

Rate of Dual Contraceptive Use Among Women Aged 15-49 Years on Antiretroviral Therapy in Rwanda

Renzaho Jean Nepomuscene^{1,*}, Mukesharurema Gerardine¹

¹Public Health Department, Mount Kenya University Rwanda

Corresponding author:

Renzaho Jean Nepomuscene, Public Health Department, Mount Kenya University Rwanda

Keywords:

Dual contraception, Women in reproductive age & Antiretroviral Therapy.

Received: Apr 16, 2022

Accepted: May 10, 2022

Published: May 14, 2022

Editor:

Lucio Mango, Italy

Abstract

Introduction

Globally, 600,000 women died of complications due to pregnancies among more than 2 million of women on antiretroviral treatment who get pregnant every year due to low utilization of dual contraception and unsafe sex. The failure rate of PMTCT (Prevention Mother-To-Child Transmission of HIV/AIDS) in Rwanda was 2% in 2019. In Rwanda, there was no research done and published on this topic. To fill the gap, the study aimed to assess the use of dual contraceptives among women aged 15-49 years on antiretroviral (ART) in Rwanda.

Methods

A cross-sectional design was conducted from October to November 2021. The sample was 345 participants selected by cluster simple random sampling from a targeted population of 1426 women. The interviews were conducted and structured questionnaires were filled out before entering and analyzing data into SPSS. Descriptive statistics analysis was used to determine frequencies and percentages.

Results

The mean age of interviewees was 35.59 years and the majority of them was married women (60.9%). The dual contraception rate was 40%.

Conclusion

The rate of dual contraception in this area still low according to WHO recommendation and strategies to increase it are of a paramount importance to be put in place by Ministry of Health through Rwanda Biomedical Center, health facilities and partners in terms of training, health education, availability of dual methods at level of the health system and men involvement in Family Planning.

Introduction

One of the major problems relating to public health in countries with low and middle income is

rapid population growth that is not proportional to the wealth within them. The only strategy which is highly cost effective to control the fertility rate in developing countries is the effective and consistent family planning which is of a paramount importance to decide when and how many children a couple will possess. [1]. World Health Organization (WHO) recommended that every single sexually active woman should use any FP method combined with condom to stop new HIV infection and prevent Sexually Transmitted Infections. [2]. Dual contraception is the combination of two contraceptives where one of them is a condom to doubly protect against unwanted pregnancies, HIV and sexually transmitted infections within sexual partners. The dual protection in women enrolled in HIV program under ART and their partners protects against sexual transmitted infections (STIs), limits the risk of new strains of Human Immunodeficiency Virus (HIV) and prevents unplanned pregnancies and of course limitation of vertical transmission of HIV. [3].

Worldwide, 40% of maternal deaths can be avoided by family planning programs implementation and utilization by the beneficiaries. By 2015, the worldwide percentage of FP methods utilization among married or cohabiting women aged 15-49 years was 64% and it was low in Africa where the percentage was only 33%. Globally, 225 million women would like to not get pregnant but were not able to have safe and effective family planning methods. [4]. In 2019, the modern contraceptive prevalence rate among women all over the world stood at 91.3% and the low rates were observed in low and middle-income countries (LMICs) compared to the high rates in developed countries. The prevalence of using modern contraception in the USA was 90.7%, 96.8% for Australia, 96.6% for Brazil, 98.1 for Germany. In Eastern Africa, the modern contraceptive prevalence rates were 90.7% for Uganda, 90.6% for Rwanda, 97.1% for Kenya, 94.4% for South Sudan, 87.4% for Burundi and 86.3% for Tanzania. [5].

Despite efforts put in place by countries in PMTCT, there still a non-neglected risk of HIV infection as the outcome at 24th month of life of the child in developing

countries including Rwanda with low utilization of both single and dual family planning methods. In Rwanda, 2 % of exposed infants born from HIV positive mothers are confirmed positive at 24th month of life. [6]. Women who use the dual contraceptive in reproductive age on antiretroviral followed up in health facilities in Sub-Saharan are still making a small number where the rate are still low. A study done in Ethiopia in December 2018 showed that dual contraceptive utilization was low in three different regions; 19.8 percent in Southwest Ethiopia, 13.8 percent in Tigray, 13.2 percent in Gondar. [7]. Globally, 600,000 women died of complications due to pregnancies among more than 2 million of women on antiretroviral treatment who fall pregnant each year secondary to low utilization of dual. [8].

The percentage of men who had two or more sexual partners was 6.2% and 12% of men said, they had sexual intercourse with other women who were not their wives and only 30.4% used condoms. The trends regarding FP methods in Eastern Province where Kayonza District is located revealed the increase along with time. The contraceptive prevalence rate was 9%, 18.9%, 46% and 53.9% in East of Rwanda according to Rwanda Demographic and Health Survey done in 2000 [9], Rwanda Demographic and Health Survey done in 2005 [10], Rwanda Demographic and Health Survey done in 2010 [11], Rwanda Demographic and Health Survey done in 2015 respectively. The last Rwanda Demographic and Health Survey done in 2020 showed that the contraceptive prevalence rate in the same province where Kayonza District is located was 66.1% with the fertility rate that stood at 4.1 and remained high. [12]. Using condoms among women in reproductive age helps to prevent the infection caused by HIV, STIs, unplanned pregnancy, but when it is used incorrectly and inconsistently, it fails at 14% and women get pregnant during the first year of poor utilization. [13].

Methods

Study Design

A cross-sectional study with quantitative

approach was conducted from October to November 2021 to determine the rate of dual contraceptive use among women aged 15-49 years in Kayonza District, Eastern Province of Rwanda.

Study Setting

The study was conducted in health centers of Kayonza District. This district is one of the seven districts that compose the Eastern Province of Rwanda. Our country is composed of 30 districts that are grouped in four provinces (East, North, West, South and Kigali) and Kigali City. Rwanda is located in East Africa with four neighboring countries: Uganda in north, Burundi in South, DR Congo in West and Tanzania in East.

Target Population & Sample Size

The target population of the present study included women who were aged 15-49 years on antiretroviral therapy, enrolled and followed up in health centers located in Kayonza District, Eastern Province of Rwanda. The calculation of the present study sample size was done to determine the participants who were interviewed by trained data collectors to fill the structured questionnaires that provided data for analysis after being cleaned and entered into SPSS 21 software. The number of participants was determined using Yamane Taro's formula: $n = \frac{N}{1 + N(e)^2}$. The sample will be $n = \frac{1,426}{[1 + 1,426(0.05)^2]} = 313$. The sample was made of 313 participants plus the increment of 10%. Therefore, the sample was made of 345 participants. The sample size for each health center was proportionally calculated and was in function of the number of women who are in reproductive age and taking ART there. To select the study participants, cluster simple random sampling was applied where health centers were considered as clusters. Women who were aged 15-49 years on ART and who were already pregnant or who were lost to follow-up within three last months were excluded from the study.

Data Collection Instruments and Procedures

For every single participant, a structured questionnaire was completely filled. The data collectors interviewed the participants according to predefined

questions on study variables and provide the possible answers so that the women selected the convenient ones for some questions on one side while on the second side, questions were asked and the women gave the answers themselves. The trained data collectors met the participants in different health centers to gather data relating to the questionnaire. They took the patients in a comfortable place, and then interviews were conducted to fill out the structured questionnaire.

Data Analysis

After collecting the data from respondents through questionnaire, they were entered and analyzed with SPSS 21 software. To determine the rate of dual contraceptive use, and the current types dual contraceptive methods, descriptive statistics analysis were used.

Ethical Consideration

Prior to data collection, the study was approved by Mount Kenya University Rwanda and Kayonza District approved and provided the permission to conduct the research. Every study participant signed a consent form before interviewing her. The participants were assured that their data must stay confidential and must be kept without their names. The names of the patients helped to identify them for interview but they have not to appear on the questionnaire

Results

Socio-Economic and Demographic Analysis

The findings of the present study in terms of sociodemographic and economic status revealed that 26.7% of all study participants are currently being followed up at Kabarondo HC for ART and FP. Of them, 56.5% were aged 35 years and above, the mean age was 35.59 years, the minimum and maximum ages were 15 and 49 respectively, 48.1% were catholic, 60.9% were married. According to the level of education for study participants and that of their partners, the majority of patients and partners had the primary level of education where 65.5% of participants finished their primary education and 69.3% of their partners had the same

education. It was revealed that the occupation of the interviewees and their partners was mainly farming; 72.8% of the interviewees were farmers while 65.2% of their partners were declared farmers too and only 2.0% of the patients were working for Government and NGOs (Non-Governmental Organizations) while 2.3% of their partners were employed by Government or NGOs. The study results showed that most of the interviewees were found in ubudehe category 3 and 4 (50.4%) among four categories that define levels of income in Rwanda. (Table 1).

Descriptive Statistics Analysis to Determine the Dual Contraceptive Rate

The sample was made of 345 interviewees. All participated. Of them, 138 women used dual contraception, 65 women used single method and 142 did not use any method neither single nor dual. The dual contraception rate in Kayonza District was 40%. The types of dual methods used in this district were condoms + implants (25.2%) that were highly used, followed by condoms + injectable (7.0%), condoms + pills (5.8%), condoms + IUD (0.9%), condoms + vasectomy (0.9%) and lastly condoms + Bilateral Tubal Ligation (0.3%). The findings showed also that Rwinkwavu HC was found as the health facility where many of the interviewees were highly utilizing dual methods (11.9%) while Ruramira HC showed only 1.4% of them. (Table 2).

Discussion

The findings from this research revealed that a majority of study participants (56.6%) were aged 35 years and above and most of them are married (60.9%). According to the level of education for study participants and that of their partners, the majority of patients and partners had the primary level of education where 65.5% of participants finished their primary education and 69.3% of their partners had the same level of education. 72.8% of interviewees were farmers and 65.2% of interviewees' partners were farmers too. These findings were in line with results from previous studies: The studies conducted in Borena District, Southern Ethiopia, in six hospitals in Thailand, in Bungoma county of Kenya, in

Northern Ethiopia [14], in South East Nigeria [15], and in Kilimanjaro region, Northern Tanzania [16], showed the similar results where the study participants were aged 35 years or more, a big number of them were also married and most participants were of primary education only. Other previous studies such the ones conducted in Ibadan of Nigeria, in South East Nigeria, in the USA [17] revealed the contrast in fact that the findings showed that most of the interviewees were aged less than 35 years. Other studies such the ones conducted in South Africa [18] and in Lusaka of Zambia [19] showed the contrast in level of education where most of the study participants had completed the secondary education or above.

The objective of the study was to estimate the dual contraceptive utilization rate among women in reproductive age on ART in Kayonza District. The results revealed that in this district, 40% of women interviewed were using dual contraceptives to prevent both pregnancy, HIV and STIs and their related consequences. The dual contraception rate of the present study was in line with findings found for a study conducted in Ibadan, Nigeria that stood at 41.5%. The findings of the this study were low compared to the rates estimates in a study done in USA that showed that the utilization of dual contraceptives stood at 58% and the one carried out in Uganda with 58% too. [20]. However, the rate of dual contraception in Kayonza District was higher than those found in studies conducted in Borena of Ethiopia with 19.4% and Northern Ethiopia with 15.7%.

The idea for all people living with HIV/AIDS is to utilize dual contraceptive method as recommended by WHO. The findings of all of these studies were still low as they were not yet still around a hundred percent. This may be due to inaccessibility of FP methods, shortage of trained health care providers and cultural factors that differ from a country to another with different health system strengthening strategies.

The results of this study revealed that the combination condoms + implants was highly used (25.2%), followed by condoms + injectable (7.0%), condoms + pills (5.8%), condoms + IUD (0.9%), condoms

Table 1. Socio-economic and demographic characteristics of respondents

| Variables | Frequency (n=345) | Percentage (%) |
|--|--------------------|----------------|
| Health Facility | | |
| Rwinkwavu HC | 69 | 20 |
| Rutare HC | 15 | 4.3 |
| Ruramira HC | 29 | 8.4 |
| Nyamirama HC | 50 | 17.4 |
| Ndego HC | 24 | 7 |
| Karama HC | 22 | 6.4 |
| Kabarondo HC | 92 | 26.7 |
| Cyarubare HC | 34 | 9.9 |
| Age (Years) | | |
| 15-24 | 40 | 11.6 |
| 25-34 | 110 | 31.9 |
| 35-49 | 195 | 56.5 |
| Religion | | |
| Catholic | 166 | 48.1 |
| Protestant | 127 | 36.8 |
| Islam | 10 | 2.9 |
| No religion | 42 | 12.2 |
| Marital status | | |
| Married | 210 | 60.9 |
| Single | 56 | 16.2 |
| Separated | 44 | 12.8 |
| Divorced/ Widowed | 35 | 10.1 |
| Patient's level of education | | |
| Uneducated | 91 | 26 |
| Primary | 226 | 65.5 |
| Secondary + | 28 | 8.1 |
| Partner's level of education | | |
| Uneducated | 80 | 23.2 |
| Primary | 239 | 69.3 |
| Secondary + | 26 | 7.5 |
| Occupation of the patient | | |
| Housewife | 31 | 9 |
| Farmer | 251 | 72.8 |
| Merchant | 14 | 4.1 |
| Employed | 7 | 2 |
| Casual laborer | 30 | 8.7 |
| Others | 12 | 3.5 |
| Partner's occupation | | |
| No occupation | 28 | 8.1 |
| Farmer | 225 | 65.2 |
| Merchant | 16 | 4.6 |
| Employed | 8 | 2.3 |
| Casual laborer | 34 | 9.9 |
| Others | 34 | 9.9 |
| Ubudehe category (Level of income in Rwanda) | | |
| Ubudehe category 1 | 46 | 13.3 |
| Ubudehe category 2 | 125 | 36.2 |
| Ubudehe category 3&4 | 174 | 50.4 |

Source: Primary Data, 2021

Table 2. Dual contraceptive utilization rate among women aged 15-49 years on antiretroviral therapy in Kayonza District, Rwanda, 2021.

| Variables | Frequency | Percentage (%) |
|---|-----------|----------------|
| Current Dual Contraceptive utilization (n=345) | | |
| Dual contraception users | 138 | 40 |
| Not users | 207 | 60 |
| Dual Contraception rate by types of combinations (n=138) | | |
| Condoms + pills | 20 | 5.8 |
| Condoms + injectables | 24 | 7 |
| Condoms + implants | 87 | 25.2 |
| Condoms + Intra-uterine | 3 | 0.9 |
| Condoms + Bilateral Tubal | 1 | 0.3 |
| Condoms + Vasectomy | 3 | 0.9 |
| Women aged 15-49 years on antiretroviral therapy using dual methods by Health Center in Kayonza District (n=138) | | |
| Rwinkwavu HC | 41 | 11.9 |
| Rutare HC | 8 | 2.3 |
| Ruramira HC | 5 | 1.4 |
| Nyamirama HC | 30 | 8.7 |
| Ndego HC | 12 | 3.5 |
| Karama HC | 9 | 2.6 |
| Kabarondo HC | 24 | 7 |

Source : Primary Data, 2021

+ vasectomy (0.9%) and lastly condoms + BTL (0.3%). The difference between these findings and other previous studies conducted in different countries was clear and explained by the results which were different by considering the top two dual methods each study: The top two types of dual contraceptives methods used found in Borena District of Ethiopia were condoms + injectable followed by condoms + pills, in six hospitals of Thailand the combinations of condoms + sterilization were followed by condoms + oral pills, in Bungoma county of Kenya the combinations condoms + injectable came before condoms + implants and in South East Nigeria condoms + injectable came before condoms + oral pills. The most common combinations were condoms + oral pills were found in all above-mentioned studies. The results of this study showed a low level of utilization of condoms plus long acting

methods where the condoms + Vasectomy and condoms + Bilateral Tubal Ligation while in Thailand the first used combination was condoms + sterilization for male and female. This explained the risk of possible lost to follow up cases, contraception failure, and related consequences in Kayonza District. The differences among chosen types of dual methods may vary according to availability of contraceptive methods and presence of trained health care providers associated to consistent counseling and health education at all times in health facilities.

Conclusion

The dual contraception rate among women in reproductive age on ART in Kayonza District was still low compared to the recommendation of WHO even it was greater than the rates revealed by other studies in some

countries; this requires to go on a long journey to increase the dual contraceptives utilization to prevent HIV transmission from mother to child in the womb, unplanned pregnancies and STIs.

To increase the utilization of dual contraceptives among women sexually active who take ART, some activities should be revised and put into action and they should be related to availability of FP methods at all levels without stock out, training of new and existing health care providers at all levels of Rwanda Health System on counseling and involvement of men in choice and adoption of dual contraceptives among PLHIV. The proposed interventions will be relating to dual contraception provision by quality health care providers after continuous training, accessibility and availability of FP methods at all times and at all levels.

Competing Interests

The authors declare no competing interest.

Acknowledgements

My thanks go straight to everyone who contributed and participated in this study in terms of time, means and efforts in different ways for acquiring this valuable experience. Special and grateful thanks go to my supervisor Dr. Erigene Rutayisire for his kindness and trust during this learning activity. His guidance, assistance and quick feedback inspired me the whole period of writing this thesis. Family, relatives and friends are of a paramount importance in my daily life and studies in particular, thank you all. Last but not least, I would like to thank all MPH Lecturers at Mount Kenya University Rwanda who gave me the theoretical and practical packages. You are all important and valuable in this study.

References

1. E. Starbird, M. Norton, and R. Marcus, "Investing in family planning: Key to achieving the sustainable development goals," *Global Health Science and Practice*, vol. 4, no. 2, pp. 191–210, 2016, doi: 10.9745/GHSP-D-15-00374.
2. N. E. Quispe Calla, R. D. Vicetti Miguel, W. Trout, and T. L. Cherpes, "HIV and Hormonal Contraception," *JAIDS Journal of Acquired Immune Deficiency Syndromes*, vol. 74, no. 3, pp. e85–e86, 2017, doi: 10.1097/QAI.0000000000001174.
3. G. Amare, N. Cherie, and A. M. Mekonen, "Dual contraceptive use and associated factors among reproductive age group on antiretroviral therapy in Borena district, northeast Ethiopia: A cross-sectional study," *HIV/AIDS - Research and Palliative Care*, vol. 13, pp. 107–114, 2021, doi: 10.2147/HIV.S289045.
4. G. A. Tessema, J. S. Gomersall, M. A. Mahmood, and C. O. Laurence, "Factors determining quality of care in family planning services in Africa: A systematic review of mixed evidence," *PLoS ONE*, vol. 11, no. 11, pp. 1–23, 2016, doi: 10.1371/journal.pone.0165627.
5. *World Fertility and Family Planning 2020: Highlights*. 2020. doi: 10.18356/9789210043694.
6. MOH, "Republic of Rwanda Ministry of Health NATIONAL HIV / AIDS TARGETS," pp. 1–29, 2019.
7. F. Abay, H. Y. Yeshita, F. A. Mekonnen, and M. Sisay, "Dual contraception method utilization and associated factors among sexually active women on antiretroviral therapy in Gondar City, northwest, Ethiopia: A cross sectional study," *BMC Women's Health*, vol. 20, no. 1, pp. 1–9, 2020, doi: 10.1186/s12905-020-0890-3.
8. W. Munsakul *et al.*, "Dual contraceptive method use and pregnancy intention among people living with HIV receiving HIV care at six hospitals in Thailand," *Reproductive Health*, vol. 13, no. 1, pp. 1–11, 2016, doi: 10.1186/s12978-016-0123-2.
9. National Institute of Statistics Rwanda, "Rwanda Demographic and Health Survey 2000: Key Findings," 2000.
10. "Rwanda Demographic and Health Survey".
11. P. Report, "Rwanda Demographic and Health Survey," 2010.
12. M. of H. and T. D. P. I. National Institute of Statistics of Rwanda, *Rwanda Demographic and Health Survey 2019-2020: key indicators report*, vol. 53, no. 9. 2020.

13. T. E. Wilson, L. J. Koenig, E. Walter, I. Fernandez, and K. Ethier, "Dual Contraceptive Method Use for Pregnancy and Disease Prevention Among HIV-Infected and HIV-Uninfected Women: The Importance of an Event-Level Focus for Promoting Safer Sexual Behaviors," *Sexually Transmitted Diseases*, vol. 30, no. 11, pp. 809–812, 2003, doi: 10.1097/01.OLQ.0000086617.41012.14.
14. S. W. Gebrehiwot, G. A. Azeze, C. C. Robles, and Y. M. Adinew, "Utilization of dual contraception method among reproductive age women on antiretroviral therapy in selected public hospitals of Northern Ethiopia," *Reproductive Health*, vol. 14, no. 1, pp. 1–9, 2017, doi: 10.1186/s12978-017-0390-6.
15. L. O. Lawani, A. K. Onyebuchi, and C. A. Iyoke, "Dual method use for protection of pregnancy and disease prevention among HIV-infected women in South East Nigeria," *BMC Women's Health*, vol. 14, no. 1, pp. 2–7, 2014, doi: 10.1186/1472-6874-14-39.
16. D. J. Damian, J. M. George, E. Martin, B. Temba, and S. E. Msuya, "Prevalence and factors influencing modern contraceptive use among HIV-positive women in Kilimanjaro region, northern Tanzania," *Contraception and Reproductive Medicine*, vol. 3, no. 1, pp. 1–10, 2018, doi: 10.1186/s40834-018-0060-2.
17. M. L. Kavanaugh, E. Pliskin, and J. Jerman, "Use of concurrent multiple methods of contraception in the United States, 2008 to 2015," *Contracept X*, vol. 3, p. 100060, 2021, doi: 10.1016/j.conx.2021.100060.
18. G. N. Osuafor and S. M. Maputle, "Dual protection and contraceptive method use among women in heterosexual relationships in Mahikeng, South Africa," *African Journal of Reproductive Health*, vol. 21, no. 1, pp. 64–72, 2017, doi: 10.29063/ajrh2017/v21i1.5.
19. C. J. Chibwasha *et al.*, "Modern contraceptive and dual method use among HIV-infected women in Lusaka, Zambia," *Infectious Diseases in Obstetrics and Gynecology*, vol. 2011, no. October, 2011, doi: 10.1155/2011/261453.
20. J. N. Bukenya, R. K. Wanyenze, G. Barrett, J. Hall, F. Makumbi, and D. Guwatudde, "Contraceptive use, prevalence and predictors of pregnancy planning among female sex workers in Uganda: A cross sectional study," *BMC Pregnancy and Childbirth*, vol. 19, no. 1, pp. 1–11, 2019, doi: 10.1186/s12884-019-2260-4.