Epidemiological Aspects of the Use of Modern Contraceptive Methods in Urban and Rural Settings of Burundi

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Abstract

Purpose: The main objective of this study was to investigate the epidemiological aspects of the use of modern contraceptive methods in urban and rural settings of Burundi.

Problem: The use of modern contraceptive methods can protect against unwanted pregnancies. Although the benefits of family planning are considerable, the use of modern contraceptive methods remains low in Burundi with an overall contraceptive prevalence of 31.3% in the eight provinces according to the Burundi Ministry of Public Health in 2014. Meanwhile, we noted a disproportion between areas with low use and those with high use which required special attention.

Methods: To tackle this issue, a descriptive cross-sectional methodological approach was used. The study was conducted in the city of Bujumbura, the economic capital of Burundi, at the community medicine centre (CMC) of Buyenyi and the third city of Ngozi at the health centre (CDS) of Kigarama. A retrospective convenience sampling from May to August 2019 identified 201 participants aged 13 to 45 years who consulted during the study period. All incomplete or unusable records were excluded. Data were collected using a pre-designed questionnaire. Data entry and compilation of the collected data was done on an Epi-Info 7 database. Statistic analyses were carried out with SPSS 20 software while including a test of comparison between the different groups of the urban and rural areas of Burundi. Following the statistical tests carried out, the results were considered significant for a P-Value < 0.05.

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Conclusions: In our results, the most represented age group was 25 to 29 years old. The majority of participants aged less than 20 years old and more than or equal to 40 years old came from Ngozi while the remnant came mainly from Bujumbura. Most of the participants had a primary and secondary education (41.8% and 42.3% respectively). Almost all participants (95%) were married women. Injectable and oral methods were more commonly used in Bujumbura than in Ngozi. The intrauterine device (IUD) and the implant were more used in the Ngozi CDS. The educational level of participants using depot medroxyprogesterone acetate (DMPA) at the Ngozi CDS was significantly lower compared to those of Bujumbura CMC. In addition, the educational level of combined oral tablet users at the Ngozi CDS and Bujumbura CMC was significantly different. The average age of the participants using oral progestin-only tablets at the Bujumbura CMC was significantly higher than those of the Ngozi CDS. Prolonged breastfeeding was the main reason for using modern contraceptive methods. Other determinants of family planning use were obesity, irregular menstrual cycle, pelvic infections and antiretroviral treatment.

Significance: To increase the level of use of contraceptive methods, it is necessary to popularize injectable and oral methods in rural areas while insisting on information-education-communication (IEC) with a focus on women aged 27 to 33 years old. These results provide guidance on strategies to address barriers against the use of modern contraceptive methods among women in rural and urban areas in order to promote better birth planning.

Keywords: Epidemiological Aspects; Use of Modern Contraceptive Methods; Burundi.

1. Introduction

The current population growth, which is more pronounced in some countries due to the fact that the level of prevalence of contraceptive practices varies between urban and rural areas and is currently higher in the cities [1,2] is seen as an impediment to the socio-economic development of developing countries around the world [3]. The unmet need for contraception remains too high. This is due to population growth and the lack of family planning services [1]. The World Health Organization (WHO) estimates that in 2019, 1.1 billion of the world's 1.9 billion women of reproductive age (15-49 years) need family planning; of these, 842 million are using contraceptive methods, and 270 million do not have access to the contraception they need [4].

According to estimates from some studies, in Asia and Latin America, fertility rates have largely declined since 2010 [1,2,5]. However, in sub-Saharan Africa, fertility has declined only slightly, from 6.62 to 5.26 between 1960 and 2010 [3]. The impacts of this persistent high fertility are countless and will lead some countries, particularly in the Sahel and Central Africa, to situations that are very difficult to manage. In Senegal, the use of modern contraceptive methods among couples is still low, with a fertility rate of five children per woman and a high rate of unmet need for family planning (39%) [6]. Fertility in Mali is high and early with an estimated 6.8 children per woman [7]. Despite a decrease in 2013, it remains high with low use of contraceptive methods [8]. Burundi is not to be outdone with proportions that are still alarming. The third Burundi Demographic and Health Survey of 2016-2017 (EDSB-III) reveals that the average Burundian woman has 5.5 children during her fertile life [9]. Nevertheless, only 3 out of 10 women aged 15-49 in union (29%) use a family planning method.

Among women aged 15-49 who are not in union and who are sexually active, 38% use contraceptive methods. The determinants of this phenomenon are the region of residence, culture, family composition of the household, number of surviving children, gender imbalance of children and decision-making in the health sector [6,10,11]. The morbidity and mortality associated with unexpected, too early, too closely spaced and/or too many pregnancies is preventable by modern contraception. Several studies have focused on the determinants of family planning, contraceptive practices, and the barriers to the use of family planning services [6,10,13]. However, the epidemiological aspects of the use of modern contraceptive methods in rural and urban settings in Burundi have not yet been studied in a sufficient depth. In view of these facts, the main objective of this study was to investigate the epidemiological aspects of the use of modern contraceptive methods in rural and urban Burundi. Based on descriptive phenomenology, which aims at a careful, conscious and ordinary description of a phenomenon as experienced by people, we formulated the hypothesis that the use of modern contraceptive methods is related to the socio-demographic characteristics of users, the type of methods and certain determinants according to the different environments from which they come. Operationally, we assumed that with regard to socio-demographic characteristics, the use of different modern contraceptive methods is related to age, marital status and education level according to the environment of origin. In addition, we assumed that with regard to the type of methods, the use of modern contraceptive methods is influenced by the road of administration and duration of use according to the environment of origin. Finally, we assumed that the use of modern contraceptive methods is related to medical causes and social determinants.

2. Materials and methods

2.1. Place of study

This study was conducted first in an urban environment in the city of Bujumbura, which is the economic capital and the largest city in Burundi, specifically in the Buyenyi community medicine centre (CMC-Bujumbura). Then in a rural setting in the third city of Ngozi, precisely in the Kigarama health centre (CDS-Ngozi).

2.2. Type and duration of study

This was a retrospective cross-sectional study covering the period of May to August 2019.

2.3. Sample

The selection of participants for this research was based on convenience sampling with the aim of recruiting as many as possible.

2.4. Study population

The population of our study was made of 201 women users of modern contraceptive methods at the childbearing age (13-45 years)

2.4.1. Inclusion criteria

All women of childbearing age 13-45 years using family planning at the Kigarama Health Centre in Ngozi and at the Buyenzi CMC in Bujumbura; and having consulted at these two centres during the study period.

2.4.2. Exclusion criteria

Clinical records that were incomplete and unusable, women under 13 years of age and over 45 years of age were excluded.

2.5. Data collection

For this survey, we developed a data collection form. Data was collected using a consultation form and the birth planning register.

2.6. Data capture and analysis

Data collected was entered and compiled in Epi-Info 7. Graphs and descriptive statistics were produced using Excel 2010. Statistics analyses were carried out with SPSS 20 software and included bivariate tests to compare the different groups. The bivariate comparison of means for independent series was performed using Student's t-test. Following the statistical tests carried out, the results were considered significant for a P-Value < 0.05 threshold.

3. Results

During the course of the study, we identified 201 participants and excluded 20 unusable records. During the study period, there were more visits at the CMC of Bujumbura (Buyenzi) than the CDS of Ngozi.

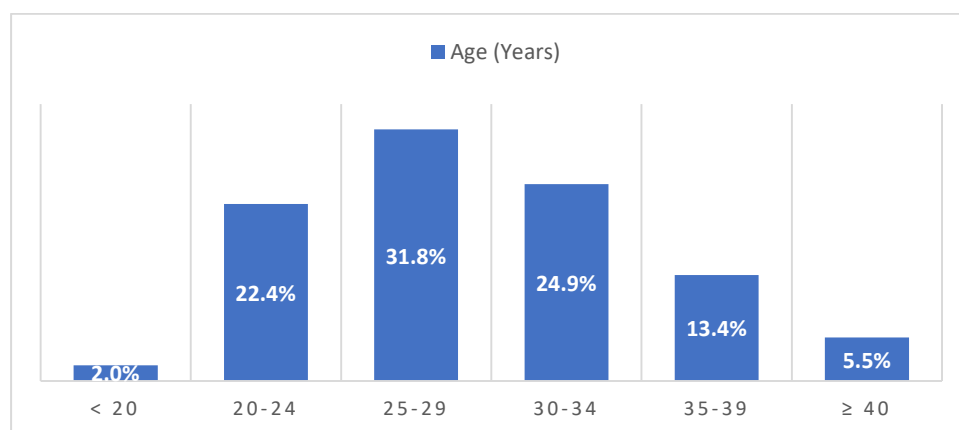### 3.1. Socio-demographic characteristics of participants

Figure 1: Age distribution of participants

The most represented age group was between 25 and 29 (31.8% of the total sample). Participants under the age of 20 were the least numerous (2%).

Table 1: Distribution of participants according to age and origin

Age (years)	Less than 20	20 – 24	25 - 29	30 - 34	35 - 39	40 and over
CDS-Ngozi	4 (100%)	26 (57,8%)	30 (46,9%)	21 (42%)	12 (44,4%)	8 (72,7%)
CMC-						
Bujumbura	0	19 (42,2%)	34 (53,1%)	29 (58%)	15 (55,6%)	3 (27,3%)
Total	4 (100%)	45 (100%)	64 (100%)	50 (100%)	27 (100%)	11 (100%)

In all, participants from Ngozi and Bujumbura were not significantly different in age (28.4±6.4 years versus 29.4±5.2 years respectively; p=0.234). However, all participants under 20 years of age were from Ngozi. Participants aged between 25 and 39 years were predominantly from Bujumbura, while those aged 20 to 24 years and 40 years and above were predominantly from Ngozi.
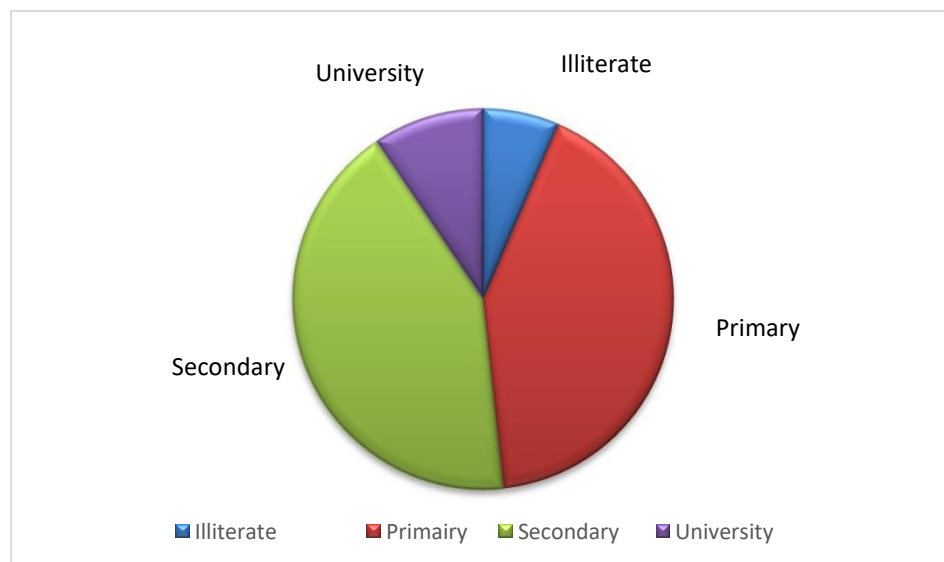
Figure 2: Distribution of participants according to their level of education

Most participants had primary and secondary education (41.8% and 42.3% respectively).

Table 2: Distribution of participants according to education level and origin

	Illiterate	Primary	Secondary	Academic
CDS-Ngozi	9 (69,2%)	60 (71,4%)	29 (34,1%)	3 (15,8%)
CMC-Bujumbura	4 (30,8%)	24 (28,6%)	56 (65,9%)	16 (84,2%
Total	13(100%)	84 (100%)	85 (100%)	191 (100%)

In all, participants from Bujumbura were better educated than those of Ngozi.
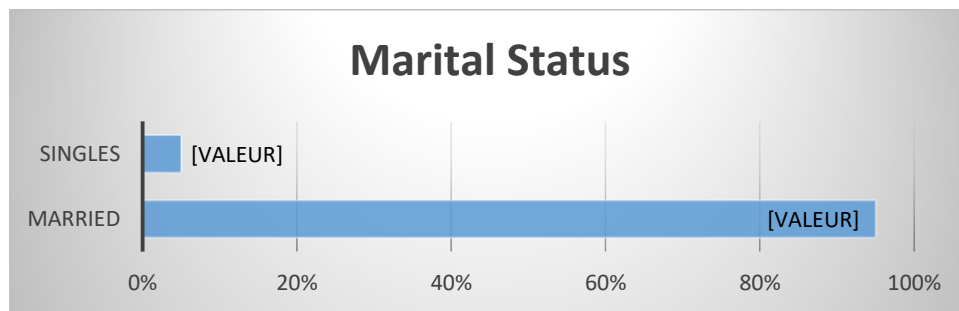

Figure 3: Distribution of participants by marital status

Almost all (95%) of the participants were married women

Table3: Distribution of participants by marital status and origin

	Singles	**Married**
CDS-Ngozi	7 (70%)	94 (49,2%)
CMC-Bujumbura	3 (30%)	97 (50,8%)

Table 3 highlights the fact that the majority, 70%, of the single women were from Ngozi, whereas in Bujumbura the majority of women were married.

3.2. *Classification of the different modern contraceptive methods used*

Table4: Comparison of family planning methods by mode of administration in urban and rural areas

	Injectable methods	**Oral methods**	**Devices**	**Total**
CDS-Ngozi	58 (47,2%)	19 (44,2%)	24 (68,6%)	101
CMC-Bujumbura	65 (52,8%)	24 (55,8%)	11 (31,4%)	100
Total	123 (100%)	43 (100%)	35 (100%)	201 (100%)

Injectable and oral methods were more frequently used in Bujumbura than in Ngozi. However, the use of devices (Intrauterine device or implant) was higher in Ngozi than in Bujumbura.
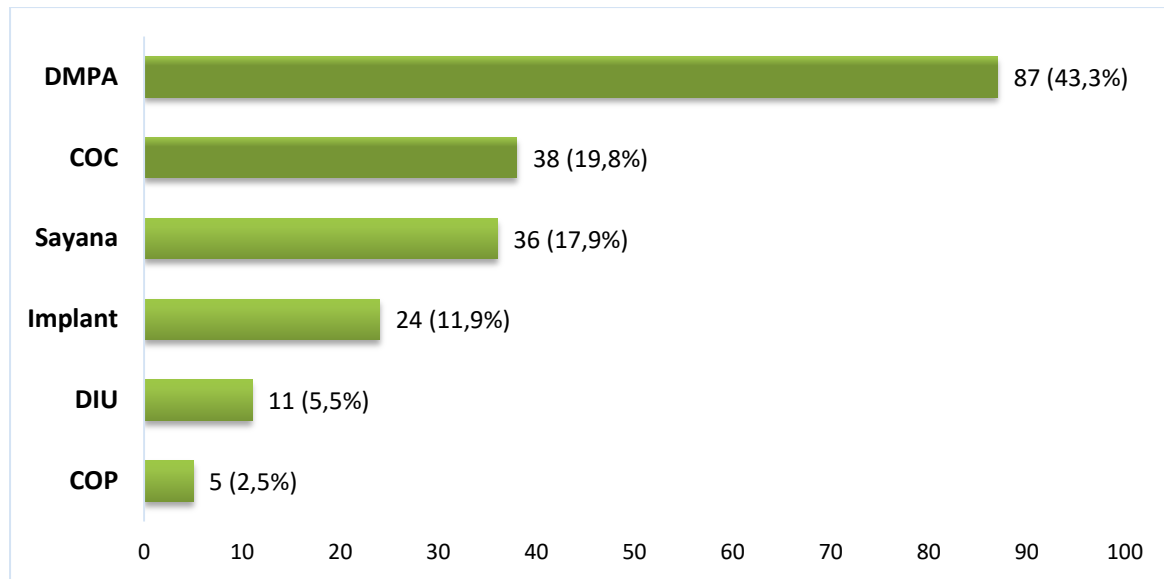
Figure 4: Distribution of different family planning methods

DMPA was the contraceptive method most used by the participants (43.3%).

Table5: Comparison of family planning methods according to their frequency of renewal

	Monthly renewal mehods	Annual renewal methods
CDS-Ngozi	77 (76,2%)	24 (23,8%)
CMC-Bujumbura	89 (89%)	11 (1%)

The familyplanning methods listed can be divided into monthly renewal methods (DMPA, COC, Sayana, COP) and yearly renewal methods (Implant and IUD). Monthly renewal family planning methods were more frequently used in Bujumbura than in Ngozi.

Table 6: Distribution of different family planning methods by participant origin

Family planning methods	CDS-Ngozi	CMC-Bujumbura
DMPA	43 (49,4%)	44 (50,6%)
COC	17 (44,7%)	21 (55,3%)
Sayana	15 (41,7%)	21 (58,3%)
Implant	18 (75%)	6 (25%)
DIU	6 (54,5%)	5 (45,5%)
COP	2 (40%)	3 (60%)

Apart from the implant and the IUD, all other family planning methods were more frequent in Bujumbura. This reinforces the results presented in the previous table.

3.3. Profil Epidemiological profile of the different modern contraceptive methods used

Table 7: Comparaison of DMPA users

DMPA		CDS Ngozi	CMC Bujumbura	P
Level of study	**Illiterate**	5 (83,3%)	1 (16,7%)	
	Primary	22 (75,9%)	7 (24,1%)	< 0,0001*
	Secondary	14 (32,6%)	29 (67,4%)	
	University	2 (22,2%)	7 (77,8%)	
Age		27,7±6,3	28,6±5,2	0,447
Number of children		2,4±1,3	3,4±1,8	0,004*
Number of children desired		3,7±1,3	4,6±1,6	0,007*

The educational level of DMPA-using participants in Ngozi was significantly lower than in Bujumbura. In addition, the number of children as well as the number of desired children of the Bujumbura participants was significantly higher than that of the Ngozi women.

Table 8: Comparison of COC users

COC		CDS-Ngozi	CMCBujumbura	P
Level of study	**Illiterate**	1 (50%)	1 (50%)	
	Primary	12 (85,7%)	2 (14,3%)	0,001*
	Secondary	4 (25%)	12 (75%)	
	University	0	6 (100%)	
Age		30,2±8,5	29,7±5,5	0,840
Number of children		3,2±2	2,8±1,4	0,464
Number of children desired		4,4±1,6	4,3±1,3	0,738

The education level of the combined oral tablet users in Ngozi and Bujumbura was significantly different. However, there was no significant difference between the age, number of children and number of desired children of the participants in Bujumbura and Ngozi.

Table 9: Comparaison of COP users

COP		CDS-Ngozi	CMCBujumbura	P-Value
Level of study	**Illiterate**	0	0	
	Primary	1 (50%)	1 (50%)	0,709
	Secondary	1 (33,3%)	2 (66,7%)	
	University	0	0	
Age		22±1,4	30,7±3,1	0,036*
Number of children		2±0	2±1	>0,999
Number of children desired		3,5±0,7	3,7±1,5	0,898

The mean age of participants using oral progestin tablets in Bujumbura was significantly higher than in Ngozi. No other significant findings were observed.

Table 10: Comparaison of DIU users

DIU		CDS-Ngozi	CMC-Bujumbura	P-Value
Level of education	**Illiterate**	1 (100%)	0	
	Primary	4 (50%)	4 (50%)	0,402
	Secondary	0	1 (100%)	
	University	1 (100%)	0	
Age		31,3±5,5	30±4,9	0,686
Number of children		3,7±1,5	2,4±1,1	0,157
Number of children desired		5±1,7	3,6±0,5	0,109

The level of education, the age, the number of children and the desired number of children for IUD-users who participated in Ngozi was not significantly different from those in Bujumbura.

Table 11: Comparaison of Implant users

Implant		CDS-Ngozi	CMC-Bujumbura	P-Value
Level of study	**Illiterate**	1 (100%)	0	
	Primary	14 (73,7%)	5 (26,3%)	0,839
	Secondary	3 (75%)	1 (25%)	
	University	0	0	
Age		29,3±5,6	30,2±3,9	0,740
Number of children		3±1,5	3,3±1,5	0,648
Number of children desired		4,2±1,8	3,5±1	0,392

The level of education, the age, the number of children and the desired number of children of implant-users in Ngozi was not significantly different from those in Bujumbura.

Table 12: Comparaison of Sayana users

Sayana		CDS-Ngozi	CMC-Bujumbura	P
Level of study	**Not in school**	1 (33,3%)	2 (66,7%)	
	Primary	7 (58,3%)	5 (41,7%)	0,301
	Secondary	7 (38,9%)	11 (61,1%)	
	University	0	3 (100%)	
Age		27,1±5,2	30,1±5,9	0,114
Number of children		2,4±1,4	3,1±1,3	0,160
Number of children desired		3,7±1,4	4±1,4	0,617

The level of education, the age, the number of children and desired number of children of sayana users in Ngozi was not significantly different from those in Bujumbura.

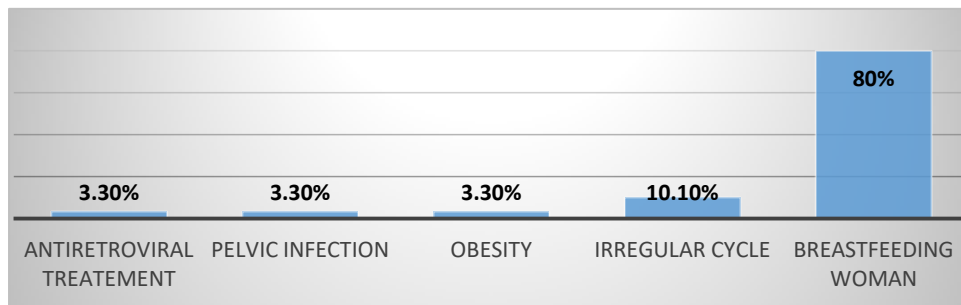### *3.4. Determinants of modern contraceptive use in urban and rural areas*

Figure 5: Distribution of reasons for family planning use

For the 30 participants who gave their opinion, prolonged breastfeeding was the main reason for family planning (80%).

4. Discussion

4.1. Socio-demographic characteristics

4.1.1. Age

The most represented age group was 25-29 years. In our study, participants under the age of 20 were the least numerous (2%). The overall participants of Ngozi and Bujumbura were not significantly different in age (28.4±6.4 years versus 29.4±5.2 years, respectively; p=0.234). However, all participants under 20 years of age were from Ngozi. Participants of 25 to 39 years were predominantly from Bujumbura, while those of 20 to 24 years, and 40 years and above were predominantly from Ngozi. Our results are similar to those of Sango (1996) [14] who found in his study that the majority of women were under 30 years of age (68.3%) whereas Zalha (2004) in his study was found that the 20-34 age group was the most dominant with 78%. [13]. In our study, women aged 20-34 represented 79.1%.

4.1.2. Level of instruction

In our study, most of the women had primary and secondary education (41.8% and 42.3% respectively) while 6.5% of the participants were illiterate. This rate appears to be relatively low compared to the DHS-III [9] and a study done in Mali, reported higher percentages of women not attending school than ours (36% and 26.5% respectively) [8]. This low rate found in our study could be due to the nature of our study, which considered only two provinces, whereas the other studies were carried out at the national level. In addition, we found that the overall participants of Bujumbura had a higher level of education than those of Ngozi, which could

contribute to the lower rate of uneducated women in our sample.

4.1.3. Marital status

Almost all participants (95%) were married women. This is in line with the results found by EDS-III (81%) [9], which converges with the results of other studies that similarly reported high percentages of married women [6,10,12]. However, we did not find a significant influence of the participants' origin on their marital status (p=0.200), which suggests that marriage remains a shared value everywhere.

4.2. Epidemiological profile of different contraceptive methods used in urban and rural areas

4.2.1. Comparison of injectable methods (DMPA and SAYANA PRESS)

In our study, DMPA was the most used contraceptive method by the participants (43.3%). The SAYANA PRESS method was the most used in our study (19.9%). In general, the injectable form was the most used in this study (61.2%). These results are similar to those of a study where the injectable method was the most used (more than the half) [15]. The predominance of these methods would be linked to some of their advantages, notably confidentiality and easy compliance. The injectable method was used more in Bujumbura than in Ngozi, which could be related to the level of education received.

4.2.2. Comparison of Oral Methods (COC and COP)

In our study, the oral COP and COC methods were the second category. This same result was true in another study [15]. This may be due to their advantages, notably confidentiality and compliance and the more convenient mode of administration. Oral methods were more used in Bujumbura (55.8%) than in Ngozi (44.2%), which could be related to the level of education.

4.2.3. Comparison of Contraceptive Devices (IUD and Implant)

In this work, we found that contraceptive devices were the least used method (17.4%). This result is similar to those of some studies in the literature which also found that contraceptive devices were the least used FP method [14,16]. This could be explained by the fact that they are more complex to administer on the one hand and on the other hand they are likely to be a burden to FP clients. The contraceptive devices were used more in Ngozi (68.6%) than in Bujumbura (31.4%).

4.2.4. Comparison of family planning methods according to their frequency of renewal

The previously listed planning methods can be divided into short-replacement methods (DMPA, COC, Sayana, COP) and long-replacement methods (Implant and IUD). In our study, short-replacement family planning methods were more frequently used in Bujumbura (89%) compared to Ngozi (76.2%). Apart from the implant and the IUD, all other family planning methods were more frequently used in Bujumbura.

4.3. Determinants of the use of modern contraceptive methods

Among the 30 participants who gave their opinion, the main reason for family planning was the prolonged duration of breastfeeding (80%). This could be due to the fact that women would like to be reassured and well protected for spacing their births. We also noted that some women consulted for FP because of obesity, pelvic infections and antiretroviral treatment. These consultations could be motivated by certain stereotypes on the modes of transmission of diseases to their children on the one hand and on the other hand for their own health in the case of obesity.

4.4. Difficulties encountered and limitations of the study

Despite the method thoroughly used, this study has some limitations. First of all, the documentation was not easy to find in our context, and secondly, the retrospective nature of the study did not allow us to examine certain aspects in depth, particularly the determinants of family planning use.

4.5. Study implications

Increasing the use of modern contraceptives

To scale-up the use of contraceptive methods, it is necessary to popularize injectable and oral methods in rural areas while insisting on information-education-communication (IEC) with a focus on women aged 27 to 33 years old. These results provide guidance on strategies to address barriers against the use of modern contraceptive methods among women in rural and urban areas in order to promote better birth planning.

5. Conclusion

At the end of this study, the main objective was to study the epidemiological aspects of the use of modern contraceptive methods in urban and rural areas of Burundi. This objective was formulated on the basis of the hypothesis that the use of modern contraceptive methods was linked to the socio-demographic characteristics of users, the type of method and certain determinants related to the different environments of the users.

The first hypothesis according to which the use of different modern contraceptive methods was linked to age, marital status and level of education according to the place of origin was verified. Indeed, the hypothesis was confirmed for age, where the average age of users of oral progestin-only tablets from the Bujumbura CMC was significantly higher than those from Ngozi. On the same line, the level of education was also relevant in the use of modern contraceptives, where the level of education of DMPA users in Ngozi was significantly lower than the one of Bujumbura users. Also for users of combined oral tablets, the level of education was significantly different in the two zones. The hypothesis concerning marital status was rejected but we noted 95% of the participants being all married.

The second hypothesis, which proposed that the use of modern contraceptive methods wass influenced by the way they are administered and their duration, depending on the area of origin, was also verified. Injectable and oral methods were more present among women of Bujumbura than those of Ngozi. Monthly renewal methods (DMPA, COC, COP, Sayana) were more frequently used by women coming from Bujumbura and annual

renewal methods such as IUDs and implants were more frequently used by women coming from the Ngozi centre.

The third hypothesis, which was the use of modern contraceptive methods is related to medical causes and social determinants was tested. It was found that women do indeed use modern contraceptive methods because of medical problems such as pelvic infections, use of antiretrovirals, irregular menstrual cycle. They also adopt FP methods because of social situations such as obesity and prolonged breastfeeding, which was the main reason. Consequently, the results of this study indicate that the orientation of strategies to raise the population's awareness of the use of modern contraceptive methods, taking into account the area of origin (rural or urban), the socio-demographic characteristics of the people concerned (level of education and age), the different types of methods most commonly used (duration and mode of administration) and the determinants of the use of these methods would promote better birth planning in the community. Although this study has certain limitations, it was one of the few to have studied the epidemiological aspects of the use of these methods in rural and urban contexts in Burundi. This is based on the literature search conducted on Google scholar and PubMed databases. Nevertheless, further studies would allow the results to be generalised to our context.

Finally, our study revealed that to scale-up the use of contraceptive methods, it is necessary to popularize injectable and oral methods in rural areas while insisting on information-education-communication (IEC) with a focus on women aged 27 to 33 years old. These results provide guidance on strategies to address barriers against the use of modern contraceptive methods among women in rural and urban areas in order to promote better birth planning.

Références

[1] A. Guillaume, "Les pratiques contraceptives," Guillaume Khlat Méd Santé Reprod. Au Temps Sida En Afr. Collect. CEPED Paris, pp. 55–72, 2004.

[2] P. Vimard, R. Fassassi, and E. Talnan, "Le début de la transition de la fécondité en Afrique subsaharienne," Santé Reprod. Fécondité Dans Pays Sud Nouv. Context. Nouv. Comport. Louvain--Neuve Acad.-Bruylant, pp. 173–214, 2007.

[3] "ONU HABITAT,Programme des Nations Unies pour les établissements humains Document Profil Urbain National du Burundi ,2012 -" Accessed : Aug. 16, 2022.Available: http://unhabitat.org/sites/default/files/download-manager-files/Burundi%20-%20National.pdf

[4] "WHO_RHR_14.03_fre.pdf." Accessed: Aug. 16, 2022. [Online]. Available: http://apps.who.int/iris/bitstream/handle/10665/102761/Who_rhr_14.03_fre.pdf?sequence=1

[5] Organisation mondiale de la Santé. "Planification familiale : un manuel à l'intention des prestataires de services du monde entier". Accessed: Aug. 16, 2022. [Online]. Available: https://apps.who.int/iris/handle/10665/97943

[6] M. M. M. Leyé et al., "Déterminants de l'utilisation de la contraception moderne dans le district sanitaire de Mbacké (Sénégal)," Santé Publique, vol. 27, no. 1, pp. 107–116, 2015.

[7] "Mali - Enquête Démographique et de Santé 2001." Accessed: Aug. 17, 2022. [Online]. Available: https://microdata.worldbank.org/index.php/catalog/1441.

[8] "Mali - Enquête Démographique et de Santé 2018." Accessed Aug. 17, 2022. [Online]. Available:https://microdata.worldbank.org/index.php/catalog/3526.

[9] "SR247.pdf." Accessed: Aug. 17, 2022. [Online]. Available: https://dhsprogram.com/pubs/pdf/SR247/SR247.pdf

[10] A. Bahimana and J.-R. M. Rwenge, "Déterminants de la non-satisfaction des besoins en planification familiale chez les jeunes femmes mariées au Burundi," Sante Publique (Bucur.), vol. 33, no. 3, pp. 445–458, 2021.

[11] M. Bagayoko, "Evaluation et Problématique de la planification familiale en Commune I du District de Bamako.," 2019, Accessed: Aug. 16, 2022. [Online]. Available: https://www.bibliosante.ml/handle/123456789/2085

[12] M. B. Nyange, P. N. Tambwe, F. N. Numbi, J. M. Tawi, and H. L. Mbutshu, "Facteurs limitant l'accessibilité au service de planification familiale par les femmes de l'aire de santé de Kawama à Lubumbashi. République Démocratique du Congo," 2021.

[13] S. M. Zalha, "Les obstacles à l'utilisation des services de planification familiale à Ouagadougou au Burkina Faso," PhD Thesis, Thèse de médecine, Bamako, 2004.

[14] S. Sango, "Contribution à l'étude de la planification familiale dans la commune IV du District de Bamako," Ecole Natl. Médecine, 1996.

[15] "Diallo, S.Y. Kollet. "La Planification familiale en Guinée : Expérience de l'Association Guinéenne pour le Bien-Être Familial (AGBEF) à Conakry, de 2003 à 2007 ". Thèse Doctorat de l'université de Conakry. Option: Médecine. Université Conakry; 2010.

[16] B. Masirika, S. Bisimwa, and C. C. Mukengere, "Connaissance des femmes sur les Méthodes Contraceptives dans la zone de santé rurale de Miti-Murhesa, Province du Sud-Kivu, RDC.," Cah. Cent. Rech. Pour Promot. Sante Crps, 2018.