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Factors Associated with The Utilization of Immediate Postpartum Family Planning Among Women Attending Kibogora Health Center, Nyamasheke District, Rwanda

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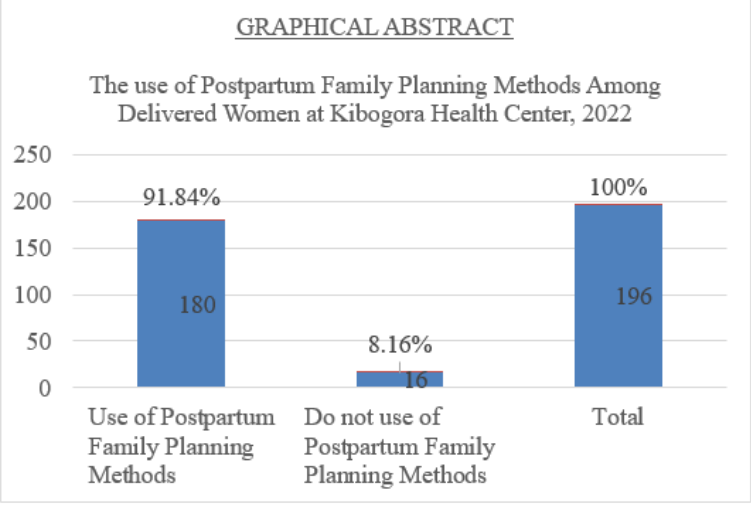
HIGHLIGHTS

- We surveyed the respondents to identify the factors associated with the use of Postpartum Family Methods among postpartum mothers at Health Center level;
- Majority of women (91.8%) are using Postpartum Family Planning (PPFP) contraceptives methods;
- The factors associated with the use of PPFP contraceptive methods were twofold:
  - ✓ Mother's communication with the spouse about PPFP, which is likely to increase their use by three times; and
  - ✓ Mothers delivered by caesarean section at last delivery, which is likely to increase their acceptance by seven times.

GRAPHICAL ABSTRACT



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ABSTRACT

Although the main purpose of Postpartum Family Planning (PPFP) is to address the problems related to unmet needs of the existing Family Planning (FP), the PPFP uptake is still low in developing countries. Little is known about factors associated with acceptance of PPFP among delivered women at health center level. This study sought to assess socio-demographic, cultural, and healthcare system related factors associated with the use of FP methods among postpartum mothers at Kibogora Health Center in order to fill the literature gap. The study used a cross-sectional design with quantitative approach to collect data from 196 postpartum mothers attending the Health Center. Data were collected using questionnaires, entered into the Statistical Package of Social Sciences (SPSS) for analysis. Of 196 women recruited in our study, 180 (91.8%) are using PPFP contraceptives methods. Factors associated with the use of PPFP methods at health center level include: mothers' communication with partners about PPFP, which is likely to increase by almost three times the chance of using PPFP (cOR 2.7, 95% CI, 0.26, 0.33; P=0.03) compared with those who never communicated with their partners, and mothers delivered by caesarean section are by seven times more likely to accept PPFP (cOR 7.05, 95% CI, 0.08, 0.10); P=0.008) compared with those who undergo vaginal delivery. Therefore, strengthen a comprehensive education program aiming at scaling up communication between mothers and their partners about PPFP, and the role of PPFP on decreasing spontaneous pregnancies and bad pregnancy outcomes regardless the mode of delivery are recommended.

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1. Introduction

Unplanned pregnancies is among high risk issues encountered by most of women in postpartum period, especially in the first year after delivery (Moore et al., 2015). Selection of postpartum contraceptives leads to a decreased spontaneous pregnancies and results in the improved maternal and child well-being (Teal & Edelman, 2021). Short birth interval of less than 24 months are related with unfavorable pregnancy outcomes that include; induced abortions, miscarriage, preterm births, neonatal and child mortalities, still births and maternal depletion syndrome (Nnaji et al., 2018). Postpartum Family Planning (PPFP) refers to the prevention of unintended pregnancy and closely spaced pregnancies within the initial 12 months after giving birth (Jima & Garbaba, 2020). However, it can also encompass an extended postpartum period extending up to two years after childbirth. Despites the invaluable good PPFP outcomes, WHO recommends that inter-pregnancy intervals should be at least 2 years (Hussen et al., 2021).

Enhancing accessibility to modern contraceptive methods and reducing the unmet demand for contraception are crucial steps in efforts to reduce rates of unintended pregnancy (Bongaarts, 2014; Enden et al., 2021). The primary goal of Family Planning (FP) is to empower individuals and couples to achieve their desired number of children, as well as the desired spacing and timing between births, by utilizing modern or natural/traditional contraceptive methods (Prata et al., 2017). Besides pregnancies, the uptake of FP protects against sexually transmitted infections (STIs) including infection with Human Immunodeficiency Virus (HIV) and improve people's health and socioeconomic conditions(Yah et al., 2018). This can also help to significantly reduce maternal and child mortality by 30% and 10%, respectively (Adu et al., 2021).

Globally, the World Family Planning report dating on the year 2020 highlighted that among 1.9 billion of women of the reproductive health (15-49 years), 58% of them are considered to have a need for FP, meaning that they desire to limit or delay childbearing (Lartey, 2022; Suranga et al., 2020). Of these, only 45% of women are using modern contraceptive methods while around 4% and 9% are using a traditional method and have unmet need for family planning, respectively. However, this unmet need is an important health public concern because approximately 20% of obstetrical deaths are attributable to the non-use of modern contraception (Hailu et al., 2019). Evidences showed that contraceptive prevalence differ from the socioeconomic status of the countries or the continents, where, the FP coverage were estimated to 56.6% in High-Income Countries (HIC), 49.6% in Middle-Income Countries (MIC), and 28.0% in Low-Income Countries (LIC)(Bellows et al., 2016; Duminy et al., 2021). The lowest wealth correlates with the low FP uptake. For instance, statistics showed that the FP coverage was ranging between 29.4% (Africa) and 62.4% (North America) (Ivankovich, 2022; Johnson, 2019).

In Africa, evidence has shown the increase of women using contraceptive methods to avoid pregnancies from 47.7% in the year 2000 to 49% in the year 2020 (Meselu et al., 2022). Compared to the global situation, the contraception coverage is still low in Sub-Saharan Africa (SSA) where it rose from 27.8% in the year 2010 to 32.9% in the year 2020 (Mureyani, 2021). In the contrast with the Sustainable Development Goals (SDGs 2020-2030), the ambitious target of SSA countries is to increase the number of users of contraceptive methods, which could grow by 39 million or 60% of its level in 2020 (Lomborg & Debroy, 2022; Machiyama et al., 2018). Studies on factors associated with PPFP conducted in Nigeria and Kenya showed that the commonest include, spouse approval, being a single mother, knowledge of FP, age at first pregnancy, and sexual activity after child delivery (Okafor et al., 2019; Whiting-Collins, 2020).

The study conducted in Rwanda on factors influencing uptake of postpartum intrauterine contraceptive devices has shown that among the socio-demographic factors; age, education, level of income, occupation were key factors while among the socio-cultural factors; cultural values, tradition beliefs, decision making regarding planning matter, and thereafter, among the health care-related factors; availability of the preferred method, health work attitude, and distance to service are contributors of FP uptake (Kanakuze et al., 2020). In this study Postpartum Intrauterine contraceptive devices (PPIUCD) use was found to be at 28.1%. Associated factors include spontaneous vaginal delivery, PPIUCD counseling among women during the antenatal period, partner approval, possess more than one child, and birth to pregnancy interval less than two years.

The Rwanda Demographic and Health Survey (DHS) reported unmet need of the existing FP especially within 2 years of women' delivery in Rwanda. The prevalence of women using FP of all types rose from 45% in 2010 to 58% in the year 2020 (Kawuki et al., 2022). To be effective, assessing factors associated with the use of family planning methods among postpartum mothers at health center level need to be known for improving the uptake of Postpartum Family Planning methods. The report on FP among women delivering in Kibogora hospital shows a decrease in the use of FP modern method from 57.6% in 2020 to 56.4% in 2021, and the coverage of modern PPFP uptake among the delivered women discharged from Kibogora HC was at 85% (Kibogora HMIS report, April 2022).

2. Methods

The purpose of this study was to assess the factors influencing the utilization of Family Planning (FP) contraceptive methods among postpartum mothers at Kibogora Health Center level. Specific objectives of the study were: (1) To identify socio-demographic factors linked to the utilization of family planning methods postpartum among mothers attending Kibogora HC, (2) to delineate cultural factors associated with the utilization

of family planning methods postpartum among mothers attending Kibogora HC, and (3) To ascertain healthcare system-related factors associated with the utilization of Postpartum Family Planning (PPFP) methods as perceived by mothers attending Kibogora HC. The research questions were: (1) What demographic factors are associated with the utilization of family planning methods among postpartum mothers at Kibogora HC? (2) What cultural factors influence the utilization of family planning methods among postpartum mothers at Kibogora HC? and (3) What healthcare system-related factors that impact the utilization of family planning methods among postpartum mothers at Kibogora HC?

The study focused on women who sought consultation between April and June 2022. The study used a cross-sectional design and quantitative approach for measurements and the statistical, mathematical, or numerical analysis of data collected through questionnaires, and surveys. The calculated sample size of the study was 196 delivered women in postpartum. The study utilized a non-probability convenience sampling technique to ensure equitable participation among postpartum women at Kibogora HC who met attend the health center. Inclusion criteria were: any postnatal mother who was still present in the postnatal ward and any puerperal mother bringing their babies for young child consultation or vaccination, who were available, were invited to take part in the study, however those mothers who did not consent and not clinically stable were excluded in the study. Those who consented were recruited consecutively until the desired sample size was reached. Data collection was facilitated through a questionnaire.

Ethical considerations included obtaining clearance from Kibogora Polytechnic and approval from the authority of Kibogora HC. The nature of the study as well as other necessary information were clarified to the participants. Data analysis was performed using Statistical Package for Social Sciences (SPSS) version 21. In descriptive statistics, results were displayed in frequency distribution tables and percentages, while in logistic regression analysis, the odds ratio, and the level of statistical significance was considered at the p-value of less than 0.05 at 95% CI. Our study borrowed the questionnaire from a previously study conducted in Rwanda called "Factors associated with the uptake of immediate postpartum Intrauterine Contraceptive Devices (PPIUCD) in Rwanda: a mixed methods study" (Kanakuze *et al.*, 2020). The questionnaire was subjected to the reliability and validity tests which showed the content validity index over than 0.75, our questionnaire has not been retested. The following is the interpretation for the reliability test (Table 1).

Table 1: Legend Cronbach's Test of Reliability

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable (Surveys)
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Source: ***Legend Cronbach's Test of Reliability***

Ethical considerations included obtaining clearance from Kibogora Polytechnic and approval from the authority of Kibogora HC. The nature of the study as well as other necessary information were clarified to the participants. Only those who voluntarily consented to participate in the study did so. Data analysis was performed using Statistical Package for Social Sciences (SPSS) version 21. In descriptive statistics, results were displayed in frequency tables and percentages, while descriptive statistics were performed in logistic regression analysis, the odds ratio, and the level of statistical significance was considered at the p-value of less than 0.05 at 95% CI.

3. Results

3.1 Socio-demographic characteristics of the respondents

All 196 (100%) selected participants took part in the study, with the response rate of 100%. The results show that the majority of the participants (58.20%) was aged between 20- and 30-years category, followed by those aged between 30 and 40 years old (31.10%) (Table 2). Majority of the participants (96.90%) lived in rural area, and only 3.10% lived in urban area. Majority of them (73%) were married, and 88.20% have at least completed the primary level of education while 12.80% of them did not have any formal level of education. Traditional agriculture was the predominant occupation of mothers as it was estimated to 69.40% which may be exposing the majority of them (73.40%) to be in the socio-economic category 1 and 2 which correspond to the lowest wealth category. Looking at the pregnancy and childbearing, 66.90% of the mothers were multi-gravid with predominance of gravid 2 (57.70%). The predominant average number of alive children by mother (1-3 children) was 78.60%, and 47.40% gave birth to the both sex (Male/Female). The percentage of the last delivery sex was predominantly high to the female (60.20%), and 65.30% of mothers like to get more children in the future, whereas 34.70% do not wish to have more children. The majority of mothers were willing to space births from one year and above (87.70%), while 22.30% were not.

Table 2: Socio-demographic characteristics of respondents related to the pregnancy and childbearing history.

Characteristics	Answer	Frequency	Percentage
Age	15-20yr	17	8.70%
	>20-30yr	114	58.20%
	>30-40yr	61	31.10%
	41-49yr	4	2.00%
Place of residence	Rural	190	96.90%
	Urban	6	3.10%
Marital status	Single	37	18.90%
	Married	144	73.50%
	Separated	15	7.70%
Level of education	None	25	12.80%
	Primary	101	51.50%
	Secondary	67	34.20%
	Tertiary	3	1.50%
Occupation	Agriculture	136	69.40%
	Employed	22	11.20%
	Student	11	5.60%
	Unemployed	27	13.80%
Economic Status	Cat 1	33	16.80%
	Cat 2	111	56.60%
	Cat 3	52	26.60%
Gravidity	Gravid 1	65	33.20%
	Gravid 2	113	57.70%
	Gravid3 and above	18	9.20%
Numbers of children alive	None	20	10.20%
	1-3children	154	78.60%
	4 and above	22	11.20%
Given birth to both sex (female and male)	No	103	52.60%
	Yes	93	47.40%
Last delivery sex	Female	118	60.20%
	Male	78	39.80%
More children in future	No	68	34.70%
	Yes	128	65.30%
Time get pregnant again	Never	15	7.70%
	<1yr	11	5.60%
	1-3yrs	72	36.70%
	4 -5yrs	97	49.50%
	5 years and above	1	0.50%

3.2 Factors associated with the use of FP methods in postpartum

In order to sort out the statistically significant factors associated with the use of the family planning methods in post-partum among mothers attending Kibogora HC, the cross-tabulation and logistic regression models were computed using SPSS software version 21. The level of significance was set at P-value ≤ 0.05 with 95% confidence interval [CI]. Therefore, variables that met the significance level were retained as factors associated with the use of the family planning methods in post-partum among mothers attending Kibogora HC. Those factors were assessed through the socio-demography, culture of mothers in postpartum, and the healthcare system.

3.1.1 Association between the socio-demographic factors and the use of FP methods in postpartum

The socio-demographic factors were assessed by firstly cross-tabulating the socio -demographic independent variables to the dependent (use of PPFP contraceptives methods), and then, we used a logistic regression model in order to retain the statistically significant variables. Table 3 shows that there is no any statistically significant association between the assumed socio-demographic factors and the use of FP among postpartum mothers at Kibogora HC.

Table 3: Socio-demographic and obstetrics factors associated with the use of FP among postpartum mothers

Characteristic	Answer	Utilization of PPFP methods		Logistic regression			
		No	Yes	Ref	cOR	P-value	[95% C.I]
Age	15-20yr	1 (0.50%)	16 (8.20%)	1			
	>20-30yr	9 (4.60%)	105 (53.60%)			0.905	
	>30-40yr	6 (3.10%)	55 (28.10%)				[0.31,
	41-49yr	0 (0.00%)	4 (2.00%)				0.47]
Place of residence	Rural	16 (8.20%)	174 (88.80%)	1		0.308	
	Urban	0 (0.00%)	6 (3.10%)				
Marital status	Single	5 (2.60%)	32 (16.30%)	1		0.174	
	Married	11 (5.60%)	133 (67.90%)				
	Separated	0 (0.00%)	15 (7.70%)				
Level of education	None	3 (1.50%)	22 (11.20%)	1		0.389	
	Primary	10 (5.10%)	91 (46.40%)				
	Secondary	3 (1.50%)	64 (32.70%)				
	Tertiary	0 (0.00%)	3 (1.50%)				
Occupation	Agriculture	10 (5.10%)	126 (64.30%)	1		0.21	
	Employed	1 (0.50%)	21 (10.70%)				
	Unemployed	5 (2.60%)	22 (11.20%)				
	Student	0 (0.00%)	11 (5.60%)				
Economic Status	Cat 1	3 (1.50%)	30 (14.30%)	1		0.123	
	Cat 2	12 (6.10%)	99 (50.50%)				
	Cat 3	1 (0.50%)	51 (26.00%)				
Gravidity	Gravida 1	9 (4.60%)	56 (28.60%)	1		0.051	
	Gravida 2	7 (3.60%)	106 (54.10%)				
	Gravida 6	0 (0.00%)	18 (9.20%)				
Numbers of children alive	1-3chldn	12 (6.10%)	142 (72.40%)	1		0.468	
	4 and above	1 (0.50%)	21 (10.70%)				
	None	3 (1.50%)	17 (8.70%)				
Given birth to both sex	No	12 (6.10%)	91 (46.40%)	1		0.106	
	Yes	4 (2.00%)	89 (45.40%)				
Last delivery sex	Female	12 (6.10%)	106 (54.10%)	1		0.194	
	Male	4 (2.00%)	74 (37.80%)				
Desire more children	No	3 (1.50%)	65 (33.20%)	1		0.143	
	Yes	13 (6.66%)	115 (58.70%)				
Time get pregnant again	Never	0 (0.00%)	15 (7.70%)	1		0.147	
	<1yr	0 (0.00%)	11 (5.60%)				
	1-3yrs	10 (5.10%)	62 (31.60%)				
	4 -5yrs	6 (3.10%)	91 (46.40%)				
	5 yrs & above	0 (0.00%)	1 (0.50%)				

3.1.2 Association between cultural factors and the use of FP methods in postpartum

The cultural factors associated with the use of family planning methods in postpartum among mothers attending Kibogora HC were assessed. As it is shown in Table 4, communicating with partner on the use of PPFP contraceptives methods increases by 2.7 times the chance of using FP during the postpartum period (cOR 2.7, 95% CI, 0.26, 0.33; p=0.03) compared with mothers who never communicate with their partners about the use of PPFP contraceptives methods.

3.1.3 Association between healthcare system-related factors and the use of FP methods in postpartum

The healthcare system related factors associated with the use of family planning methods in postpartum among mothers attending Kibogora HC were assessed. Results of analysis contained in Table 5 show that delivering by caesarean section at the last time is likely to increase by 7 times the chance of using FP during the postpartum period (cOR 7.04, 95% CI, 0.008, 0.010; p=0.008) compared with mothers who deliver by spontaneous vaginal delivery.

Table 4: Cultural factors associated with the use of FP among postpartum mothers at Kibogora HC.

Characteristic	Answer	Utilization of PPFP methods		Logistic regression			
		No	Yes	Ref	cOR	P-value	[95% C.I]
Communicate with your partner about PPFP	Never	0 (0.00%)	11 (5.60%)	1			
	No	9 (4.60%)	46 (23.40%)		2.7	**0.03****	[0.26, 0.33]
	Yes	7 (3.60%)	123 (62.80%)				
The partner approved the PPFP uptake	Both agreement	6 (3.10%)	79 (40.30%)	1			
	Husband alone	1 (0.50%)	27 (13.80%)			0.377	
	woman alone	9 (4.60%)	74 (37.80%)				
PPFP uptake depend on pregnancies history	No	16 (8.20%)	169 (86.20%)	1		0.476	
	Yes	0 (0.00%)	11 (5.60%)				
Religion or family beliefs for PPFP uptake	No	16 (8.20%)	169 (86.20%)	1		0.165	
	Yes	0 (0.00%)	11 (5.60%)				
Person responsible for deciding whether to get pregnant	Both	16 (8.20%)	169 (86.20%)	1			
	Man alone	0 (0.00%)	3 (1.50%)			0.637	
	Woman alone	0 (0.00%)	8 (4.10%)				

**** indicates the statistically significant values. We kept only the odds and C.I with the statistically significant values at 95% CI.**

Table 5: Factors related to healthcare system associated with the use of family planning methods in postpartum among mothers attending Kibogora HC

Characteristic	Answer	Utilization of PPFP methods		Logistic regression			
		No	Yes	Ref	cOR	P-value	[95% C.I]
PPFP methods following known	IUD	2 (1.00%)	10 (5.10%)	1			
	IUD; Implant	1 (0.50%)	16 (8.20%)				
	Implant	2 (1.00%)	24 (12.20%)				
	Pills	5 (2.60%)	37 (18.90%)			0.81	
	Pills; IUD	0 (0.00%)	10 (5.10%)				
	Pills; IUD; Implant	4 (2.00%)	59 (30.10%)				
	Pills; Implant	2 (1.00%)	24 (12.20%)				
Duration for PPFP methods last	Both	6 (3.10%)	77 (39.30%)	1			
	Long acting	6 (3.10%)	68 (34.70%)			0.908	
	Short acting	4 (2.00%)	35 (17.90%)				
Stock out of PPFP contraceptives at visit	No	15 (7.70%)	178 (90.80%)	1		0.347	
	Yes	1 (0.50%)	2 (1.00%)				
Adherence to the PPFP program previosly	No	8 (4.10%)	72 (36.70%)	1		0.439	
	Yes	8 (4.10%)	108 (55.10%)				
Attendance to four standardized ANC visits	No	1 (0.50%)	14 (7.10%)	1		0.821	
	Yes	15 (7.70%)	166 (84.70%)				
Partner accompany during ANC visits	No	9 (4.60%)	95 (48.50%)	1		0.789	
	Yes	7 (3.60%)	85 (43.40%)				
Attend the four required postnatal care visits	No	11 (5.60%)	122 (62.20%)	1			
	Partially	3 (1.50%)	28 (14.30%)			0.87	
	Yes	2 (1.00%)	30 (15.30%)				
The mode of delivery for the last time	Vaginal birth	6 (3.10%)	128 (65.30%)	1	**7.05**	**0.008****	**[0.008, 0.010]**
	Caes. section	10 (5.10%)	52 (26.50%)				
Any complications in child birth	No	16 (8.20%)	175 (89.30%)	1		0.353	
	Yes	0 (0.00%)	5 (2.60%)				
Birth to birth interval	None	0 (0.00%)	9 (4.60%)	1			
	2yrs & above	14 (7.10%)	154 (78.60%)			0.713	
	Less than 2yrs	2 (1.00%)	17 (8.70%)				
Distance between your household and HC	Far from the HF	8 (4.10%)	61 (31.10%)	1		0.396	
	Near by the HF	8 (4.10%)	119 (60.70%)				
The source of information on PPFP	CHWs	7 (3.60%)	48 (24.50%)	1			
	HCWs	6 (3.10%)	110 (56.10%)			0.081	
	Media	0 (0.00%)	10 (5.10%)				
	Peer	3 (1.50%)	12 (6.10%)				

**** indicates the statistically significant values. We kept only the odds and C.I with the statistically significant values at 95% CI.**

4. Discussions of findings

The present study sought to assess factors associated with the use of FP methods among postpartum mothers at Kibogora HC through its three specific objectives that include identifying socio-demographic factors, describing cultural factors, and determining health care system related factors associated with the use of PPFP methods as perceived by mothers attending Kibogora HC.

The description of the socio-demographic characteristics of 196 respondent mothers in postpartum at Kibogora showing that the majority (58.20%) was aged between 20- and 30-years category. Ninety-six percent of mothers live in the rural area, 73% of them were married, and 88.20% have at least completed the primary level of education while about 12.80% of them did not have any formal education. Agriculture was the predominant occupation of mothers as it was estimated to 69.40% and the majority of them (73.40%) were in the socio-economic category 1 and 2 which correspond to the lowest wealth level.

For the pregnancy and childbearing variables, 66.90% of the mothers were multi-gravid with predominance of gravid 2 (57.70%). The predominant average number of alive children by mother (1-3 children) was 78.60%, and 47.40% gave birth to the both sex (Male/Female). The last delivery sex was predominantly the females (60.20%). Majority (65.30%) of mothers like to get more children in the future while those willing to space from one year and above accounted for 87.70%. Concerning the factors associated with the use of FP methods among postpartum mothers, the study findings demonstrated that spouse communication and the mode of delivery at last pregnancy (caesarean section) were associated with the use of FP among postpartum mothers at Kibogora HC.

These findings differ from the results of research studies conducted previously. A study that assessed the factors affecting the attitudes of women towards family planning showed association between the FP utilization and the socio-demographic characteristics, namely the age, education, and wealth category (Sensoy et al., 2018). Findings from the study are also contrary with those found in the study that assessed the factors influencing uptake of postpartum intrauterine contraceptive devices among puerperal mothers attending Muhima hospital in Rwanda which showed that the postpartum intrauterine contraceptive devices uptake was associated with education (P-value = 0.039), religion (P-value = 0.041), desired family size (P-value = 0.019), and income (P-value = 0.03) (Amiri. et al. 2020).

On the cultural factors associated with the use of family planning methods in postpartum among mothers, the study findings revealed that communicating with the partner on the use of PPFP contraceptives methods increases by 2.7 times the chance of using FP during the postpartum period (cOR 2.7, 95% CI, 0.26, 0.33; p=0.03) compared with mothers who never communicate with their partners about the use of PPFP contraceptives methods. This finding correlates with the evidenced from Tanzania and Malawi on the role of men in the use of family planning contraceptive methods as the head of family that consist to make all sound decisions especially those involving the reproductive health (Osuafor et al., 2023). The same findings were found by Helen Baker et al. (2022) in the study on factors associated with postpartum contraception in Togo which showed that the agreement between husband and wife in the desired number of children is associated with increased use of PPFP.

Research studies conducted in Ghana and Uganda found that the approval or discussion with a male partner related to family planning was significantly associated with use of PPFP which felt under the statistical significance values equal to (O.R. = 3.20, 1.94-5.48) in Ghana (Eliason et al., 2013) and (AOR = 1.81, 95 % CI 1.34–2.44) in Uganda (Sileo et al., 2015). The study conducted in Rwanda showed also that joint healthcare decision-making between the woman and her partner (male) (p=0.04; AOR=0.59, 95% CI0.35, 0.97); mother and partner jointly: 1.06 (0.66, 1.72) were associated with PPFP uptake (Williams et al., 2021). Other study conducted in Rwanda reported the role of communication between women and her partner because PPFP uptake is more prevalent to women who received spouse approval (AOR 2.591,95% CI = 1.485–4.492), compared to those who didn't receive any spousal approval (Kanakuze et al., 2020).

For healthcare system-related factors associated with the use of family planning methods in postpartum among mothers, the study findings showed that delivering by caesarean section at the last time is likely to increase by 7 times the chance of using FP during the postpartum period (cOR 7.04, 95% CI, 0.008, 0.010; p=0.008) compared with mothers who deliver by spontaneous vaginal delivery. Our study's finding is contradiction with those revealed in the study that assessed the factors associated with the uptake of immediate postpartum intrauterine contraceptive devices (PPIUCD) in Rwanda, which reported that women who had spontaneous vaginal delivery were more likely to take up PPIUCD (Adjusted Odds Ratio (AOR) 2.623, 95% CI = 2.017–6.507, compared to those who had caesarean section (Kanakuze et al., 2020). The study conducted in Malaysia showed that, at one year, the great proportion (65%) of women with recent caesarean delivery had commenced postpartum family planning use (Hafizah et al., 2020). The study conducted in Burkina Faso and Democratic Republic of Congo reported that in the normal way, in Burkina Faso a woman should have five or six children but she can only have two or three children if these are born by caesarean section. In DRC the report argued that if a woman gives birth normally, she can go to seven children. This childbearing limitation will only

be conditioned by the use of PPFP (Tran et al., 2018).

5. Conclusion

In conclusion of this study, factors associated with PPFP uptake include the communication between mothers and their partners about PPFP service while the decision- making role of the husband on the reproductive health is of the paramount importance. On the other hand, caesarean section was evidenced to be a motivator to the delivered mothers to adhere the FP contraceptives methods. However, in the rural areas, there is a community misconception on caesarean section that it is associated with the physical impairment for the delivered women. Therefore, initiatives aiming at increasing PPFP should strengthen a comprehensive education program targeting mothers' partners along the maternal child health course especially antenatal care visits, delivery period and during the postpartum period and other opportunities for Behavior Change and Communication (BCC).

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