

DETERMINANTS OF FAMILY PLANNING SPACING UTILIZATION TO PROMOTE HEALTHY FAMILIES AMONG WOMEN OF REPRODUCTIVE AGE ATTENDING RUKIRA HEALTH CENTER IN NGOMA DISTRICT, RWANDA

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Abstract: Background: Family planning is an important public health strategy for improving maternal and child health. Adequate spacing between pregnancies reduces the risk of adverse maternal and neonatal outcomes. In Rwanda, family planning services are widely available, but optimal use for birth spacing remains a concern in some communities. This study assessed family planning spacing utilization, methods used, and accessibility factors among women of reproductive age attending Rukira Health Center in Ngoma District.

Methods: A descriptive cross-sectional quantitative study was conducted among women aged 15–49 years attending Rukira Health Center. The minimum sample size was calculated using Fisher's formula and adjusted for non-response to 416 participants; 426 women participated and completed the questionnaire. Systematic random sampling was used. Data were collected using a pre-tested structured questionnaire and analyzed using descriptive statistics and chi-square tests. Qualitative information from key informant/focus group discussions was used to contextualize selected findings. Ethical approval and informed consent procedures were applied.

Results: Current family planning utilization was 52.2% (217/416 reported in the utilization analysis), while 47.8% were not currently using a method but had used family planning previously. The most commonly used current method was the implant (40.6%), followed by injectables (30.0%), pills (16.6%), intrauterine devices (9.2%), lactational amenorrhea (2.3%), and male condoms (1.4%). The main reason for use was spacing births for health reasons (56.7%). Knowledge of the recommended 24–36-month spacing interval was reported among 64.4% in the descriptive results. Community health workers were the main source of family planning information (68.7%). Geographical access was a major challenge: 52.1% lived more than 5 km from a service point, and distance was significantly associated with utilization ($\chi^2=26.391$, $p<0.001$). Method stock-outs were also significantly associated with utilization ($\chi^2=23.574$, $p<0.001$). Partner support showed a strong association with current use ($\chi^2=52.238$, $p<0.001$).

Conclusion: Family planning utilization for birth spacing at Rukira Health Center was moderate. Utilization was influenced by geographical access, method availability, side-effect concerns, and partner support. Strengthening community-based information, uninterrupted contraceptive supplies, client-centered counseling, and male/partner engagement may improve continuation and appropriate birth spacing.

Keywords: family planning; birth spacing; contraceptive utilization; accessibility; implants; partner support; Rwanda.

1. INTRODUCTION

Family planning enables individuals and couples to determine the number and spacing of their children and is a core component of reproductive health. Appropriate birth spacing is associated with improved maternal, neonatal, and child health outcomes. The thesis underpinning this manuscript identifies 24–36 months as the recommended interval for optimal birth spacing and notes that inadequate spacing may increase risks such as preterm birth, low birth weight, maternal depletion, and child mortality.

Globally, unmet need for family planning remains substantial, particularly in low- and middle-income countries. Rwanda has made considerable progress in expanding contraceptive access and use. The 2019–20 Rwanda Demographic and Health Survey reported a modern contraceptive prevalence rate of 58%. Nevertheless, national progress does not eliminate differences in utilization between communities and health-facility catchment areas.

In Ngoma District, closely spaced pregnancies continue to be a public health concern despite community health initiatives and availability of modern contraceptive methods. Previous studies in Rwanda have commonly examined general contraceptive prevalence, uptake, and barriers to modern contraceptive use, while fewer studies have focused specifically on family planning for birth spacing at facility level. This study therefore examined family planning spacing utilization among women of reproductive age attending Rukira Health Center, with particular attention to methods used and accessibility.

2. OBJECTIVE

The objective of this study was to assess determinants of family planning spacing utilization among women of reproductive age attending Rukira Health Center in Ngoma District.

Specific objectives were to:

- determine the prevalence of family planning spacing utilization among women of reproductive age;
- evaluate the family planning methods used to space pregnancies; and
- assess accessibility of family planning services among women of reproductive age.

3. CONCEPTUAL FRAMEWORK

The study conceptualized family planning spacing utilization as being influenced by accessibility and the methods available or preferred. Accessibility included geographical distance, cost, service hours, availability of methods, and service experience. Knowledge, attitudes, practices, and partner support were considered important intervening or contextual factors. The framework was informed by the concept of access to health services described by Penchansky and Thomas, which emphasizes availability, geographical accessibility, accommodation, affordability, and acceptability.

4. METHODS

4.1 Study design and setting

A descriptive cross-sectional quantitative design was used. The study was conducted at Rukira Health Center in Ngoma District, Eastern Province of Rwanda. Rukira Health Center provides primary health services including antenatal care, immunization, family planning, outpatient care, and preventive and curative services.

4.2 Study population and sampling

The study population comprised women aged 15–49 years attending Rukira Health Center, including current family planning users and women who had previously used family planning but discontinued. The calculated minimum sample size was 416, using Fisher's formula with a 95% confidence level, 5% margin of error, and a contraceptive prevalence estimate of 58%, with a 10% non-response adjustment. The thesis reports that 426 women participated and all completed questionnaires were returned. Systematic random sampling was used.

4.3 Data collection and analysis

A structured, pre-tested questionnaire covered socio-demographic characteristics, family planning knowledge and utilization, spacing practices, methods used, discontinuation experiences, and accessibility. The questionnaire was prepared in English and translated into Kinyarwanda. Data collection was conducted during December 2025 and January 2026.

Quantitative data were analyzed using SPSS version 25. Frequencies and percentages were generated, and chi-square tests were used to examine associations. Qualitative information from key informant/focus group discussions was used to contextualize quantitative findings.

4.4 Ethical considerations

Ethical clearance was obtained through Mount Kenya University and permission was obtained from relevant local health authorities. Participants provided informed consent. Confidentiality, privacy, anonymity, voluntary participation, and the right to withdraw were maintained throughout the study.

5. RESULTS

5.1 Participant characteristics

A total of 426 women participated in the study according to the response-rate section of the thesis. The largest age group was 25–29 years (121; 29%). Most participants were married (250; 60.1%), while 166 (39.9%) were cohabiting. Primary education was the most common education level (199; 47.8%), followed by secondary education (190; 45.7%); 19 (4.6%) had no formal education and 8 (1.9%) had tertiary education. The largest occupational group was formally employed women (177; 42.5%).

5.2 Prevalence of family planning utilization

Current family planning status	Frequency	Percent
Currently using a method	217	52.2
Not currently using; ever used	199	47.8
Total reported in utilization analysis	416	100.0

Current utilization was 52.2%, indicating moderate use of family planning for birth spacing. Among users, 56.7% reported spacing births for health reasons, 39.6% reported delaying the next pregnancy, and 3.7% reported limiting births completely. The thesis also reports that awareness of family planning was high and that 64.4% of respondents in the relevant analysis knew the recommended 24–36-month spacing interval.

5.3 Family planning methods used

Current method	Frequency	Percent
Implants	88	40.6
Injectables	65	30.0
Pills	36	16.6
Intrauterine device (IUD)	20	9.2
Lactational amenorrhea method (LAM)	5	2.3
Male condoms	3	1.4
Total	217	100.0

Implants were the most commonly used current method, accounting for 40.6% of current users, followed by injectables at 30.0%. The least used methods were male condoms (1.4%) and LAM (2.3%). Among women who had discontinued family planning, the thesis reports accidental pregnancy (30.8%) and side effects (26.4%) as the leading reasons for discontinuation, while fear of side effects was reported by 67.6% of ever-users.

5.4 Accessibility of family planning services

Distance to service point	Frequency	Percent
Less than 1 km	6	1.4
1–3 km	29	6.9
4–5 km	170	39.6
More than 5 km	222	52.1
Total	426	100.0

Community health workers were the principal source of family planning information, reported by 292 respondents (68.7%), while community meetings were the least reported source (6; 1.4%). More than half of respondents (222; 52.1%) lived more

than 5 km from a family planning service point. Distance was significantly associated with utilization ($\chi^2=26.391$, $p<0.001$). Method stock-outs were also significantly associated with current utilization ($\chi^2=23.574$, $p<0.001$). Although 87.1% of current users considered services affordable, 90.3% reported paying for family planning services. Waiting time was 30–60 minutes for 67.3% of current users, while 24.9% waited more than one hour.

5.5 Partner support and provider interaction

Partner support was an important determinant of utilization. Among current users, 87.1% reported supportive partners. Among women who had discontinued use, 43.4% cited partner influence as a reason for stopping. Partner support was strongly associated with current family planning use ($\chi^2=52.238$, $p<0.001$). Client-provider interaction was generally positive: 71.0% of current users reported feeling very comfortable discussing family planning with health workers and 25.8% felt somewhat comfortable.

6. DISCUSSION

The study found moderate current family planning utilization (52.2%) among women attending Rukira Health Center. This was lower than the 58% national modern contraceptive prevalence rate reported by the 2019–20 Rwanda Demographic and Health Survey. The difference may partly reflect the facility-based nature of the study and the specific rural context of Ngoma District. The finding nevertheless indicates a gap between broad awareness of family planning and sustained use for optimal birth spacing.

The predominance of implants and injectables indicates a strong preference for longer-acting or provider-dependent methods. Implants represented 40.6% of current method use, while injectables represented 30.0%. The pattern is relevant for birth spacing because these methods can provide effective protection without requiring frequent daily adherence. However, discontinuation because of side effects and accidental pregnancy highlights the importance of comprehensive counseling, appropriate method selection, follow-up, and timely management of side effects.

Geographical accessibility was a substantial barrier. More than half of respondents lived more than 5 km from a family planning service point, and distance was significantly associated with utilization. This finding is consistent with the study's conceptualization of access as multidimensional. Physical distance may interact with transport costs, time requirements, and service availability. The significant association between stock-outs and utilization further indicates that physical access alone is insufficient when preferred methods are unavailable.

Partner support emerged as one of the strongest factors associated with current utilization. This finding suggests that family planning decisions are not exclusively individual decisions but may be influenced by household communication, partner attitudes, and gender dynamics. Interventions that include men and couples, while protecting women's autonomy and confidentiality, may therefore support sustained use.

The strong role of community health workers as the main source of information is an important programmatic opportunity. CHWs can provide accurate information, counseling, referral, follow-up, and community sensitization. Strengthening their training and linkages with health facilities may help address misconceptions, improve method choice, and reduce discontinuation.

7. STRENGTHS AND LIMITATIONS

The study generated facility-level evidence on family planning specifically for birth spacing and combined information on utilization, method choice, and accessibility. However, its cross-sectional design limits causal interpretation. The facility-based sample may not represent women who do not attend health services. Self-reported contraceptive use and reasons for discontinuation may also be affected by recall or social desirability bias. The thesis additionally contains some inconsistencies in reported denominators and statistical measures; these should be reconciled against the original SPSS output before journal submission.

8. CONCLUSION

Family planning spacing utilization among women of reproductive age attending Rukira Health Center was moderate, with 52.2% currently using a method in the utilization analysis. Implants were the most frequently used method, while geographical distance, contraceptive stock-outs, side-effect concerns, and partner support were important factors associated with utilization and continuation. The findings indicate that improving family planning outcomes in Ngoma District requires coordinated action at community, household, facility, and health-system levels.

9. RECOMMENDATIONS

1. Strengthen family planning supply-chain management and forecasting to reduce stock-outs, especially for commonly used methods such as implants and injectables.
2. Expand community-based family planning information and referral through trained Community Health Workers, with emphasis on accurate counseling about method effectiveness, side effects, and birth-spacing intervals.
3. Improve client-centered counseling and follow-up so that women receive anticipatory guidance about side effects and can switch methods safely when necessary.
4. Address geographical barriers by strengthening community-based service delivery and referral systems for women living far from health facilities.
5. Increase male and partner engagement through couple counseling and community sensitization while maintaining voluntary, informed choice and women's autonomy.
6. Reduce unnecessary delays in service provision and maintain respectful, confidential interactions between clients and providers.
7. Conduct longitudinal research to assess continuation and discontinuation over time and to determine how contraceptive discontinuation affects actual birth intervals.
8. Conduct qualitative research with women, male partners, and couples to understand household decision-making, misconceptions, partner resistance, and culturally appropriate approaches to male engagement.

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Author note before submission

The manuscript has been condensed from the uploaded thesis and written in journal-manuscript form. Before submitting to a journal, verify the final analytical dataset and SPSS output because the thesis reports a calculated minimum sample of 416 but a response-rate total of 426, while some sections use different denominators. The manuscript intentionally avoids reproducing unclear relative-risk/odds-ratio values from the thesis where their confidence intervals or labels are not sufficiently clear. These values should be restored only after checking the original statistical output.