

Prevalence and Associated Factors of Immediate Postpartum Family Planning Utilization in Nyabihu District, Rwanda, 2021

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ABSTRACT

Introduction: Immediate Postpartum Family Planning (PPFP) is the initiation of Family Planning (FP) methods within 48 hours after delivery; It focuses on preventing unintended births and short inter-birth intervals. This is a main public health concern, as 20 % of obstetrical deaths are related to short inter-birth intervals. Therefore, this study aimed to assess the prevalence of immediate postpartum family planning use and associated factors among postpartum women in Nyabihu district. Methods: A health facility-based cross-sectional study design was used to identify the factors associated with immediate post-partum family Planning utilization by women in Nyabihu District from January to June 2021. Secondary data on social demographic and obstetric characteristics were extracted from health facility medical records. The data were entered in Excel and exported in STATA for analysis. Both bivariate and multivariate logistic regression analyses were performed to identify associated factors. P values < 0.05 with a 95% confidence level were used to declare statistical significance. Results: Of the 1682 of postpartum women, 38.05% accept immediate postpartum family planning. Having an antenatal care visit (adjusted odds ratio (AOR) =7.7 (95%CI, 4.3-13.5), previous use of family planning (adjusted odds ratio (AOR) = 3.4(95%CI, 2.3-5.03)), being married (adjusted odds ratio (AOR) = 1.9 (1.07 - 3.5) ,having a university level of education (AOR) = 13(2.1-81), having 30-39 years AOR = 0.4 (0.2 - 0.7), being in Ubudehe cat 3 AOR = 5.4 (2.1 - 12.2) and having more than 5 children AOR = 9.2 (5.1-16) were significantly associated with utilization of Immediate postpartum family planning. Conclusion: This study showed the low prevalence of immediate postpartum family in Nyabihu district. Therefore, strengthening family planning counseling during antenatal and postnatal care visits, improving utilization of postnatal care services, and improving women's educational status are crucial steps to enhance contraceptive use among postpartum women.

KEYWORDS: Prevalence, Postpartum, immediate Family planning, Utilization

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Immediate Postpartum Family Planning (PPFP) is the initiation of Family Planning (FP) methods within 48 hours after delivery; and is the ideal time for FP given that women are still under hospital observation; It focuses on preventing unintended births and short inter-birth intervals. FP is considered as a lifesaving intervention for mothers and their children because when birth intervals are too short, there might be risks of prematurity, low birth weight, stillbirth, and probable newborn death; and for mothers, they are exposed to anemia, risks of miscarriage, abortion, puerperal endometritis, premature rupture of membranes, and possible maternal death; This is a main public health concern, as 20% of obstetrical deaths are related to short interbirth intervals [1-2].

Worldwide, 222 million women didn't have access to modern contraception in the first year postdelivery in 2012 and there is a significant unmet need for family planning in the postpartum period. More than 90% of women globally report a desire to space limit additional pregnancies postpartum, or however, 61% do not use contraception [2]. The World Health Organization (WHO) distinguishes the postpartum period as the most imperative, yet overlooked stage in the lives of mothers and babies and advises at least 24 months between a birth and the subsequent pregnancy [2]. In a study conducted in India, they found that the commonest factors contributing to the acceptance of immediate PPFP were: literacy, number of living children, length of time it took to conceive after marriage, antenatal visits, and use of contraceptives especially Intra-Uterine devices (IUD) [3]. However, SDGs goals have to ensure universal access to sexual and reproductive healthcare services, including family planning, information and education, and the integration of reproductive health into national strategies and programs by 2030 [4].

In low- and middle-income countries, about onequarter of inter-birth intervals are less than 24 months; and more studies indicated that availing women with immediate PPFP prevented an additional 54 million unintended pregnancies[1]. The spouse approval, being a single mother, knowledge of FP, age at first pregnancy, and sexual activity after child delivery was found to influence the use of immediate PPFP as was revealed in a study conducted in Nigeria and Kenya [1]. PPFP

rate are 44.4 % ,15 % , 20 % in Ethiopia , Nigeria , and Burundi respectively [5]. In Rwanda, the implementation of PPFP began in January 2016, there has been a marked increase in PPFP uptake before discharge, from less than 1% at the start of the implementation period to 45% by 2017 [6]. Studies have shown that socio economic status, extended family side effects parents education, religion and place of residence were associated with family planning in the post-partum period. As by Different literature, the need for contraceptives varies during a woman's reproductive years, but demand is highest during the postpartum period. According to Rwandan DHS 2019-2020, the contraceptive prevalence rate for any method is 64%, unmet need for family planning in Rwanda was 14% and The western province presents high fertility and unmet need rate with 4.5 and 16.4 % respectively [7]. Among all women in the postpartum period, Contraception uptake postpartum in Rwanda has the potential to prevent one in three maternal deaths [8]. However scarce information exists for Nyabihu district about PPFP uptake and its associated factors. This study aims at investigating the use of immediate PPFP, and factors including sociodemographic and clinical characteristics influencing the use of immediate PPFP in Nyabihu district. Such information would be necessary to establish postpartum family planning services and can help health planners and policy makers to develop effective strategies for the prevention of closely spaced and unintended pregnancies.

Methods

Study settings and design

A health facility-based cross-sectional study to all women who gave birth between January and June 2021 in Shyira District Hospital and fifteen public health centers including three faith-based of its catchment area was designed to identify the factors associated with immediate post-partum family Planning utilization by women in Nyabihu District. Shyira hospital is located in Nyabihu District, which is approximately 123 km from Kigali Capital City. It serves a population of 294,740 all living rural area [9]. According to HMIS (Health management information system) in Nyabihu district 8107 women have delivered in 2020 and 3412 women during study period.

Participants

We collected data from 16 maternity registers and 1682 patients' files for 1682(49%) women who had their childbirth and spent post-partum period in Shyira district hospital and health centers of its catchment area from January to June 2021; High number of participants was recorded in March 2021 with 290(17%) women and the lowest number in April with 271(16%) women.

Inclusion criteria

All women who gave birth in the health facilities of Nyabihu district during the Study Period were included in the study.

Exclusion criteria

Women who gave birth in other health facilities or at home who were admitted at Shyira district hospital and health center of its catchment area for postpartum follow-up and post-abortion women who were admitted in postnatal ward. Mothers who are not residing in Nyabihu district were excluded also in this study.

Dependent variable

Post-Partum Family Planning (PPFP) use, a dichotomous outcome variable was defined as having utilized modern family planning or otherwise within 48 hours after delivery.

Independent variables

We considered as potential covariates the following variables found to be related to Post-Partum Family Planning in previous studies or otherwise biologically plausible; age, residential area, education level, marital status, occupation, religion, Ubudehe category, ANC visits, number of living children, number of desired children, reported children mortality, health insurance and HIV infection.

Data collection and management

Data was collected from maternity registers using a predesigned questionnaire, entered in Excel by a trained enumerator and checked for completeness Data was exported into STATA for analysis and stored in a computer with restricted access.

Data Analysis

Data were analyzed using STATA version 16. Descriptive analysis including proportions, means, standard deviations on socio-demographic, and other health characteristics variables were performed for continuous variables, and percentages for categorical variables. Binary logistic regression and Pearson's chi-square test assessed the association of socio-demographic and health characteristics with Post-Partum Family Planning. P Values less than 0.05 were considered statistically significant for all analysis. In multivariate analysis, to determine the factors independently associated with Post-Partum Family Planning, we fitted a multiple logistic regression model, with all variables included in the model. Odds Ratios (OR) and 95% confidence intervals were calculated as indicators of the magnitude of association and statistical significance of Post-Partum Family Planning.

Ethical consideration

The study was approved by the Institutional Review Board from college of Medicine and health sciences for ethical clearance (Ref No:282/CMHS IRB/2022) and authorized by Shyira district hospital through its ethical committee. No informed consent was used as it is secondary data collection but a confidential agreement was signed between researcher and the hospital management. To ensure the confidentiality of the research data, no patient identification was collected. Codes replaced patients' identification. Results from the study will be submitted to Shyira district hospital, the school of public health or be submitted for publication.

Results

From a total of a total of 1682 post-partum women who give birth in period of January -June 2021 in 16 health facilities of Nyabihu district, 1042 (61.95%) didn't accepted PF after delivery where as 38.05 % accepted immediate post-partum family planning (**Figure 1**).

Social demographic and clinical characteristics of participants

A total of 1682 mothers from January to June 2021 were involved. In this study most of women were (42.7 %) 20-29 years with 28 years (SD \pm 6.8) as mean age ,17 and 47 years as minimum and maximum age respectively. The more participants have primary education level 1,228 (73.01%), 742 (44.11%) were catholic, 1564(93.15%) were married and 1604 (95.36%) were farmers. Out of 1682 participants ,1489 (88.5%) attended ANC (anti natal care visits); and 1454 (86.44%) haven't history related to child mortality. Of those participants their serology results indicated that 1672 (99.41%) had HIV Negative status (Table 1). The big number of participants are in March 2021 with 290 women and lowest number in April with 271 women.

Looking at prevalence of immediate postpartum family planning, high proportion of acceptance is presented among those with 30-39 years (43,13%), (74.53 %) primary educational level, (96.39%) married women, (99.53%) with health insurance, (96.88%) attended ANC visits, 69.06% previously used family planning (Table 1).

Relationship between Immediate Post-Partum Family Planning and Socio-Demographic and Clinical characteristics

In bivariate analysis by using binary logistic regression, for social demographic characteristics there were 6 variables which were statistically significant with p value < 0.05 and immediately transferred to multiple logistic regression those are: age, education level, religion, marital status, occupation and Ubudehe categories (Table 2).

For obstetric and clinical factors, bivariate analysis revealed that attending ANC, experiencing child mortality, having an history of using FP previously, and number of living and desired children were statistically significant with p value < 0.05; after controlling some confounders (Table 3).

Factors Associated with immediate Post-Partum family planning utilization

In multiple logistic regression, there were 9 variables which statistically significant with p<0.05, as follow : age with 30-39 years, AOR (0.4); CI (0.2 - 0.7), P

value (0.001), university educational level, AOR(13),CI2.1-81), P value(0.006), Ubudehe categories, cat 3, AOR (5.4),CI(2.1 - 12.2), P value(0.001), and being protestant AOR (0.3); CI (0.2 - 0.5), P value (0.001); Similarly, respondents having the marital status of married were 1.9 times more likely to utilize postpartum family planning than respondents who had single adjusted odds ratio (AOR) = 1.9 (95% CI (1.07 - 3.5) (Table 4).

Results also revealed that those who attended ANC are 6 times more likely to accept use of post-partum family planning than those who are not; The chance of accepting Post-partum family planning among mothers who previously use family planning was 68% AOR=3.2; 95%Cl (2.2.-4.6) more likely to happen compared with those who are not. Those with 5 children and above has 9.2 times more likely to accept postpartum family planning than those who has below AOR (9.2) 95 % CI (5.1-16). History of experiencing child mortality was also statistically significant with AOR (0.1) 95 % CI (0.11-0.31) (Table 3).

Discussion

The findings of this study revealed that the prevalence of immediate post-partum family planning utilization was 38.05 % in Nyabihu district; This finding is lower than a study conducted in Kacyiru hospital with 67%, and might be due to they used qualitative study with purposive and convenience sampling, and small sample size [1]. Having university educational level, being married, attending ANC visits, experiencing of child mortality, Age, were some of factors associated with post -partum family planning utilization at P - value < 0.05. In this study, married women had 1.9 times more likely to accept immediate post-partum family planning than single women, it is approximately similar to the study conducted in Ethiopia in which married women had 2.8 times odds of PPFP acceptance; this probably due to married women living with their husbands, they are exposed to frequent sexual activities than non-married couples that may require the utilization of immediate PPFP to program the birth of next child [10].

Wealth status indicator depicted significant results in this study in the regression model, remarkably women in category 3 experience 5.4 times odds of immediate PPFP acceptance compared to those women in the poorest category, this results are higher to those found in study previously conducted in Both Burundi and Rwanda with 1.4 times odds for women in higher wealth quintile; This difference might be it was population based cross-sectional study and was done in the whole countries whereas this dataset analysis was done in small district [11]. Attending ANC visits was very associated to utilization of immediate post-partum family planning, as those who visited ANC were 7.7 times more likely to accept immediate PPFP than those who are not; it is about to be similar to the study conducted in Gondar town, Northwest Ethiopia shows that ANC attendance had odds of 5.3 of PPFP utilization ; here the possible explanation of this is that women who attend ANC visits are more likely to get more information about family planning [12]. Religion affiliation was significantly associated with odds of PPFP acceptance, the results of this study indicated that protestant women had 0.3 times the odds of accepting immediate PPFP Than others, it is contrary to the DHS comparative study conducted in Rwanda and Burundi which shows that protestant women experienced reduced odds (0.8 times, 95% CI=06-0.9) of PPFP utilization compared to Catholics [11].

The findings of this study also revealed that the acceptance of immediate PPFP was higher among with high education level, where those with university educational level were 13 times more likely to utilize immediate PPFP than others, this is consistent with other study conducted in Kenya, with explanation of those with high level of education are more knowledgeable on Family planning [13]. Women who had history of using family planning are 3.4 times more likely to use immediate PPFP than those who are not, and this very similar to the findings from a study done in Addis Ababa which revealed that women who had no history of contraceptive use before their last pregnant were 88% less likely to accept family planning during post-partum period [14]. Increase in number of living children (5 children and above) has been found to be positively associated with use of immediate PPFP with 9.2 odds, this is contrary to the study conducted in Kenya which demonstrated that parity was not a predictor of PPFP Uptake [13].

Limitations of the study

The present study focused on mothers only but better to include institutions delivering service, health care providers, and male partners to identify factors influencing utilization of immediate postpartum contraception.

Lack of qualitative study to dig out psychosocial factors that hindering the utilization of immediate post-partum family planning.

Conclusion

The finding of this study showed that the prevalence of immediate post-partum family planning utilization was low as compared to others' study and some of the identified factors associated with postpartum family planning utilization were being married, higher education level, having antenatal visits, and having history of previous us of family planning services. Providing health education is an important step to improve immediate post-partum family planning utilization in collaboration with various family planning stakeholders; interventions should target women with low education, low wealth status and that attending ANC Visits has an important role to play in this transformation. Incorporation of family planning services with maternal and child health (MCH) should continue highly strengthened to increase contraceptive use in the post-partum period.

Recommendations

- ANC Visits for pregnant women should be highly strengthened.
- Mothers should be approached not only during antenatal care visits but also in other health services like immunization, and nutrition services.
- Health education on family planning through mass media, and public meetings should be strengthened targeted young, and single women.
- Interventions to reduce maternal & infant mortality should be strengthened at Health facilities and community as well.

• Further studies using primary data should, focusing health system and the service providers should be conducted to capture more factors related to immediate family planning utilization.

What is known about this topic

- It is known that Immediate postpartum family planning refers to the use of contraceptive methods within the first few hours or days after childbirth
- Various Studies have shown that the prevalence of immediate postpartum family planning varies across different countries and settings
- It also knows that immediate postpartum family planning is influenced by different factors such as cultural norms, healthcare infrastructure, availability of services, and individual preferences
- Immediate postpartum family planning has several benefits for women and families. It allows women to effectively space their pregnancies, promoting optimal maternal and child health outcomes. It also provides an opportunity for women to initiate contraception when they are already in contact with healthcare providers during the postpartum period
- Based on the 2019-2020 Rwandan DHS data, it was found that the overall contraceptive prevalence rate for any method in Rwanda is 64%. Additionally, the unmet need for family planning in Rwanda is reported to be 14%. Specifically, in the western province, there is a higher fertility rate of 4.5% and a higher unmet need rate of 16.4%

What this study adds

- The study provided data specific to Nyabihu District, offering insights into the prevalence of immediate postpartum family planning utilization in that particular geographic area. This localized data helped to identify specific trends and patterns unique to the district as it is a district located in the province with higher unmet need
- By focusing on the year 2021, The study provided up-to-date information on the

prevalence of immediate postpartum family planning utilization in Rwanda. This temporal context is valuable for understanding recent trends and potential changes in family planning practices

- The study explored the factors associated with immediate postpartum family planning utilization in Nyabihu District, Rwanda. This included factors from different new variables such as mother s occupation, number of desired children, history of previous family planning use, experience of child mortality
- Understanding these specific factors in the context of Nyabihu District can help inform targeted interventions and strategies to improve family planning utilization in the area
- The findings of the study had practical implications for policy development and program implementation in Nyabihu District and countrywide as well. The data helped local healthcare authorities and organizations to identify gaps, prioritize interventions, and allocate resources, and to address the factors influencing immediate postpartum family planning utilization. This lead to more effective and tailored interventions to improve family planning services in Rwandan districts

Competing interests

The authors declare no competing interests.

Authors' contributions

All authors have contributed to this study. IHE Contributed to the beginning and design of the study, protocol preparation and search articles and data collection; conducted all analysis and data interpretation; drafted the manuscripts; and represented as corresponding author. JDS and JM Contributed to the study design, reviewing and revising the paper, provide different comments, editing the article and approving the manuscript. SR contributed to in data cleaning, statistical analysis and designing the tables. JN participated in topic formulation and study design. All authors read and approved the final manuscript.

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Tables and figures

<u>**Table 1**</u>: Social demographic and clinical characteristics of women who delivered in 16 health facilities of Nyabihu district: January - June 2021

Table 2: Bivariate analysis on demographic andclinical characteristics associated with immediatepostpartumfamilyplanningutilization

Table 3Bivariate analysis on demographic andclinical characteristics associated with immediatepostpartumfamilyplanningutilization

Table 4: Multivariate analysis on demographic andclinical characteristics associated with immediatepostpartumfamilyplanningutilization

<u>Figure 1</u>: Prevalence of immediate post-partum family planning utilization in Nyabihu district from January-June 2021

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Table 1: Social demographic and	clinical characteristics of w	omen who delivered in I	16 health facilities of
Nyabihu district: January - June 2	ry - June 2021. PE Litilization		
Variables	Total (N(%))	Ves	No
	10tur (11(70))	(n(%))	(n(%))
Age Group (n=1682)		(11(70))	(II(/0))
<20 years	212(12.6)	88(13.75)	124(11.9)
20-29 years	719(42.7)	207(32.34)	512(49.14)
30-39 years	628(37.3)	276(43.13)	352(33.78)
>40 Years	123(7.3)	69(10.78)	54(5.18)
Education level (n=1682)			
None	31(1.84)	7(1.09)	24(2.3)
Primary	1228(73.01)	477(74.53)	751(72.7)
secondary	404(24.02)	140(21.88)	264(25.34)
university	19(1.13)	16(2.5)	3(0.29)
Religion (n=1682)			· · ·
Catholic	742(44.11)	332(51.88)	410(39.35)
Adventist	360(21.4)	161(25.16)	199(19.1)
Protestant	557(33.12)	141(22.03)	416(39.92)
others	23(1.37)	6(0.94)	17(1.63)
Marital status (n= 1679)			
Single	115(6.85)	23(3.61)	92(8.84)
married	1564(93.15)	615(96.39)	949(91.16)
Ubudehe cat (n=1682)			
1	43(2.56)	15(2.34)	28(2.69)
2	1308(77.76)	367(57.4)	941(90.31)
3	331(19.68)	258(40.31)	73(7.01)
Occupation (n=1682)			
Farmers	1604(95.36)	604(94.38)	1000(95.97)
Public servant	68(4.04)	34(5.31)	34(2.26)
Others	10(0.59)	2(0.31)	8(0.77)

Table 2: Bivariate analysis on demog	graphic and clini	cal characteristic	cs associated with immediate	e postpartum
Taning planning dunzation	PF Utilizati		Bivariate Ana	lysis
FACTOR	Yes(n)	No(n)	COR(95% CI)	P-Value
Age Group (n=1682)	(,			
<20 years	88	124	ref	
20-29 years	207	512	0.5 (0.4 - 0.7)	0.001
30-39 years	276	352	1.1 (0.8 - 1.5)	0.5
>40 Years	69	54	1.8 (1.1 - 2.8)	0.14
Education level(n=1682)				
None	7	24	ref	
Primary	477	751	2.1(0.9-5.09)	0.073
secondary	140	264	1.8 (0.17-0.7)	0.17
university	16	3	18.2 (4.1-81.3)	0.001
Religion (n=1682)				
Catholic	332	410	ref	
Adventist	161	199	0.9 (0.7-1.2)	0.9
Protestant	141	416	0.4 (0.3-0.5)	0.001
others	6	17	0.4 (0.1-1.11)	0.08
Marital status (n= 1679)				
Single	23	92	ref	
married	615	949	2.5(1.6-4.1)	0.001
Ubudehe cat(n=1682)				
1	15	28	ref	
2	367	941	0.7	0.3
3	258	73	6.5	0.001
Occupation (n=1682)				
Farmers	604	1000	ref	
Public servant	34	34	1.6 (1-2.6)	0.04
Others	2	8	0.4 (0.08-1.9)	0.3
Having health insurance (n=1682)				
No	3	8	ref	
Yes	637	1034	1.6(0.4-6.2)	0.46
Health facility types (n=1682)				
Faith based	241	415	ref	
Government	399	627	1.1(0.8-1.3)	0.34

postpartum family planning uti	lization			
	PF Utilization		Bivariate Analysis	
Factor	Yes(n)	No(n)	COR (95% CI)	P-Value
Attending ANC (n=1682)				
No	20	173	ref	ref
Yes	620	869	6.1 (3.8-9.9)	0.001
experience of child mortality(n=1682)				
No	610	844	ref	ref
Yes	30	198	0.2 (0.1 -0.3)	0.001
HIV status (n=1682)				
Negatif	637	1035	ref	ref
Positif	6	4	2.4 (0.6- 8.7)	0.16
Previous use of PF (n=1682)				
No	442	944	ref	ref
Yes	198	98	4.3 (3.3-5.6)	0.001
Living children (n=1682)				
0-2	239	732	ref	ref
3-4	247	239	3.1 (2.5-3.9)	0.001
+5	154	71	6.6 (4.8-9.1)	0.001
Desired children (n=1682)				
0-2	41	148	ref	ref
3-4	379	703	1.9 (1.3-2.8)	0.001
+5	220	191	4.1 (2.7-6.1)	0.001

Factor	AOR	95%	CI	P-value
		Lower	Upper	
Age Group (n=1682)				
<20 years	ref			
20-29 years	0.5	0.3	0.8	0.003
30-39 years	0.4	0.2	0.7	0.001
>40 Years	0.3	0.1	0.7	0.004
Education level(n=1682)				
None	ref			ref
Primary	2.1	0.7	6.1	0.1
secondary	2.1	0.7	6.3	0.1
university	13	2.1	81	0.006
Religion (n=1682)				
Catholic	ref			ref
Adventist	1	0.7	1.4	0.7
Protestant	0.3	0.2	0.5	0.001
others	0.2	0.06	1.09	0.066
Marital status (n= 1679)				
Single	ref			ref
married	1.9	1.07	3.5	0.02
Ubudehe cat(n=1682)				
1	ref			ref
2	0.4	0.2	1.06	0.07
3	5.4	2.1	12.2	0.001
Attending ANC (n=1682)				
No	ref			ref
Yes	7.7	4.3	13.5	0.001
experience of child mortality(n=1682)				
No	ref			ref
Yes	0.1	0.11	0.31	0.001
Previous use of PF (n=1682)				
No	ref			ref
Yes	3.4	2.3	5.03	0.001
Living children (n=1682)				
0-2	ref			ref
3-4	3.2	2.3	4.5	0.001
+5	9.2	5.1	16	0.001



Figure 1: Prevalence of immediate post-partum family planning utilization in Nyabihu district from January-June 2021