Family Planning Services Supply and Non-Intention to Use the Modern Contraception among Women of Childbearing Age in Union in Burundi

Jean François Regis Sindayihebura 1,2, Didier Nganawara 3, Franklin Bouba Djourdebe 3 and René Manirakiza 2

1 Doctoral School of the University of Burundi
2 Centre de Recherche et d’Etudes sur le Développement des Sociétés en Reconstruction (CREDSR) – Université du Burundi
3 Institut de Formation et de Recherche Démographiques (IFORD) – Université de Yaoundé II (Cameroun)

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Abstract

Background: From 66% to 53% between 2010 and 2016-2017, the intention to use modern contraception is decreasing in Burundi, while the national development objectives assume a decrease in fertility and control of population growth supported by an increase in contraceptive prevalence. Objective: This study examines the influence of FP services supply on the non-intention to use of modern contraception. Methodology: Multilevel logistic regression was used. Results: The results show women exposed to FP messages were 22.1% (OR=0.779; p˂0.05) and 56.7% (OR=0.417; p˂0.001) less likely to have this non-intention, in 2010 and 2016-2017, respectively. Women who were unaware of any source of contraceptive methods were 1.572 times (OR=1.572; p˂0.001) more likely to be unintentional about contraception than those who were not in 2010. In 2016-2017, the results show that women who do not know any sources are 36.4% (OR=0.636; p˂0.05) less likely to non-intention of contraception. Conclusion: These results show that contraceptive non-intention involves women least affected by awareness, although socio-cultural context factors must be controlled for. Improving the provision of FP...
services to achieve fertility reduction must continue to raise awareness through all channels while improving the quality of FP care.

**Keywords**: Family Planning Services Supply, Non-Intention to Use Modern Contraception, Multilevel Analysis, Women of Childbearing Age in Union, Burundi

## 1. Introduction

Recently, the demographic evolution of the countries that have made the shortest transitions has shown that population policies can be the basis for fertility control. Without denying the role of socioeconomic and cultural transformations, research shows that the supply of family planning services is an important factor in contraceptive use and fertility reduction [3]. Despite this view of supply as a factor in fertility control, other authors do not rule out the possibility that supply, when it is not adequate to demand or of poor quality, may lead to the opposite of the expected effect [7].

Burundi is among the countries with unfinished transitions [6]. Indeed, the decline in mortality has been underway since the first vaccination campaigns and the introduction of food crops that helped control epidemics and famine in the first half of the 20th century. Since then, high fertility has allowed a natural balance that could double the population in less than three decades [13,11]. The downward trend in fertility has already been underway since the 1970s, but there is still an imbalance between population growth, which is mainly natural, and available resources, with an average annual population growth rate of 2.4% and a TFR of 5.5 children per woman [4,9].

According to projections, the future threatens to be dramatic. By 2050, the current population of 12 million will be between 20 and 25 million, depending on whether the fertility rate has dropped to 2.6 or 3.6 children per woman. Achieving this level of fertility requires a sustained increase in contraceptive use at a rate of 1.5% per year [10]. However, this increase in modern contraceptive prevalence does not exceed the annual increase of 0.5%. Furthermore, the level of intention to use this contraception is declining, having fallen from 66% in 2010 to 53% in 2016-2017 [9].

This study is part of this antagonism between the imperative to control fertility to ensure population balance and the satisfaction of vital needs and the unwillingness to use modern contraception. By studying the factors that explain the non-intention to use modern contraception among women aged 15-49 in union, it tries to understand whether the supply of family planning services is one of the elements that discourage this intention. It hypothesizes that women who are not exposed to FP messages, who do not receive visits from FP worker, and who are not aware of sources of modern contraceptives are most likely to be non-intentional.

This study finds some references in the empirical literature. These include studies conducted in Morocco [12], Pakistan [1], and Ethiopia [16]. In these studies, the
operationalization of supply is not uniform. Sometimes the focus is on accessibility, supply, and availability of contraceptive methods [12,1,17], sometimes on the availability and quality of FP staff [12,1,16], and rarely on media exposure [17]. This study, which is not the first to involve the supply dimensions of FP services in the study of contraceptive intentions, has the merit of singularly focusing on the influence of this supply in explaining said intentions. Apart from the fact that this study had not yet been conducted in the Burundian context, it should also be noted that how more than one dimension is combined to operationalize supply provides an opportunity to identify the influence of FP interventions.

2. Materials and methods

The analysis is based on data from the 2010 and 2016-2017 Demographic and Health Surveys of Burundi (DHSB). The target population is made up of 4225 women (2010) and 6990 women (2016-2017), aged 15-49 years in union, who were not using modern contraception at the time of collection and who expressed their intention to use/not to use it in the future. Twenty-seven (27) variables available in the "women's" databases allowed for the analysis. The dependent variable, non-intention to use modern contraception, has two modalities: 1, if the woman has no intention to use contraception, and 0, if the woman has this intention. As indicated above, the supply of FP services is operationalized by three (3) variables. The first concerns exposure to FP messages, with two modalities recoded from the respondents' declarations of the source through which they received the messages. The second variable relates to the receipt of at least one visit from a FP worker during the 12 months before data collection, with two modalities: 1 "was visited"; 2 "was not visited. The third is knowledge of at least one source of modern contraceptive methods, with two modalities: 1 "knows at least one source of FP"; 2 "does not know any source of FP". The other control variables are religion, region, and community residence; standard of living, spouse's age, spouse's education level, spouse's occupation, spouse's desire for children, and appreciation for hitting the woman when she refuses sex to her husband at the household level, and other individual woman characteristics (knowledge of contraception, unmet need for family planning, woman's age, age at first marriage, number of sexual partners, parity achieved, number of children desired, desire for additional children, experience of child death, number of surviving children, education level, occupation, media exposure, gestational status, amenorrhea status). Evaluated under the criteria of non-response rate, distortion in the declaration of age with the Myers Index, and parity achieved with the Coale and Demeny "A" and Brass and Rachad "B" indices, all these variables are of acceptable quality for the analyses [8]. Since the dependent variable is qualitative and dichotomous, binomial logistic regression is the method of analysis considered [15]. The regression is further executed with multilevel models, as the variables used are more amenable to hierarchical classification by the individual, household, and community [5,14].
Multilevel logistic regression is run using Stata 15.0 software. The results tables and formatting are operated by Microsoft Excel, Version 16.

3. Results

Running the multilevel models tests the relevance of this modeling and the validity of the results obtained by the multilevel logistic regression. The Wald Chi-squares of the full models (MC) are everywhere significant at the 1% level (chi2=672.25; p=0.000 in 2010 and chi2=135.50; p=0.000 in 2016-2017). Likelihood ratios (LR=94.43; p=0.000 in 2010 and LR=390.05; p=0.000 in 2016-2017) validate the two-level modeling in 2010 and three-level modeling in 2016-2017 at the 1% level. In the full model (MC), the considerable variation in the coefficients of within-group variation also shows that the explicative variables introduced in the empty model (M0) contribute to the explanation of the observed differences between women in their contraceptive intentions. In terms of contraceptive intention, there is 13.27% and 8.01% similarity between women in the same community in 2010 and 2016-2017, respectively. Among women in the same household, similarities are 86.7% in 2016-2017 (Table 1). In sum, these randomized results show that the analysis performed by the mixed-effects multilevel regression provides significant results.

Table 1: Parameters and validity test of the multilevel modeling

<table>
<thead>
<tr>
<th>Parameters</th>
<th>2010</th>
<th>2016-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model test</td>
<td>M0</td>
<td>MC</td>
</tr>
<tr>
<td>Wald Chi2</td>
<td>N/A</td>
<td>672.25***</td>
</tr>
<tr>
<td>Likelihood report (Chi2())</td>
<td>133.09***</td>
<td>94.43***</td>
</tr>
<tr>
<td>Random part</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household variance</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Effect on household variance</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Community variance</td>
<td>0.408</td>
<td>0.503</td>
</tr>
<tr>
<td>Effect on community variance</td>
<td>23.3%</td>
<td></td>
</tr>
<tr>
<td>Intra-household Correlation Coefficient</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Intra-community Correlation Coefficient</td>
<td>11.03%</td>
<td>13.27%</td>
</tr>
</tbody>
</table>

The random part of the full models gives the variables according to their association or non-intention to use modern contraception. Among the three supply-side operational variables, two are significantly associated with the risk of not intending to use modern contraception. Exposure to FP messages and knowledge of at least one source of contraceptives remained significantly associated with the risk of not intending to use modern contraception at the 5% level. Women exposed to FP messages were 22.1% (OR=0.779; p<0.05; 95% CI: 0.638 - 0.951) and 56.7% (OR=0.417; p<0.001; 95% CI: 0.296 - 0.634) less likely to have this non-intention in 2010 and 2016-2017, respectively. Although the observed differences were not statistically significant at the 5% level, women who had received at least one visit
Family planning services supply and non-intention to use …

from a FP agent were 18.9% (OR=0.811; p>0.05; 95% CI: 0.524 - 1.256) and 27.1% (OR=0.728; p>0.05; 95% CI: 0.347 - 1.533). Regarding, sources of contraceptives, the results show that women who did not know about them were 1.572 times (OR=1.572; p<0.001; 95% CI: 1.231 - 2.007) more likely to be unintentional of contraception than those who were aware of them in 2010. However, the results are shown to be contradictory for the 2016-2017 data where women who were unaware of contraception were 36.4% (OR=0.636; p<0.05; 95% CI: 0.422 - 0.958) less likely to not intend contraception (Table 2).

Table 2: Variables of supply of FP services and their association with non-intention to use modern contraception

<table>
<thead>
<tr>
<th>Variables et modalités</th>
<th>2010</th>
<th>2016-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>IC 95%</td>
</tr>
<tr>
<td>Exposure to PF messages</td>
<td></td>
<td>***</td>
</tr>
<tr>
<td>Informed about FP</td>
<td>0.779*</td>
<td>0.638 - 0.951</td>
</tr>
<tr>
<td>Not informed about FP</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Visited by FP agent in past 12 months</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Visited</td>
<td>0.811ns</td>
<td>0.524 - 1.256</td>
</tr>
<tr>
<td>Not visited</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Knowledge of at least one source of contraceptives</td>
<td>***</td>
<td>*</td>
</tr>
<tr>
<td>Knows at least one source of contraceptives</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Did not know any source</td>
<td>1.572***</td>
<td>1.231 - 2.007</td>
</tr>
</tbody>
</table>

***: p<0.001; **: p<0.01; *: p<0.05; ns: not significant; N/A: Not Applicable

4. Discussion

To show the influence of FP services supply on the non-intention to use modern contraceptives, this study mines data from the last two DHSB using multilevel logistic regression. The analysis shows that two of the three supply-side variables studied significantly influence non-intention to use modern contraception. These are exposure to FP messages and knowledge of at least one source of contraceptive methods.

Regarding exposure to FP messages, women who are exposed are 22.1% and 56.7% less likely to be unintentional users of contraception, in 2010 and 2016-2017, respectively. In addition, women visited by a FP worker were 18.9% and 27.1% less likely to be non-intentional on both dates. These results, which show the added value of media coverage of FP campaigns and FP worker visits to households, are comparable to many other studies. These include the study conducted in Ethiopia [16], which found that women visited by a FP worker were 1.66 times more likely to intend. The same study shows that women who had spoken with a care facilitator were 1.34 times more likely to have this intention than those who did not have this opportunity. A study of bio-social factors of contraceptive intention conducted in Nigeria found that married women exposed to the media were 1.27 times more likely to have this intention than others [17]. It also found that women visited by a
health worker were 2.01 times more likely to develop contraceptive intentions than others in Nigeria.

In addition to these results, which show the role of media provision and FP worker outreach on contraceptive awareness, knowledge of contraceptive method sources also appears to have a positive effect on the prevalence of contraceptive intention. Indeed, women who did not know of any source of contraceptive supply were 1.572 times more likely to be unintentional users of modern contraception in 2010. In this sense of relationship, these results are similar to those found in Pakistan [1], according to which women who had easy access to the methods of choice offered by competent personnel were 1.82, 1.48, and 1.57 times more likely to intend to use hormonal methods, the IUD, and female sterilization, respectively. Similarly, the study held in Morocco found a significantly positive effect of the number of nurses and the level of training of FP staff at the nearest public clinic on women's intention to use modern contraception [12]. In Nigeria and Ghana, respectively, women who lacked access to contraceptives stayed at their thirst to use them 2.01 times and 2.29 times more than those who did not have this lack [17]. These results show that the quality of FP services supply improves contraceptive intention and their increased use would be through this channel.

However, the findings that women who did not know of any source of contraceptive methods were 36.4% less likely to have no intention to use them challenges the data on media outreach and visits. Indeed, media coverage of FP services through radio, TV, newspapers, and, recently, telephone messages, as well as home visits by health workers, etc., are intended to improve knowledge, intention, and use of contraception [3]. If women who are aware of contraceptive supplies are the ones most likely not to want to use them, a fundamental problem arises that requires an understanding of the phenomenon beyond supply. Other factors that the literature associates with contraceptive non-intention such as fear of side effects [16], myths and rumors around contraception [2], gender relations in the couple, and the woman's relationships with her entourage [1] must be mobilized for a holistic understanding of the theme.

5. Conclusion

Based on a clear discrepancy between the imperative of fertility control to achieve national development goals and the growing non-intention to use modern contraception, this study aimed to show the influence of FP services supply in explaining the phenomenon. Using data from the two recent DHSB with multilevel logistic regression, the results show that exposure to FP messages gives women the highest probability of not developing non-intentional contraception, as does receive a visit from a FP worker. Although knowledge of contraceptive supplies is sometimes shown to be a factor that increases the likelihood of not intending to use contraception, the finding that women without knowledge of these supplies are not also the most likely to not intend to use contraception shows that there are other dimensions of the social context beyond supply that need to be mobilized for a holistic understanding.
These results show that awareness-raising through the media, as well as home visits by FP workers, adds value to contraceptive adherence. FP interventions would continue to build on the momentum of media outreach and home visits while improving them and implementing other impactful strategies. Misconceptions, rumors and other aspects of the socio-cultural context that discourage FP would be addressed through awareness campaigns.

**Limitations of the study.** This study does not use certain dimensions of FP services supply, such as the geographical and financial accessibility of contraceptive methods, and the availability and quality of FP personnel, which are also shown to explain the intentions studied. In addition, it should not be forgotten that certain psycho-social aspects, such as how the qualifications of health care personnel affect their performance and the related intentions, are better captured in a qualitative approach.

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**Conflicts of interest.** There are no interest conflicts in the writing and publication of this article.

**References**


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