**13.2	
Maximum score: 14.0	**Stand. Dev.:**1.5	

Source: Primary data (2023)

The SPSS score assessment was used to assess seven (7) questions related to FP methods knowledge, and the score was two (2) marks for a right answer and zero (0) for a false answer. By adding the scores for each respondent across all seven (7) questions, an overall knowledge score was calculated and the scores were categorized by using Bloom's cut-off point (high: ≥80%, moderate: 60-79%, low <60%) (Nahlah Elkudssiah Ismail et al, march 2024).

3.4 Factors associated with Family PF discontinuity among women with reproductive age in Ngoma District

According to the chi-square test, possession of Health insurance, religion, side effects, partner opposition and desire of children were factors that were significantly associated with family planning methods discontinuity ($p<0.05$; Table 4).

As shown in Table 5, binary logistic regression analysis was used to explore the factors associated with family planning methods discontinuity. The data presented in this table shows significantly higher odds of current family planning methods discontinuity among women in reproductive age. The following factors were statistically significantly associated with FP dropout among women of reproductive age: Christians are four times more likely to dropout compared to Muslim (AoR=4.121, 95% CI:1.178-14.415). Women with Partner opposition are 0.2 times less likely to dropout compared to women who have not experienced with partner opposition (AoR=0.232, 95% CI: 0.91-0.592). Women with Desire of children are 0.2 times less likely to dropout compared to women who have not experienced to desire of children (AoR=0.289, 95% CI: 0.126-0.668).

Table 4. Bivariate analysis of factors associated with FP methods discontinuity among the respondents

Variables	FP methods drop out		Chi-square	P-value
	Yes (%)	No (%)		
Age			3.088	0.214
15-25	16(5)	40(12.3)		
26-35	45(14)	118(36.5)		
36-49	39(12.1)	65(20.1)		
Marital status of respondents			2.713	0.438
Single	10(3.2)	21(6.5)		
Married	89(27.5)	201(62.2)		
Divorced	0(0.0)	1(0.3)		
Widowed	1(0.3)	0(0.0)		
Education Level			1.060	0.589
Never attended school	6(1.9)	21(6.5)		
Primary school	85(26.3)	182(56.3)		
Secondary school	9(2.8)	20(6.2)		
Occupation			2.160	0.340
Farmer	97(30.1)	221(68.4)		
Trader	2(0.6)	1(0.3)		
Civil servant	1(0.3)	1(0.3)		
Possession of Health insurance			11.325	**0.001**
Yes	95(29.4)	223(69.0)		
No	5(1.6)	0(0.0)		
Religion			5.689	**0.017**
Christian	93(28.8)	219(67.8)		
Muslim	7(2.2)	4(1.2)		
Reasons for discontinuing FP methods				
Poor service delivery	11(3.4)	312(96.6)	2.548	0.110
Side effects	176(54.5)	147(45.5)	15.881	**0.000**
Long distance to reach Health Facility	22(6.8)	301(93.2)	1.803	0.179
Partner opposition	36(11.1)	287(88.9)	11.467	**0.001**
Desire of Children	62(19.2)	261(80.2)	13.014	**0.000**
Unavailability of contraceptive methods	17(5.3)	306(94.7)	0.876	0.349

Source: Primary data (2023)

Table 5. Multivariate analysis of factors associated with FP methods discontinuity among the respondents

Variables	FP methods drop out		P-value
	AoR	95%CI	
Possession Health insurance			
Yes	Ref		
No	0.000	0.000-.	0.999
Religion			
Christian	**4.121**	**1.178-14.415**	**0.027**
Muslim	Ref		
Factors related to FP discontinuity			
Side effects			
Yes	1.051	0.491-2.250	0.898
No	Ref		
Partner opposition			
Yes	**0.232**	**0.91-0.592**	**0.002**
No	Ref		
Desire of Children			
Yes	**0.289**	**0.126-0.668**	**0.004**
No	Ref		

Source: Primary data (2023)

4.Discussion

To our knowledge, our study was the first to assess discontinuity of family planning methods and associated factors among women of reproductive age in Ngoma District, Rwanda.

4.1 Prevalence of Family Planning methods discontinuity among women of reproductive age

According to the findings of this study related to prevalence of FP methods discontinuation showed that 31% of respondents are no longer using family planning methods. This result indicates that a high number of drop out (15.2%) occurred between 10 – 12 months after initiation. The results of the 2019-20 Rwanda Demographic and Health Survey (RDHS) showed that a third of women (30%) who began using a contraceptive method discontinued the method within 12 months.

Though, a similar study found a higher percentage of Family Planning methods discontinuity, study conducted in Myanmar found that the 12-month discontinuation rate for all contraceptive methods was 39% (Khaing Nwe Tin, et al.,2020), study conducted in Nigeria found that the prevalence of modern contraceptive discontinuation was 35.8%. (Nigeria Demographic and Health Survey (NDHS), 2018) and study conducted in Uganda found that, nearly half (45%) of episodes of contraceptive use were discontinued within 12 months. (Uganda DHS, 2016).

These rates are a bit higher than the ones prevailing in other low and middle income countries. In contrary, the findings from this study found that a lower percentage from the one study conducted in Indonesia, 29% of women of reproductive age discontinued use of Family Planning methods within 12 months (Indonesia DHS, (2017) and study conducted in Pakistan, found a third (30%) of contraceptive discontinued within 12 months. (Pakistan Demographic and Health Survey (2017-18 PDHS). The differences observed in these studies could be attributed to differences in the study setting, sociodemographic differences and study participant composition.
Therefore, the prevalence of FP methods discontinuation among women in reproductive ages in Ngoma District is low compared to the prevalence of FP methods discontinuation in Myanmar, in Uganda, and in Nigeria. And is greater than the prevalence of FP methods discontinuation in Indonesia, and in Pakistan.

4.2 Level of knowledge of Family Planning methods

According to the findings of this study related to level of knowledge of FP methods among women of reproductive age showed the 94.1 percent of respondents had a high level of knowledge about FP methods, while 5.9 percent had a low level of knowledge about FP methods. All respondents (100 %) heard message on Family planning methods, they knew some FP methods used at Health Facility, and they knew benefits of using them. The 94.1 % of respondents knew that some FP methods can cause side effects and they knew some side effects. The results showed also 75.2 % of respondents knew that some side effect can be managed by Health care providers. The results of the 2019-20 Rwanda Demographic and Health Survey (RDHS) showed that knowledge of modern contraceptive methods is universal among both women and men (99%-100%). On average, currently married women have heard of 12 methods, while currently married men have heard of 11 methods. The most commonly known modern methods among currently married women are injectables (100%), pills (99%), male condoms (99%), implants (99%), and IUDs (93%). Ninety-seven percent of currently married women are aware of a traditional method of contraception. The most commonly known traditional method is rhythm (96%).

Similar study conducted in Gambia found that a large proportion of the participants (89.4%) knew about pills, 84.2% knew about injectable, while 36.4% knew about implants. As for the barrier methods 15.6% knew about female condom while about 4.4% mentioned. Concerning the natural methods, prolonged breastfeeding accounted for 15.0% and rhythm method (safe period) 6.9%. The majority of the participants 82.6% know how to use pills. A considerable proportion of the participants 31.1% reported knowledge of the use of implants (implanon and jadelle) as compared to the coitus interruptus (withdrawal), which accounted for 2.5%. Nine in every ten women (90%) reported that contraceptives are beneficial. Out these, 85.6% reported child spacing, followed by prevention of unwanted pregnancy 59.8%, limiting family size 31.4%, and enhancement/improvement of family economic status 17.0% as the benefits of using contraceptives. Slightly more than half of the participants reported that contraceptives are harmful or have side effects. Amadou Barrow, 2020.

In the same perspective, Renjhen Prachi, (2008) from India found that ninety-eight percent (98%) of the women had heard about family planning methods and only very few (2%) were unaware. According to most of the women family planning meant having small and happy family and only 29.8% said it was for birth spacing. Almost all (95.8%) of them had heard about oral contraceptive pills. 74.2% of the them had heard about condoms and 72% were aware about Copper-T, and over half (67%) of them had heard about tubal ligation and nearly one third (34%) were aware about vasectomy. Most of them knew that contraceptive was available in Government Hospital (62.8%) and Medical shops (52.5%). As a conclusion, the level of knowledge of FP methods among women with reproductive in Ngoma District had a high level of knowledge about FP methods compared to the levels of knowledge in other countries or even in another district of Rwanda.

4.3 Factors associated with Family Planning discontinuity among women of reproductive age

According to the findings of this study related to Factors associated with FP drop out among women of reproductive age showed that 36% dropped out due to the side effects, 32% due to desire of children, 20% due to partner opposition, 7% due to unavailability of contraceptive methods, 4% due to long distance to reach Health Facility and poor service delivery (1%). The results of the 2019-20 Rwanda Demographic and Health Survey (RDHS) showed that the most common reason for discontinuation was side effects/health concerns (30%). Other prominent reasons cited for discontinuation included desire to become pregnant (28%) and desire for a more effective method (14%). The present study found that some explanatory variables have a significant effect on FP methods discontinuity among women in reproductive age in Ngoma District at 5% level of significance with respective p-values <0.05. The probability of their estimated parameters is less than 5%.

The findings of this study showed that the relationship of five factors (Possession of Health insurance, religion, side effects, partner opposition and desire of children) toward FP methods dropout were statistically significant with $p<0.05$.

Consistent with similar and related studies in Philippines and found that 59 % of all drop-out due to side effects, 5% desire to have another child, 5% objections on the part of the husband and 4.2% due to poor health status (Sealza, Lita. 2004). Another study in Indonesia found a higher percentage of factors associated to FP discontinuation which are side effects (25.2%), partner opposition (24.9%), desire of children (14.0%) and bad service (23.4%) (Putra Apriadi S, et al., 2022). These results are almost similar to the ones found by Sealza, Lita (2004).

4. Conclusion

The study concludes that possession of health insurance, religious affiliation, partner opposition, and desire for more children significantly influence discontinuity of family planning methods among women of reproductive age in Ngoma District, Rwanda. Counseling strategies

addressing side effects and switching options, along with involvement of religious and community leaders, are recommended to improve continuity and sustainability of family planning services.

Conflict of interest statement

The author declares no conflicts of interest.

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