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# Family Planning Uptake and Associated Factors Among Women of Reproductive Age (15-49 Years) in Rubavu District, Rwanda

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## Abstract

Despite global progress, 164 million women worldwide still want to limit childbearing but lack access to contraception. In Sub-Saharan Africa, 21 million women experience pregnancies annually, with half being unintended. While Rwanda has achieved a 58% family planning prevalence rate nationally, regional disparities persist. This study examined family planning uptake and associated factors among women aged 15-49 years in Rubavu District, Rwanda, to inform health policies and reduce access barriers. This cross-sectional study surveyed 382 women of reproductive age attending postnatal care services at selected health centers. Data was collected using a validated questionnaire and analysed with SPSS version 25.0, with statistical significance set at $p<0.05$. Among participants, 85% were currently using family planning methods. Key factors associated with increased uptake included secondary or higher education (COR=2.59), having 1-2 children versus 4-5 children (COR=2.66), husband approval (COR=3.27), and shorter travel times to health centers (COR=4.42). Multivariate analysis confirmed that women in Ubudehe category 2 (AOR=3.97), those with husband approval (AOR=2.68), previous family planning users (AOR=8.37), and women living within one hour of health centers (AOR=4.88) had significantly higher odds of family planning use. Effective interventions should focus on expanding women's education, engaging male partners in family planning decisions, and improving geographic access to health centers. Addressing these factors could substantially increase family planning uptake and improve reproductive health outcomes in Rubavu District.

**Keywords:** *Family Planning, Uptake, Associated Factors, Among Women, Reproductive Age (15-49 Years), Rubavu District, Rwanda*

## 1.0 Background

Family planning (FP) is a vital public health intervention that contributes significantly to reducing both child and maternal mortality. Globally, the use of family planning services has been associated with a 10% reduction in child mortality and up to 30% reduction in maternal deaths (Douglas, 2023). Beyond its health benefits, increasing FP uptake is crucial for achieving several Sustainable Development Goals (SDGs), particularly those related to maternal health, gender equality, and poverty reduction. According to the United Nations Population Fund (UNFPA), in 2022 alone, family planning services helped prevent approximately 141 million unintended pregnancies, 29 million unsafe abortions, and nearly 150,000 maternal deaths worldwide (UNFPA, 2022). An estimated 1.9 billion women of reproductive age are potential users of family planning methods, with many already utilizing diverse forms of contraception based on what is available and accessible in their countries (UNFPA, 2022). However, the burden of unintended pregnancies and unsafe abortions remains high in low-income countries, especially among adolescents. Approximately 21 million adolescent girls become pregnant annually in these countries, and nearly half of these pregnancies are unplanned. Of these unintended pregnancies, around 55% result in unsafe abortions (Wado et al., 2019), reflecting the consequences of low FP uptake among vulnerable populations.

In West African countries such as Benin, Mali, Mauritania, Senegal, Burkina Faso, Guinea, Côte d'Ivoire, and Gambia, contraceptive prevalence remains low. Barriers such as limited accessibility, high cost of FP methods, and sociocultural beliefs negatively influence uptake (Kandji et al., 2023). Across sub-Saharan Africa (SSA), the modern contraceptive prevalence rate (mCPR) averages only 18.36%. Regionally, southern Africa has the highest FP uptake at 38.43%, followed by eastern Africa, while central Africa lags behind with only 9.46% (Zemenu et al., 2022). At the country level, uptake ranges widely: Zimbabwe (65.77%) and Lesotho (59.79%) demonstrate relatively high usage, while Chad (5.04%) and Mozambique (11.34%) show markedly lower rates (Zemenu et al., 2022). Western African nations also show variation, with Ghana having an mCPR of 22.19%, compared to just 8% in Gambia (Zemenu et al., 2022). In East Africa, a study conducted across 15 regions of Uganda found that FP uptake among women of reproductive age was 29.3%, with modern method usage at 26.6% (Primus, 2022). The uptake was significantly associated with sociodemographic factors such as age (especially among women aged 40–44 years), educational attainment, household income, and knowledge of FP service availability (Primus, 2022).

In Rwanda, the uptake of family planning has increased over recent years, although gaps still remain. According to the Rwanda Demographic and Health Survey (RDHS) 2019/20, the national prevalence of FP use rose from 53% in 2015 to 64% in 2020 for all methods and from 48% to 58% for modern contraceptive methods (National Institute of Statistics of Rwanda [NISR], 2021). At the same time, the unmet need for FP declined from 19% to 14%, indicating progress, yet highlighting that significant numbers of women still lack access to necessary services (UNFPA, 2022). Despite national gains, disparities exist across Rwanda's districts. Rubavu District in Western Province has a modern contraceptive prevalence rate of only 52.2%, which falls short of the national target of 64% (NISR, 2021). This district also exhibits the highest total fertility rate in the country at 4.7 children per woman, compared to the national average of 4.1 (NISR, 2021). While Rubavu has implemented several strategies such as health education campaigns, expanding access through health posts, and integrating FP into district performance contracts ("Imihigo") these efforts have not fully closed the gap.


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To the best of our knowledge, no study has yet been conducted to explore the uptake of FP methods and the associated factors specifically in Rubavu District. Understanding the barriers to contraceptive use in this context is essential for designing evidence-based interventions aimed at increasing FP coverage and improving maternal and reproductive health outcomes in the district.

## 2.0 Materials and Methods

This quantitative cross-sectional study was conducted from March to May 2024 among women of reproductive age (15-49 years) seeking postnatal care services at five selected health centers in Rubavu District, Rwanda, which has a population of 546,683 including 279,384 females distributed across 388.4 km² with 14 health centers serving the community. The sample size of 382 participants was calculated using Fisher's formula with a 95% confidence level, 5% margin of error, and 45.6% prevalence rate from the 2019-2020 Rwanda Demographic and Health Survey, resulting in proportionate allocation across Busasamana (67), Byahi (88), Kigufi (80), Nyakiriba (83), and Busigari (64) health centers. A stratified random sampling technique with proportionate allocation was employed, where each health center served as a distinct stratum, followed by simple random sampling within each stratum to select individual participants from postnatal care attendance registers. Data collection utilized a structured questionnaire originally developed in English and translated into Kinyarwanda, covering socio-demographic characteristics, family planning knowledge, attitudes, perceptions, and current practices, administered through face-to-face interviews by trained data collectors in private settings within health facilities. The collected data was coded, entered, cleaned, and analyzed using SPSS version 25, employing descriptive statistics for demographic characteristics and family planning uptake, chi-square tests for bivariate analysis to assess associations between independent variables and family planning uptake, and multivariate logistic regression for variables with $p \leq 0.05$ to determine independent predictors, with adjusted odds ratios and 95% confidence intervals used to measure association strength at a significance level of $p \leq 0.05$.

## 3.0 Findings and Discussions

Table 1 represent the demographic characteristic of respondents. Among the 382 participants interviewed, the largest proportion was from Byahi Health Center 23%, followed by Nyakiriba 21.7% and Kigufi 20.9%. The remaining participants were from Busasamana 17.5% and Busigari Health Centers 16.8%. In terms of age distribution, 44.2% of participants were between 25 and 34 years old, 30.1% were aged 15 to 24, 23.8% were between 35 and 44 years old, and the remainder were 45 years and older. Regarding education, the majority 61% had a primary education, 25% had secondary or higher education, and 13.9% had no formal education. Of the total participants, 72.8 % were married, 24.1% were single while 3.1 % were divorced or separated with their husbands. Economically, three-quarters of the participants 75% were classified in the third Ubudehe category, while 18.3% were in the second category and 6.5% in the first. Employment data revealed that nearly half 47.9% of the participants were engaged in agriculture, 37.7% were unemployed, and 14.4% were employed in other sectors. During the data collection process, participants were asked about health insurance coverage, with only 1.8% reporting they did not have health insurance, while the vast majority 98.2% had Mutuelle de Santé or RSSB coverage.

Furthermore, the study revealed that, 18.9% of participants reported experiencing a stock-out of the family planning (FP) method they used or wished to use, while 81.2% did not face any stock-outs. Regarding family size, nearly half 49.2% had 3 to 4 children, 38.7% had 1 to 2 children, and only 12% reported having more than 4 children. In terms of decision-making for visiting a health


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facility when household members are sick, 53% reported making the decision together with their husbands, 28.5% indicated that their husbands made the decision alone, and 18.6% reported making the decision independently. The majority of participants also confirmed that they had sought their husband's approval before using an FP method. Finally, 39.9% reported that it takes them more than two hours to reach a health center, 31.9% reported 1 to 2 hours, and 28.2% reported taking less than an hour.

**Table 1: Demographic, characteristics of participants**

| Study variables | | N | % |
|---|---|---|---|
| Health Center | Busasamana | 67 | 17.5 |
| | Byahi | 88 | 23 |
| | Kigufi | 80 | 20.9 |
| | Nyakiriba | 83 | 21.7 |
| | Busigari | 64 | 16.8 |
| Age | 15-24 | 115 | 30.1 |
| | 25-34 | 169 | 44.2 |
| | 35+ | 98 | 25.6 |
| Education level | No education | 53 | 13.9 |
| | Primary | 233 | 61 |
| | secondary and higher | 96 | 25.1 |
| Ubudehe category | category 1 | 25 | 6.5 |
| | category 2 | 287 | 75.1 |
| | category 3 | 70 | 18.3 |
| Employment status | Unemployed | 144 | 37.7 |
| | Agriculture | 183 | 47.9 |
| | Other job | 55 | 14.4 |
| Marital status | Single | 92 | 24.1 |
| | Married | 278 | 72.8 |
| | Divorced / Separated | 12 | 3.1 |
| Insurance | No insurance | 7 | 1.8 |
| | CBH/RSSB | 375 | 98.2 |
| Experiencing any stock out of FP method used before wished to use | No | 284 | 81.1 |
| | Yes | 66 | 18.9 |
| Family size | 1-2 children | 148 | 38.7 |
| | 3-4 Children | 188 | 49.2 |
| | 4-5 children | 46 | 12 |
| Who take decision of going to health Facility when household members are sick? | Respondent | 66 | 18.6 |
| | Husband | 101 | 28.5 |
| | Both | 188 | 53 |
| Ever requested husband the right/Approval of using the FP method | No | 45 | 12.8 |
| | Yes | 306 | 87.2 |
| Ever used any FP method before conceiving the baby | No | 79 | 22.5 |
| | Yes | 272 | 77.5 |
| Time taken to go health center | Below 1hour | 99 | 28.2 |


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| | | | |
|---|---|---|---|
| | 1hour-2hour | 112 | 31.9 |
| | Above 2hour | 140 | 39.9 |

### 3.1 Factors associated with family planning uptake among women of reproductive ages in 5 selected health centers of Rubavu district

During the bi-variate analysis, a chi-square test was utilized to assess the association between our dependent variables and the utilization of family planning methods. The table 4.3, represent the bi-variate analysis and the results indicate significant associations with several factors: participants' education level ($p=0.017$), Ubudehe category ($p<0.001$), having insurance ($p=0.039$), family size ($p=0.038$), women's involvement in decision-making about visiting a health facility when household members are sick ($p=0.003$), requesting their husband's approval before using an FP method ($p=0.007$), history of using any FP method before conceiving the current baby ($p<0.001$), and time taken to reach a health center ($p=0.026$).


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## Table 2: Bi-variate association between family planning uptake and Demographic

| | | Currently using any FP method | | | | |
|---|---|---|---|---|---|---|
| | | No | | Yes | | p-value |
| | | N | % | n | % | |
| Health Center | Busasamana | 23 | 34.3 | 44 | 65.7 | **<0.001** |
| | Byahi | 14 | 15.9 | 74 | 84.1 | |
| | Kigufi | 5 | 6.3 | 75 | 93.8 | |
| | Nyakiriba | 5 | 6 | 78 | 94 | |
| | Busigari | 11 | 17.2 | 53 | 82.8 | |
| Age | 15-24 | 20 | 17.4 | 95 | 82.6 | 0.611 |
| | 25-34 | 24 | 14.2 | 145 | 85.8 | |
| | 35+ | 14 | 14.3 | 84 | 85.7 | |
| education level | No education | 13 | 24.5 | 40 | 75.5 | **0.017** |
| | Primary | 26 | 11.2 | 207 | 88.8 | |
| | secondary and higher | 19 | 19.8 | 77 | 80.2 | |
| Ubudehe category | Category 1 | 5 | 20 | 20 | 80 | 0.09 |
| | Category 2 | 37 | 12.9 | 250 | 87.1 | |
| | Category 3 | 16 | 22.9 | 54 | 77.1 | |
| Employment status | Unemployed | 28 | 19.4 | 116 | 80.6 | 0.196 |
| | Agriculture | 23 | 12.6 | 160 | 87.4 | |
| | Other job | 7 | 12.7 | 48 | 87.3 | |
| Insurance | No insurance | 3 | 42.9 | 4 | 57.1 | **0.039** |
| | CBH/RSSB | 55 | 14.7 | 320 | 85.3 | |
| Have ever experienced any stock out of FP method used before wished to use | No | 25 | 8.8 | 259 | 91.2 | 0.113 |
| | Yes | 2 | 3 | 64 | 97 | |
| Family size | 1-2 children | 14 | 9.5 | 134 | 90.5 | **0.038** |
| | 3-4 Children | 34 | 18.1 | 154 | 81.9 | |
| | 4-5 children | 10 | 21.7 | 36 | 78.3 | |
| Marital status | Single | 15 | 16.3 | 77 | 83.7 | 0.927 |
| | Married | 41 | 14.7 | 237 | 85.3 | |
| | Divorced / Separated | 2 | 16.7 | 10 | 83.3 | |
| Decision maker to go health center | Respondent | 3 | 4.5 | 63 | 95.5 | **0.003** |
| | Husband | 17 | 16.8 | 84 | 83.2 | |
| | Both | 11 | 5.9 | 177 | 94.1 | |
| Have requested your husband the right/Approval of using the FP method before? | No | 8 | 17.8 | 37 | 82.2 | **0.007** |
| | Yes | 19 | 6.2 | 287 | 93.8 | |
| Have ever used any FP method before conceiving the baby | No | 16 | 20.3 | 63 | 79.7 | **<.001** |
| | Yes | 11 | 4 | 261 | 96 | |
| Time taken to go health center | Below 1hour | 3 | 3 | 96 | 97 | **0.026** |
| | 1hour-2hour | 7 | 6.3 | 105 | 93.8 | |
| | Above 2hour | 17 | 12.1 | 123 | 87.9 | |


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### 3.2 Binary Logistic Regression

Table 3 presents information from both uni-variate and multivariate logistic regression models used to assess factors associated with the uptake of family planning. The uni-variate logistic regression analysis results indicate that participants with a secondary or higher education level were 2.6 times more likely to use any family planning method (COR=2.59, 95% CI: 1.23-5.46) compared to those who had no education. Additionally, having 1 to 2 children were also 2.7 times more likely to use FP (COR=2.66, 95% CI: 1.09-6.48) compared to those who had 4 to 5 children. The women who requesting a husband's approval before using an FP method were 3.3 times more likely to use FP (COR=3.27, 95% CI: 1.34-7.99) compared to those who do not request their husband's approval to use FP. Furthermore, taking less than one hour to arrive at the health center (COR=4.42, 95% CI: 1.26-15.53) and having ever used any FP method before conceiving the current baby (COR=6.03, 95% CI: 2.67-13.62) significantly increased the likelihood of using a family planning method compared to those who took below one hour and those who have never used any FP method respectively. In the multivariate analysis, participants from Ubudehe category 2 were found to be 4 times more likely to use a family planning method (AOR=3.97, 95% CI: 1.06-14.91) compared to those from Ubudehe category 1. However, the women who used request a husband's approval before using an FP method were 2.7 times more likely to use FP method (AOR=2.68, 95% CI: 1.00-7.18) compared to those who did not. Furthermore, women who have ever been used any FP method before conceiving the current baby-were 8.4 times more likely to use FP method (AOR=8.37, 95% CI: 3.00-23.32) compared to those who have never. Additionally, taking less than one hour to arrive at the health center remained significantly associated with increased odds of using a family planning method (AOR=4.88, 95% CI: 1.27-18.77).


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**Table 3: Multivariate analysis of factors associated with family planning uptake Among women of reproductive age**

| Study variables | COR (95%CI) | Pvalue | AOR (95%CI) | Pvalue |
|---|---|---|---|---|
| **Education level** | | | | |
| No education | Ref | | ref | |
| Primary | **2.59(1.23-5.46)** | **0.013** | 2.48(0.70-8.72) | 0.158 |
| secondary and higher | 1.32(0.59-2.94) | 0.501 | 0.77(0.22-2.71) | 0.685 |
| **Ubudehe category** | | | | |
| Category 1 | Ref | | ref | |
| category 2 | 1.69(0.60-4.77) | 0.323 | **3.97(1.06-14.91)** | **0.041** |
| category 3 | 0.84(0.27-2.61) | 0.768 | 5.23(0.93-28.55) | 0.056 |
| **Employment status** | | | | |
| Unemployed | 0.60(0.25-1.48) | 0.269 | 0.84(0.22-3.27) | 0.801 |
| Agriculture | 1.01(0.41-2.51) | 0.975 | 0.71(0.19-2.63) | 0.607 |
| Other job | Ref | | ref | |
| **Family size** | | | | |
| 1-2 children | **2.66(1.09-6.48)** | **0.031** | 3.04(0.79-11.70) | 0.105 |
| 3-4 Children | 1.26(0.57-2.78) | 0.57 | 2.66(0.76-9.31) | 0.127 |
| 4-5 children | Ref | | ref | |
| **Time taken to go health center** | | | | |
| Below 1hour | Ref | | ref | |
| 1hour-2hour | **4.42(1.26-15.53)** | **0.02** | **4.88(1.27-18.77)** | **0.021** |
| Above 2hour | 2.07(0.83-5.19) | 0.12 | 1.96(0.72-5.34) | 0.188 |
| **Have ever used any FP method before conceiving this baby** | | | | |
| No | Ref | | ref | |
| Yes | **6.03(2.67-13.62)** | **<0.001** | **8.37(3.00-23.32)** | **<0.001** |
| **Have ever experienced any stock out of FP method used before wished to use** | | | | |
| No | Ref | | ref | |
| Yes | 0.32(0.08-1.40) | 0.132 | 0.40(0.08-1.89) | 0.247 |
| **Have requested husband the right/Approval of using the FP method before** | | | | |
| No | Ref | | ref | |
| Yes | **6.03(2.67-13.62)** | **<0.001** | **2.68(1.00-7.18)** | **0.049** |

**P value<0.05: significant**

**ref: reference category**


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### 3.3 Discussion

The study found that 85% of women in reproductive age in 5 selected health centers of Rubavu district are currently using family planning. The number that surpasses 64% of the contraceptive prevalence rate among married women and 50% of sexually active unmarried women in the reproductive age (RDHS, 2019/20). This prevalence also is generally high compared to other regions in sub-Saharan Africa. For instance, a study conducted in Mara and Kagera regions of Tanzania indicated that 27.1% of all women of reproductive age were using modern contraception (Massenga et al., 2016). Similarly, research in Uganda indicated family planning use was 30% in 2020 (Ochen et al., 2023). Cultural and religious beliefs, health education and political will which differ across regions could contribute to these variations. This study observed significant associations between dependent variable and various demographic and socioeconomic factors. Among these include; education level, wealth index, insurance, family size, involvement in household decision making as health attention is concerned, requesting husband's approval before using family planning, history of using any FP method before conceiving the current baby and time taken to reach a health center.

These findings indicate that women in reproductive age with at least primary education (COR=2.59, 95% CI=1.23-5.46) were 2.5 more likely to uptake family planning compared to those with no formal education. This tendency aligns with the study findings from Uganda that highlighted education among statistically significant predictor of family planning uptake (Sileo, K.M et al., 2015). This however, contrasts the study taken in Nigeria, where women with high knowledge about family planning still were not up taking family planning services (Akamike, I.C et al., 2020). This might be as a result of fear of spouse rejection and partner miscommunication, fear of side effects and bad experience about contraceptives to those who have used them before. In this study, high odds were found for women who have ever used any FP method before conceiving baby (COR=6.03, 95% CI=2.67-13.62, AOR=8.37, 95% CI=3.00-23.32) and with those who have requested their husbands the right/approval of using the FP method (COR=6.03, 95% CI=2.67-13.62, AOR=2.68, 95% CI=1.00-7.18). This is similar to the studies in Uganda that has shown significant uptake of family planning upon both prior use of contraceptives which registers 10.79 times and partner communication about contraceptives (Sileo, et al).

Moreover, this study found that women of the reproductive age within ubudehe category 2 (second category of wealth index in Rwanda) were 4 times more likely to use family planning practice as compared to those in ubudehe category 1 (the lowest category as wealth index is concerned) (AOR=3.97, 95% CI=1.06-14.91), and women with the family size of 1 to 2 children were more likely to have up-taken family planning in reference to those with the family size of 4 to 5 children (COR=2.66, 95% CI=1.09-6.48) and similarly, time taken to go to health center COR=4.42, 95% CI=1.26-15.53 AOR=4.88, 95% CI=1.27-18.77) has got many odds. This can be explained majorly in terms of financial capability of families and geographic proximity to family planning services. This is supported by the study done in Malawi which indicated that access to services is an important predictor where rural women with the most access used family planning services compared to the rural dwellers with the least access (Skiles, et al., 2015).

### 5.0 Conclusions

This study provides valuable insights into the utilization of family planning methods among women of reproductive age in selected health centers within Rubavu District. It reveals that 85% of women in the area are currently using family planning methods, with a strong relationship identified between the uptake of these methods and various socio-demographic factors. Education level, socioeconomic status, spousal approval, family size, prior use of


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family planning, and the accessibility of health services were all significant determinants of family planning utilization. Women with secondary or higher education, those from the Ubudehe category 2, and those who previously used family planning were more likely to adopt these methods. Spousal approval emerged as a critical factor, highlighting the influence of male partners in decision-making processes. Additionally, easier access to health centers, reflected in shorter travel times, was associated with greater family planning uptake, indicating that geographical barriers play a significant role in health service utilization.

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