

# Determinants of the Use of Modern Contraceptive Methods Among Women in Union in Burundi and Rwanda

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## Abstract

**Introduction:** Although Burundi and Rwanda have similarities in socio-cultural terms, the countries show different paths in terms of family planning and fertility reduction. **Objective:** The present study aims to compare the determinants of the use of modern contraceptive methods among women in union in these two countries. **Methodology:** To this end, the researchers used data from the Demographic and Health Surveys (DHS) which have already been carried out in the two countries. The analysis was carried out using stepwise binary logistic regression, and enabled the researchers to identify and prioritize the determinants of the use of modern contraceptive methods for both countries. **Results:** The results show that age, number of living children, ideal number of children, place of residence, region of residence, religion, woman's level of education and employment sector are common determinants for both countries. However, it should be noted that, unlike in Burundi, the number of living children, place of residence and religion are no longer determining factors in Rwanda. **Conclusion:**

To enable Burundi to progress with its family planning policy, it is important to raise awareness of the advantages of a smaller family, promote education for all and facilitate women's access to employment.

**Keywords:** Family planning, modern contraception, women in union , determinants, modelling, tendencies

## 1. Introduction

Family planning is one of the beneficial interventions for the health of mothers and children, socio-economic development and environmental sustainability [21, 28, 26]. The greater use of modern contraceptive methods has enabled countries in South and South-East Asia to move away from uncontrolled or poorly controlled fertility levels. Fertility has fallen from 5-7 children per woman in the 1960s, to 1.5-3.0 children at most, and this helped them become emerging countries [8]. However, significant disparities in the use of contraceptive and fertility reduction methods persist between regions and countries. In 2017, 57% of women of childbearing age were using a modern contraceptive method worldwide.

Yet, these percentages were just at 18% in West Africa, 13% in Central Africa, 38% in East Africa and 56% in Southern Africa [22]. These rates also vary from country to country. In 2012, Niger was rated at 12.2% [9], Rwanda at 64% in 2020 [24], DRC at 20% in 2014 [25], Tanzania at 31% in 2022 [28], Burundi at 29% in 2016-2017 [10], and Kenya rated at 63% in 2022 [23]. Both neighboring countries, Rwanda and Burundi launched their first family planning programs in the early 1980s, yet the results achieved are different. With its 2007 National Health and Reproduction Policy, Burundi aimed to increase modern contraceptive use from 2.7% in 2000 to 50% in 2015 [18]. On its side, Rwanda aimed to increase , through its 2003 population policy, the modern contraceptive prevalence rate from 4% in 2000 to 55% in 2020 [17]. Despite all these ambitions, the results of 2016-2017 Demographic and Health Survey in Burundi show that the modern contraceptive prevalence rate was only 23% in 2017 [11], whereas Rwanda has surpassed its projections, reaching 58% in 2020 [24].

However, it is worth noting that other studies have also compared the use of modern contraceptive methods between different countries. These show that the political, economic, social and cultural context strongly explains the success of family planning programs [17, 20, 19, 9, 7, 10, 16, 11, 12, 13, 22, 21, 27, 30, 4]. Other researchers point out that inequalities in the use of modern contraception in West Africa are influenced by socio-economic, socio-cultural and generational differences [2, 15, 1, 5, 3, 26, 31, 6, 14]. From the above, the use of modern contraceptive methods and fertility decline have evolved differently in Burundi and Rwanda [7]. This raises a question: what are the determinants of modern contraceptive use in these two countries? The main objective of this paper is to compare the determinants of the use of modern contraceptive methods in Burundi

and Rwanda. The initial hypothesis is that socio-cultural, economic, demographic and behavioral factors justify the disparities observed in the use of modern contraceptive methods between the two countries. The researchers therefore believe that this comparative study will contribute to enlightening and providing useful elements for decision-makers to guide the family planning program in Burundi.

## **2. Materials and method**

This comparative study is based on the analysis of secondary longitudinal data from Demographic and Health Surveys (DHS) carried out between 1987 and 2020 [11, 24]. The target population is women in union of childbearing aged between 15 and 49. Fourteen variables common to both Burundi and Rwanda were selected. This was done after excluding incomplete data, with a non-response rate estimated at 1.7%. The dependent variable is the use of modern contraception. It takes the value **1** when the woman uses a modern contraceptive method and the value **0** when she does not. The independent variables are socio-economic, socio-cultural and demographic factors, as well as those related to gender relations and spouse's characteristics. Among these factors, fourteen variables common to both countries were analyzed. Given that the dependent variable is dichotomous (yes/no), stepwise binary logistic regression method was used to identify the determinants of the use of modern contraceptive in both countries. This method was used to calculate the crude and adjusted Odds ratios (OR) of the study variables in both countries, as well as their confidence intervals at 95% (CI=95%). This also enabled the researchers to compare the effects of variables between the two countries in order to identify common factors as well as those specific to each. All these analyses were performed using SPSS version 25.0 and stata 16x64. Statistical significance threshold was set at  $p < 0.05$ .

## **Results**

To gain a better understanding of the changes, a multivariate analysis was carried out. The results are shown in the Table 1, page 28 below.

In view of the results in the Table 1, eight variables were found as determinants in the use of modern contraception in both countries.

Firstly, woman's age was neither the variable that determines the use of modern contraceptive methods in the first Demographic and Health Survey in Burundi, nor in the fifth Demographic and Health Survey (DHS) in Rwanda. Secondly, the number of living children completely lost its determining influence in Rwanda from the fifth DHS onwards, whereas it remains a determining factor in all DHS carried out in Burundi. Both countries show differences in terms of place of residence. In Rwanda, place of residence was not a significant factor in the use of modern contraception in the fourth and fifth DHS whereas it was still a determining factor in all Burundi surveys.

Table1. Determinants of the use of modern contraceptive

Country Variables	Burundi				Rwanda					
	1987	2010	2016-2017		1992	2000	2005	2010	2014-2015	2019-2020
<b>Woman's age</b>	<b>0.021***</b>	<b>0.198**</b>	<b>1.628***</b>	<b>0.033***</b>	<b>1.935***</b>	<b>0.54 ***</b>	<b>0.713***</b>	<b>1.128*</b>	<b>0.155***</b>	
15-24	Ref	Ref	Ref		Ref	Ref	Ref	Ref	Ref	Ref
25-34	2.035ns	1.222**	0.910ns		4.107***	1.586***	1.586***	1.442***	1.018ns	7.074***
35+	1.121ns	0.401***	0.668***		3.593***	1.341*	1.341*	1.245**	0.923ns	6.942***
<b>Living children</b>	<b>0.032***</b>	<b>0.245***</b>	<b>0.310***</b>	<b>0.065***</b>	<b>0.078***</b>	<b>0.078***</b>	<b>0.668***</b>	<b>ns</b>	<b>ns</b>	
4 children and more	Ref	Ref	Ref		Ref	Ref	Ref	Ref	Ref	Ref
Less than 4 children	0.466***	0.713***	0.713***		0.479***	0.662***	0.809***	<b>0.809***</b>	<b>ns</b>	<b>ns</b>
<b>Desired Children</b>	<b>0.023***</b>	<b>0.176***</b>	<b>0.236***</b>	<b>0.046***</b>	<b>0.049***</b>	<b>0.078***</b>	<b>0.554***</b>	<b>0.928***</b>	<b>0.178***</b>	
4 children and more	Ref	Ref	Ref		Ref	Ref	Ref	Ref	Ref	Ref
Less than 4 children	3.055***	1.544***	1.640***		1.699***	2.026***	2.019***	1.399***	1.228***	1.350***
<b>Place of residence</b>	<b>0.162**</b>	<b>0.446***</b>	<b>0.343***</b>	<b>0.65***</b>	<b>0.192***</b>	<b>0.101***</b>	<b>ns</b>	<b>0.798**</b>	<b>ns</b>	
Urban	Ref	Ref	Ref		Ref	Ref	Ref	Ref	Ref	Ref
Rural	0.025***	0.435***	0.603***		0.608***	0.416***	0.530***	ns	0.859**	ns
<b>Region of residence</b>	<b>0.156***</b>	<b>0.446**</b>	<b>0.343***</b>	<b>0.096***</b>	<b>0.095***</b>	<b>ns</b>	<b>0.886***</b>	<b>0.954ns</b>	<b>1.245***</b>	
West	Ref	Ref	Ref		Ref	Ref	Ref	Ref	Ref	Ref
Other regions	0.056***	0.971***	0.114***		0.721**	0.551***	ns	0.713***	1.328***	1.340***
<b>Religion</b>	<b>ns</b>	<b>0.42**</b>	<b>0.344***</b>	<b>ns</b>	<b>ns</b>	<b>0.09***</b>	<b>0.637***</b>	<b>0.805**</b>	<b>1.103*</b>	
Catholic	Ref	Ref	Ref		Ref	Ref	Ref	Ref	Ref	Ref
Protestant	ns	0.935ns	0.905*		ns	ns	0.744***	0.790***	0.818***	0.803***
Other religions	ns	1.712***	1.258**		ns	ns	1.126ns	0.937ns	1.098ns	0.857ns
<b>Woman's education level</b>	<b>0.009***</b>	<b>0.167***</b>	<b>0.235***</b>	<b>0.095***</b>	<b>0.078***</b>	<b>0.064***</b>	<b>1.92***</b>	<b>0.708***</b>	<b>0.352***</b>	
<b>Employment sector</b>	<b>0.009**</b>	<b>2.709***</b>	<b>0.54***</b>	<b>0.369***</b>	<b>0.254***</b>	<b>0.144***</b>	<b>0.688***</b>	<b>1.044ns</b>	<b>0.512***</b>	
uneducated	Ref	Ref	Ref		Ref	Ref	Ref	Ref	Ref	Ref
Primary	5.345***	1.205*	1.351***		0.944ns	1.211ns	1.063ns	1.03ns	1.329***	1.184**
Secondary and more	14.314***	2.223***	1.390***		1.621***	3.24***	2.869***	2.602***	1.205*	0.635***
uemployed	Ref	Ref	Ref		Ref	Ref	Ref	Ref	Ref	Ref
Agriculture	ns	0.677***	0.742***		0.544**	1.407ns	0.612**	0.671***	0.811ns	0.682***
Modern	0.450ns	0.987ns			0.391***	0.439***	0.398***	0.825ns	0.666***	0.899*

Legend: Na: not available. Significance level: (ns) not significant at 10% level; (\*\*\*) p-value ≤ 1%; (\*\*) p-value ≤ 5

Similarly, region of residence was not a significant determinant of the use of modern contraceptive methods in the third and fifth DHS in Rwanda, while the variable was always an important determinant in Burundi.

The results also show that religion was not a determining variable in Rwanda during the third and fifth DHS, whereas it was in all Burundi surveys. Likewise, level of education was not a determining factor in the use of modern contraceptive methods in Rwanda during the sixth DHS, but it was in all Burundi DHS.

Finally, women's employment sector was not a determining factor in the use of modern contraceptive methods in Rwanda during the fifth DHS, though it was in all the DHS conducted in Burundi.

#### **4. Discussion**

The woman's age was a determining factor in both countries, where women aged between 25 and 34 are more likely to use modern contraceptive methods than others. This result coincides with those found in West Africa, where younger women tend to use modern contraceptive methods more than their older counterparts [3].

As of 2015, the number of living children is no longer a determining factor in the use of modern contraceptive methods in Rwanda. This is due to the country's health policies, which allow women to use modern contraceptive methods even before having children.

On the other hand, the desired number of children remains a determining factor in the adoption of modern contraceptive methods in both countries. This highlights the importance of individual preferences, especially the ideal number of children in the choice of using these methods. These results align with those of Ndaruhuye and Yattara, who showed that women who aspire to have a large family tend to delay the use of modern family planning methods [21, 30].

With regard to place of residence, the results are nuanced. Differences may be due to disparities in access to health services or in the dissemination of information between rural and urban areas, which are more noticed in Burundi than in Rwanda, where more efforts have been made to reduce these inequalities. These results have been confirmed by Ndaruhuye who observes that . in the use of the methods , inequalities in terms of place residence, woman's age, region of residence and woman's level have been overcome in Rwanda [21], whereas they persist in Burundi.

The results about religion show different influence depending on the country. These differences may be related to the government strategy adopted to overcome this obstacle, but also to the growing separation of religion from public life in Rwanda. [21].

The analysis also highlights the important role played by women's education and employment sector. This shows the impact of women's education and economic self-empowerment on their ability to make reproductive health decisions. These results have been confirmed by other studies which have shown that a woman's low level of education restricts their tendency to use modern contraceptive methods

[31]. On the other hand, controversial results have been presented on Rwanda, where women educated to at least secondary level and above or living in urban areas are less likely to use modern contraception, compared with their poor, uneducated or rural counterparts [21].

## 5. Conclusion

A comparative study of the determinants of the use of modern contraceptive methods among women in union in Burundi and Rwanda seems more interesting. This was done to understand why Rwanda is more successful in family planning than Burundi. The binary logistic regression method was used in order to find these determinants. The results show that some determining factors, such as the desired number of children, the woman's education level, her employment sector and her literacy remained common in both countries. Others, such as the woman's age, religion or region of residence, show more nuanced or variable effects, depending on the survey period and the country concerned.

Thus, socio-economic and cultural determinants continually play a key role in the adoption of behaviour with regard to the use of modern contraceptives in Burundi, reflecting a relative delay in the transformation of social norms. On the other hand, Rwanda's more proactive and determined sexual and reproductive health policies seem to have reduced the effect of certain traditional variables, giving way to a dynamic in which women's education and autonomy become essential levers or keys. Thus, the unequal evolution of factors associated with family planning over time explains the disparities in modern contraceptive use between Burundi and Rwanda. Therefore, to promote family planning in Burundi, it is important to adopt distinct strategies, adapted to local realities. In order to better understand the origins of these disparities, a qualitative study would also be important to complete the results of the present study.

**Limitations of the study:** The absence of certain variables related to family planning service provision and the political context in both countries, limited number of common variables between the two, and the lack of information on the opinions and attitudes of users in both countries for a deeper understanding of the quantitative results found.

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