



Desire for children and unmet need for contraception among women living with HIV in Rwanda. Secondary analysis of the 2014/2015 Rwanda DHS.

**A dissertation submitted in partial fulfillment of the requirement for the Degree of
MASTER OF SCIENCE IN EPIDEMIOLOGY**

By

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DECLARATION

I hereby declare that, except where otherwise indicated, this dissertation document is entirely to the best of my knowledge is my original work and it has not been submitted in whole or in part to any other University. It has been carried out under the supervision of **Dr Regis HITIMANA**

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21/01/2022

DEDICATION

To my family, my friends

AND

To all Rwandan women

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My gratitude and many thanks go to my beloved parents, who have been my source of inspiration provided their moral, spiritual, emotional, and financial support.

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Abbreviations and acronyms

WHO: World Health organization

PMTCT: Prevention of Mother to Child Transmission

MTCT: Mother to Child Transmission

RDHS: Rwanda Demographic and Health Survey

OR: Odd Ratio

CI: Confidence Interval

MOH: Ministry Of Health

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Abstract

Background

A key strategy to minimize infant HIV infection rates from Mother-to-child transmission is reducing the mother's unmet need for contraception and understanding their fertility desires to better accompany them.

In Rwanda, the integration of PMTCT has largely been implemented, and the integration of FP services in ARV clinics is being implemented but there is a still to understand more the factors and strategize better the interventions.

We set out to look into the factors associated with the desire for children in the future and unmet need for contraception to limit or space births among HIV positive women.

Methods

This was a cross sectional study of HIV positive women in the reproductive age, used data from the 2014/15 Rwanda Demographic Health Survey. Data analysis was done using STATA version 13. Bivariate analysis using chi-square test and multivariate logistic regression were used to identify predictors of Desire for children and those for unmet need for contraception. Association with p-value < 0.05 was considered significant.

Results

A total of 247 women were included in the study. More than Twenty percent were in the 40-44 age group. The mean age (SD) was 33.57 (8.56) years. 39.51% of respondents desired to have children in the future; and 10.63 % reported to have unmet need for contraception. 24.41% of respondents had one living child; 62.2% of respondents were not using any contraception method. Being divorced was statistically significant to not desire children in the future compared to those never in union (AOR= 0.2073, 95% CI[0.045,0.963]); Respondents using injections as a

contraceptive method were less likely to desire children compared to those not using any method (AOR= 0.1369, 95% CI[0.035,0.537]). Having no religion was statistically significant to have unmet need compared to being catholic (AOR= 36.97, 95% CI[1.73,790.07]); Respondents living in rural places were less likely to have unmet need compared to those living in urban places (AOR= 0.3262, 95% CI[0.108-0.90]).

Conclusion

HIV positive women do have desire for children in the future and do have unmet need for contraception and needs to be taken into consideration. We recommend specific strategies to ensure HIV positive women have access to contraceptives.

Keywords: Desire for children, unmet need, contraception, HIV positive women.

CHAPTER I: INTRODUCTION

1.1. BACKGROUND

Human immunodeficiency virus (HIV) continues to profoundly affect women across all over the world (1), the burden is more heavy in sub-Saharan Africa(2) ; more 58% of adults live with HIV(1) and 53% of all HIV related deaths in the Sub-Saharan Africa are women(2). In Rwanda HIV prevalence in adults aged 15-49 years is 3%; The RDHS 2014/15 showed that HIV prevalence is higher among women (3.6 %) than men (2.3%) and that it increases with age and is highest among women aged 40-44 (8%)(3)

Most of African women are vulnerable to HIV due to many other social factors including social vulnerability and gender inequalities(4). Most of these women are of reproductive age, so they risk transmitting the virus to their children and which makes it very hard for them to make choices when it comes to their reproduction (5).

Despite some of risks; studies have shown that even though some women are living with HIV, they continue to have the desire to have children, even after being fully aware of their HIV-positive status(6). Being HIV positive does not seem to negatively change childbearing intentions of some women(6). The desire of having childbearing in the future has some significant implications for the mother to child transmission and sexual partner(7).

Rwanda's fertility rate declined slowly prior to the year 2005 then from 2005 to 2010 the country experienced one the fastest fertility declines (from 6.3 to 4.6 per woman)(8), uphold by an tremendous increase in contraceptive use(9). However, in the followed 5 years (2010-2015) the rate of decline decelerated, the fertility rate dropped by less than half a child to 4.2 births per woman (9). Currently, the information on desire for childbearing, differences of fertility intentions and reasons to desire to have future children among women living with HIV are lacking. Hence providing reproductive health services which responds to their needs requires understanding their childbearing and fertility intentions.

Access to full range of sexual and reproductive health services, including contraceptives is a fundamental human right and key component to the well-being of women and adolescent girls (10) Considering special groups like HIV positive women is key to ensure that no one is left behind.

One of the major components of PMTCT is prevention of unintended, unwanted pregnancies among women living with HIV, which increases the level of fertility of women living with HIV(7). Two determinants of the level of fertility are the desire for children and unmet need for contraception to limit or space births(11).Therefore, this paper utilizes the 2014/2015 RDHS to analyze the factors associated with these two determinants among women living with HIV, to help identify strategies to increase their access to contraception which is key in eliminating MTCT in Rwanda.

1.2. Study objectives

Main objective

The main objective of this study is to analyze the factors associated with desire for children and unmet need for contraception among HIV positive women

Specific objectives

- To describe socio demographic Characteristics of HIV positive women
- To determine factors associated with desiring children among HIV positive women
- To determine factors associated with unmet need for contraception among HIV positive women

CHAPTER II. Literature review

2.1 Empirical framework

The literature highlights various different views regarding women living with HIV' fertility intentions, their use of contraception. Some studies have found that even when a woman is aware of her HIV positive status, and has been informed about the risks of MTCT, the desire for children remains high (12). A Qualitative study conducted in Côte d'Ivoire showed a strong desire for future childbearing among women who knew they were HIV-positive(11) .In countries where the fertility rate is high, some women may wish to have a child to keep out of sight their status and avoid suspicion that they are HIV positive(13). Having children for some might also provide a sense of normal family life and an affirmation of wellbeing(14). In contrast, A study conducted in Kenya showed that HIV-positive women aware of their status are less likely to desire to have a child in the future than HIV-negative women (15). A study conducted in Uganda found that only 7% of HIV-positive women want to have a child in the future(16). Generally, the fertility level of women living with HIV is lower than that of women who are HIV negative because the ones who are HIV positive are more likely to be divorced, widowed or have other infections like sexually transmitted infection(12).

In some studies knowledge of HIV status among infected women resulted in an increase of contraceptive use, other studies found a lack of persistent use of contraception and a significant discontinuation similar to HIV-negative women(17). In Lesotho, only 35% of currently married women use a modern contraceptive method, despite increases in contraceptive use in the late 1990s(11).

In sub-Saharan Africa, contraceptive prevalence is more than five times higher among women in the highest wealth quintile compared with those in the lowest wealth quintile, a far larger differential than in any other region of the world(18) .In Tanzania, although the level of HIV prevalence is lower among women in the poorest wealth quintile (19.6%) than those in the other quintiles, the risk of MTCT among poor women is of concern because they have a higher level of unmet need for contraception(19). Other research in sub-Saharan Africa has found that use of

contraception increases if a woman has previously discussed contraception, been exposed to mass media about family planning, or approves of family planning (20).

A study in Lesotho on desire for children and unmet need showed that Unmet need for contraception is highest among women in the poorest households (11).

A study in Nigeria found that a large percentage of HIV-positive individuals within the reproductive age in southwest Nigeria desires and intends to have children in the future in spite of their unfavorable sociodemographic and health-related characteristics. Those who desire children were generally younger, have shorter time lapse since diagnosis of HIV infection, have fewer or no children and are less likely to disclose their serostatus to their partners (21).

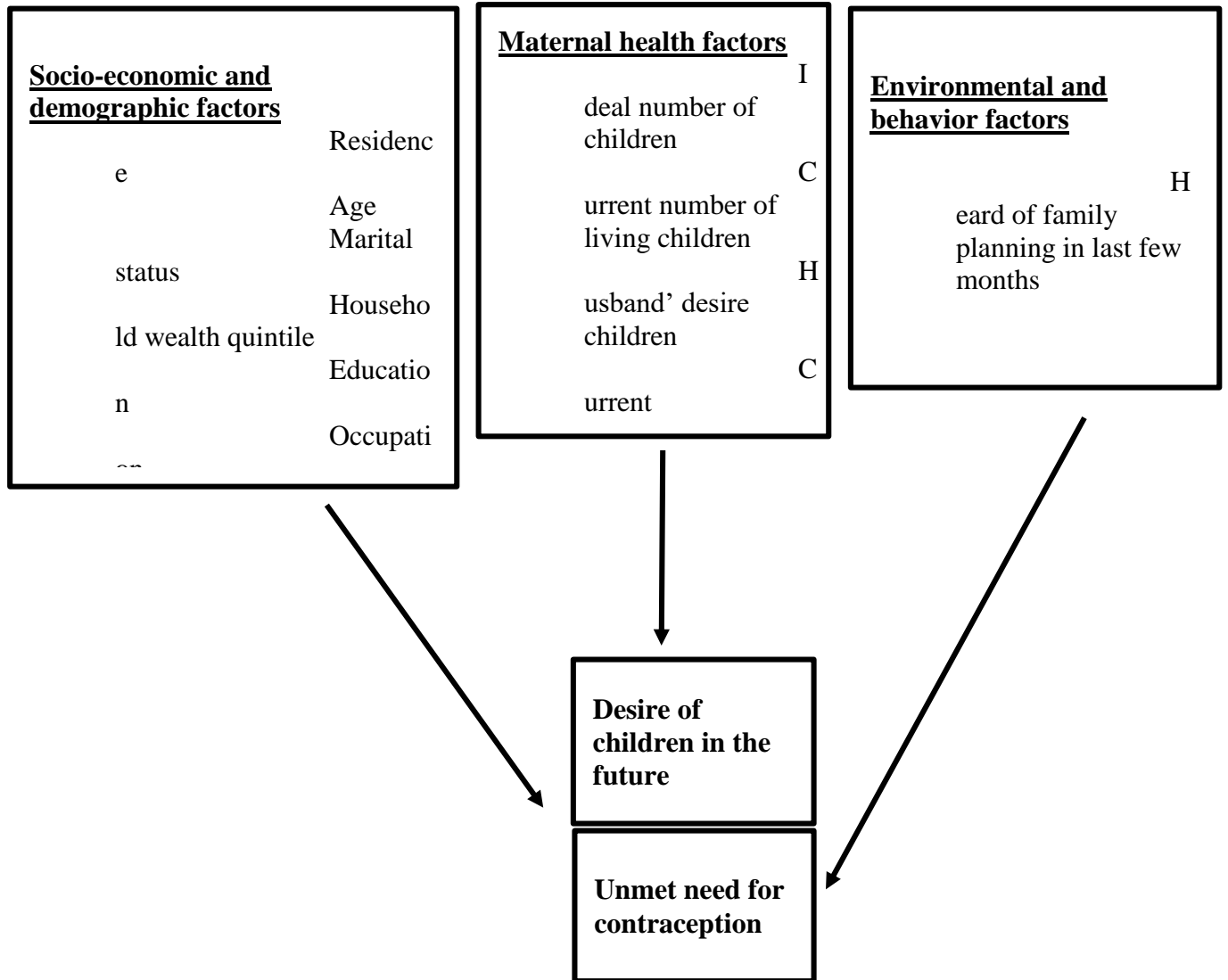
2.2. Conceptual framework

The framework to better understand factors associated with desire for children and unmet need for contraception

Socio demographic factors: Residence, marital status, household wealth quintile, education, age, occupation, Religion.

Environmental and behavior factors: heard of family planning in the last few months

Maternal Health factors: Current number of living children, Ideal Number of children, current contraceptive method



CHAPTER III: METHODOLOGY

3.1. Study design

This is a secondary data analysis of the 2014/15 Rwanda Demographic and Health Survey (RDHS).

The 2014/15 RDHS is a cross-sectional survey that uses multistage cluster sampling of villages and households, with stratification by all 30 districts.

3.2. Study area

The Rwanda Demographic and Health Survey in 2014-2015 was a national survey conducted across thirty (30) districts in five (5) provinces in Rwanda.

3.3. Study population

In the study 12,699 households were interviewed. Although 13,564 eligible women from 15 years to 49 years were identified for the interview, only 13,497 women were successfully interviewed (2014/15 RDHS).

3.4. Study variables

Two outcome/ dependent variables are: the desire for children and unmet need for contraception.

The desire for children is measured by whether a woman would like to have a child in the future. Women that have not had sex are included in the construction of the variable; those that cannot get pregnant (i.e., sterilized or infecund) are not included; and those that are undecided are coded as not wanting a child. (22)

Unmet need for contraception comprises women who have an unmet need for limiting or spacing births. The unmet need variable is related to fertility preferences: broadly defined, unmet need for

limiting births refers to women who do not want a child in the future and are not using a method of family planning, and unmet need for spacing births refers to women who want a child in the future but not within two years and are not using a method of family planning. (22)

The explanatory variables/ Independent variables

i. socioeconomic and demographic

- Residence,
- marital status,
- household wealth quintile,
- education,
- age,
- Religion

- Employment or occupation

- Current number of living children

- Have heard of family planning

- Current contraceptive method uses

3.5. Data analysis

Using the dataset of RDHS 2014/15, This study used Descriptive statistics to describe variables using Frequency and percentage; Bivariate analysis to test the association between the two outcomes and all selected independent variables using Chi-Square test; The Multivariate analyses were conducted using logistic regression to adjust and control for other factors. All analyses were computed in Stata 13.0 (StataCorp, 2003).

In the descriptive analysis, the distribution of the sample was presented according to the categories of each independent variable. In the bivariate analysis, independent variables that were found to be significantly associated with the two outcomes (Desire for Children and unmet need for

contraception) were kept and fitted in the multivariate logistic regression model, using 5% level of significance.

3.6. Ethical consideration

The RDHS 2014-2015 was approved for ethical and methodological considerations by the Rwanda National Ethics Committee and the National Institute of Statistics of Rwanda.

CHAPTER IV: RESULTS

4.1. Descriptive statistics

A total of 254 women who are HIV positive aged 15-49 were included in the analysis. In this study 20.47% of HIV positive women were aged 40-44, 19.29% were aged 30-34, 18.9% were aged 25-29 years. 31.5% were living with a partner, 20.47% were married, 18.5% were never in union. Of all HIV women, 39.76% were doing agricultural self-employed, 16.93% were doing sales, 11.42% were doing agricultural but employee, 8.27% were unemployed. More than half of HIV positive women lived in Rural (53.15%).

Overall 94.49% of HIV positive women were Christians (44.49% were protestants, 34.65% were Catholics, 15.35% were Adventist) and None were in the tradition religion.

Of all the HIV women, 39.37% had not completed primary education and only 1.57% had higher education.

Approximately 40% of HIV women were richest and 19.69% were poorest, in the wealth quintile. Approximately a quarter of HIV positive women had one living children and only 1.57% had eight living children.

31.89% of HIV positive women responded 3 as the ideal number of children, and 1.18% who responded 0 as the ideal number of children.

Of all HIV positive women 58.27% have heard of Family planning. Six two percent of HIV positive women were not using any contraceptive method, None of the HIV positive women were using male sterilization nor lactational amenorrhea or standard days method.

Table 1: Descriptive statistics

variable	N	%
Age		
15-24	39	15.35
25-34	97	38.19
35-44	90	35.43
45+	28	11.02
Place of residence		
urban	119	46.85
rural	135	53.15
Religion		

catholic	88	34.65
protestant	113	44.49
adventist	39	15.35
muslim	9	3.54
jehovah witness	2	0.79
no religion	3	1.18
Highest education level		
no education	46	18.11
incomplete primary	100	39.37
complete primary	61	24.02
incomplete secondary	29	11.42
complete secondary	14	5.51
higher	4	1.57
wealth quintile		
poorest	50	19.69
poorer	31	12.2
middle	47	18.5
richer	27	10.63
richest	99	38.98
current contraceptive method		
not using	158	62.2
pill	5	1.97
iud	7	2.76
injections	30	11.81
condom	18	7.09
female sterilization	6	2.36
periodic abstinence	4	1.57
withdrawal	1	0.39
implants/norplant	25	9.84
current marital status		
never in union	47	18.5
married	52	20.47
living with partner	80	31.5
widowed	40	15.75
divorced	21	8.27
no longer living together/separated	14	5.51
occupation (grouped)		
not working	21	8.27
professional/technical/managerial	10	3.94

clerical	1	0.39
sales	43	16.93
agricultural	130	51.18
household and domestic	19	7.48
services	9	3.54
skilled/unskilled manual	21	8.27
heard_fp		
no	106	41.73
yes	148	58.27
ideal number of children		
0	3	1.19
1-3	156	61.66
4+	94	37.15
number of living children		
0	30	11.81
1-3	161	63.39
4+	63	24.80
Husband wants more children		
both want same	85	66.93
husband wants more	17	13.39
husband wants fewer	12	9.45
don't know	13	10.23

4.2. Bivariate analysis

Table 2 shows the bivariate analysis to know which variables were statistically significant in predicting the desire for children and/or unmet need for contraception.

For predicting the Desire for children, the following factors were statistically significant:

Age ($p < 0.0001$), Marital status ($p < 0.0001$), number of living children ($p < 0.0001$), and current contraceptive use ($p < 0.0001$).

HIV positive women aged 15-19 had a higher proportion(92.3%) of the respondents who desire children in the future than other age groups. The proportion of HIV positive women who were never union (69.6%) and no longer living together(63.6%) who desire children in the future were higher than those HIV positive women with other marital status. HIV positive women who had

no living child (86.2%) and those using no contraceptive method(51.3%) had a higher proportion of desiring children in the future.

For predicting the unmet need for contraception, Age (p=0.023), Place of residence (p=0.029) and Religion (p=0.003) were statistically significant;

The proportion of HIV positive women who were living in Urban and had unmet need for contraception(15.13%) was higher than for those who were living in Rural. The proportion of HIV positive women who had no religion (66.67%) and the Jehovah's witnesses (50%) who had unmet need for contraception were higher than those HIV positive women who were christians.

Table 2

Variable	Desire for children (%)			Unmet need for contraception (%)		
	Yes	No	p-value	Yes	No	p-value
Age			0.0001			0.023
15-24	81.58	18.42		7.69	92.31	
25-34	53.19	46.81		12.37	87.63	
35-44	15.12	84.88		11.11	88.89	
45+	8	92		7.14	92.9	
Place of residence			0.067			0.029
urban	45.6	54.4		15.13	84.9	
rural	34.1	65.9		6.67	93.3	
Education			0.074			0.338
no education	33.3	66.7		17.39	82.6	
primary	37.9	62.1		8.7	91.3	
secondary	54.8	45.2		11.63	88.4	
higher	0	100		0	100	
Religion			0.705			0.003
catholic	36.5	63.5		9.09	90.9	
protestant	42.2	57.8		13.27	86.7	
Adventist	37.8	62.2		2.56	97.4	
Muslim	42.9	57.1		0	100	
Jehovah witness	0	100		50	50	
no religion	66.7	33.3		66.67	33.3	
wealth quintile			0.306			0.572
poorest	27.7	72.3		14	86	
poorer	38.7	61.3		3.23	96.8	
middle	39.5	60.5		10.64	89.4	
richer	36	64		7.41	92.6	
richest	46.4	53.6		12.12	87.9	

Marital status			0.0001		0.802
never in union (ref)	69.6	30.4		8.51	91.5
married	25	75		13.46	86.5
living with partner	50	50		12.5	87.5
widowed	5.1	94.9		7.5	92.5
divorced	19	81		4.76	95.2
no longer living together/separated	63.6	36.4		14.29	85.7
Occupation			0.083		0.673
not working	60	40		14.29	85.7
professional/technical/managerial	37.5	62.5		10	90
clerical	0	100		0	100
sales	42.9	57.1		6.98	93
agricultural	30.95	69.05		10	90
household and domestic services	66.7	33.3		10.53	89.5
Skilled or unskilled manual	44.4	55.6		0	100
	42.11	57.89		23.81	76.19
ideal number of children			0.19	-	-
0	50	50			
1-3	41.06	58.94			
4+	36.67	63.33			
number of living children			0.0001	-	-
0	86.2	13.8			
1-3	42.58	57.42			
4+	8.47	91.53			
husband's desire for children			0.112	-	-
both want same	34.5	65.5			
husband wants more	62.5	37.5			
husband wants fewer	58.3	41.7			
don't know	41.7	58.3			
current contraceptive method			0.0001	-	-
not using	51.3	48.7			
pill	20	80			
iud	14.3	85.7			
injections	13.8	86.2			
condom	11.1	88.9			
periodic abstinence	0	100			
withdrawal	100	0			
implants/norplant lactational amenorrhea standard days method	32	68			
Heard of family planning last few months					0.762

no	-	-	11.32	85.8
yes	-	-	10.14	81.8

4.3. Multivariate analysis

Multivariate analysis of factors associated with desire for children in the future

Table 3 shows the results of the adjusted model to identify factors associated with desire of children in the future using which were significant in the bivariate. Three factors were found to be associated with desiring children in the future:

HIV positive women who were divorced were 79.27% less likely to desire children compared to HIV women who were never in union (AOR=0.2073, 95% CI[0.045,0.963]). Those who were using injections as a method of contraceptive (AOR=0.1369, 95% CI[0.035,0.537] or condom (AOR=0.1475, 95% CI[0.024,0.908]) were less likely to desire children in the future compared to the ones who were not using any contraceptive method.

Table 3

	desire for children		
	Odds Ratio	95% C.I	P-value
Age			
15-24 (ref)			
25-34	0.50644	0.156, 1.519	0.236793
35-44	0.14634	0.037, 0.529	0.004386
45+	0.06842	0.007, 0.438	0.008253
Current contraceptive method			
not using (ref)			
Pill	0.15160	0.007, 1.311	0.123608
Iud	0.21579	0.010, 1.845	0.209885
Injections	0.11582	0.028, 0.383	0.000963
Condom	0.11725	0.016, 0.556	0.014316
periodic abstinence	1		
Withdrawal	1		
implants/Norplant	0.33578	0.105, 1.027	0.058255
Marital status			

never in union (ref)			
Married	1.63080	0.445, 6.216	0.464353
living with partner	1.59139	0.577, 4.480	0.371459
Widowed	0.12809	0.017, 0.642	0.021533
Divorced	0.19376	0.040, 0.797	0.028653
no longer living together/separated	1.14566	0.245, 6.024	0.865649
Number of living children			
0 (ref)			
1-3	0.30008	0.055, 1.180	0.113278
4+	0.08406	0.011, 0.483	0.008624

Multivariate analysis of factors associated with unmet need for contraception

In the full and reduced model to identify factors associated with unmet need for contraception;

HIV positive women who were Jehovah's witnesses or were having no religion were positively associated with having unmet need for contraception, Jehovah's witnesses were 51 times more likely to have unmet need compared to those who were catholic (AOR= 51.889, 95% CI[1.999, 1347.27]) while those with no religion were approximately 37 times more likely to have unmet need compared to those who were catholic (AOR= 36.97, 95% CI[1.73, 790.07]).

HIV positive women who were living in Rural were 67.4% less to have unmet need for contraception compared to those who were living in urban (AOR= 0.3262, 95% CI[0.108, 0.98])

Table 4

	Unmet need		
	Odds Ratio	95% C.I	P-value
Age			
15-19 (ref)			
20-24	1.398	0.339, 7.820	0.66613
25-29	1.334	0.282, 8.189	0.73058
30-34	0.761	0.075, 6.479	0.80103
number of living children			
0(ref)			
1-3	2.635	0.419, 51.899	0.38572
4+	3.213	0.404, 69.765	0.33343
Religion			
catholic (ref)			

Protestant	1.431	0.576, 3.781	0.44953
Adventist	0.260	0.014, 1.529	0.21577
Muslim	1		
Jehovah witness	12.002	0.1422, 428.366	0.12316
no religion	17.756	1.422, 430.329	0.02963
Place of residence			
Urban(ref)			
Rural	0.410	0.160, 0.989	0.05241

CHAPTER V: DISCUSSION

This study suggests that 39.51% of HIV-positive women within the reproductive age in Rwanda desire to have children in the future, which is less than the general population desire for children national figure which is 53.58%, The overall unmet need for contraception among HIV positive women is 10.63%, which is very close to the Rwandan general population 'one of 12.76% according to the RDHS 2014/15. This shows the need and demand for contraception in HIV positive women.

Based on results from bivariate and multivariate tests, participants who desire children are generally younger (15-19 years old) and as they grow up, they become less likely to desire more children, especially for women with at least four living children. This finding was consistent with study in Nigeria and showed that the desire for children in the future is higher in younger women and those who have fewer or no children (17). Desire for children was found to be similar when HIV positive women who had never been in union were compared with other categories of Marital status expect divorced HIV positive women, the divorced had less desire for children in the future and the difference was statistically significant, and HIV positive women who use injections as a contraceptive method did not desire children in the future compared to those who use other contraceptive method.

The results on unmet need showed that place of residence, and religion factors might play a role in either meeting contraceptive needs or not, especially for HIV positive women with no religion who were much more likely to have unmet need. Surprisingly, despite the facilities found in urban areas, HIV positive women in those areas are more likely to have unmet need for contraceptives compared to HIV positive women from rural. This means that awareness campaign should be intensified.

Despite other studies in Zambia, Swaziland, Uganda and Ethiopia where the odds of unmet need for contraceptives were found to be higher in cohabiting but not married couples (22), in this study we didn't find any statistical significance between the Marital status categories difference.

Conclusion & Recommendations

This study analyzed the factors associated with desire for children and unmet need for contraception among HIV positive women in Rwanda. There are several factors found in this study that are influencing the desire for children and the unmet need for contraception among HIV positive women in Rwanda.

This study's findings demonstrate that women who are HIV positive women desired children in the future and has a high unmet need for contraception, which should be a concern.

Even though Rwanda has made tremendous progress in reducing MTCT, there is still a need to strengthen the PMTCT program by strategizing and consider some factors like age, marital status, place of residence, as some of the factors that can increase childbearing among HIV Positive women.

Access to contraception to prevent unintended pregnancies, reduce maternal and infant morbidity and mortality rates and other relevant social and economic benefits. Understanding HIV positive women fertility desires and contraceptives needs is key to be able to expand and ensure the provision of family planning services and address the WHO's second prong for PMTCT.

Special attention to HIV positive young women, HIV positive women living in urban places and have never been in union to ensure that contraceptives needs are met.

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