Unmet Need for Contraception Use among HIV Positive Women in Kwale County, Kenya

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Summary

INTRODUCTION

The HIV pandemic has been one of the biggest challenges in public health across the world since its emergence. Millions are still getting infected every year, despite all the efforts made to prevent new infections. The use of modern contraceptives is one of the strategies used in preventing vertical transmission of HIV by averting unplanned pregnancies, yet the uptake among HIV infected women is still below expectations especially in rural communities with fewer resources. Therefore this study aimed to determine the contraceptive use among HIV- positive women in Kwale County, Kenya.

MATERIALS AND METHODS

The cross-sectional study design was used, interviewing 347 HIV positive women aged 15-49 years who had been attending selected Comprehensive Care Clinics in Kwale County, for at least three months. Questionnaires were used between March and April 2021 to collect data from participants based on a systematic sampling with a skip interval used to select the participants. Data were managed and analysed using Ms Excel and STATA 16, respectively. A P-value of <0.05 was considered statistically significant.

RESULTS

The contraceptive prevalence rate was 79% (95% CI 74.3; 82.9) and the unmet need for contraception was 21% with 18% and 3% was the unmet need for limiting and spacing, respectively. The most commonly used modern contraceptive methods were injectables (48%) followed by implants (36%) then condoms (8%) and 4% were on hormonal pills. Older women aged between 45 and 49 had the highest unmet need for contraception (16;4.6%)[X2=53.9031, p=0.000]. Marital status [X2=68.7855, p=0.000] and parity [X2=, 7.9921 p=0.018] were also associated with contraceptive use.

CONCLUSION

The contraceptive prevalence rate and unmet needs were 79% and 21% respectively among HIV-positive women of childbearing age in Kwale County. Age of 45-49 years, widowed, and nulliparous status was associated with unmet needs for contraception.

RECOMMENDATIONS

Literature indicates that spousal support encourages women to use contraceptives. Therefore, National and local governments should prioritize endorsing policies and programs targeting widowed and unmarried women to encourage them to utilize modern contraceptives.

Keywords: *HIV/AIDS, PMTCT, Contraceptives, Kenya*

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Introduction

The HIV pandemic has been one of the biggest challenges in public health across the world since its emergence. The WHO report for 2017, states that 50% of all adults living with HIV/AIDS were women out of the 36.7 million people infected with HIV/AIDS. Fortunately, people living with HIV/AIDS now have a higher life expectancy as an outcome of antiretroviral therapy (ART), and consequently, women living with HIV must now be empowered on fertility decision making. The availability, access, and utilization of HIV treatment have led to an improved life expectancy and an increase in fertility desire. In this regard, HIV-positive women can now decide whether to have children and when to have them (1).

The use of contraceptives has greatly contributed towards the reduction of maternal and child morbidity and mortality as well as abortions, brought about by unintended pregnancies (2). Moreover, contraceptive use among HIV-infected women is the most cost-effective approach used to prevent vertical transmission of the virus by preventing unintended pregnancies (3). Even though it is known that contraceptive use has more benefits to women living with HIV, A study by Damian, George, Martin, Temba, & Msuya 2018, on prevalence & factors that influence the use of modern contraceptives among HIV-positive clients suggested that women in Sub-Saharan Africa still have a high (51-90%) rate of unwanted pregnancies. Contraception averts 19.7% of cases of Mother-to-Child transmission of HIV, therefore, strategies that lead to an increase in the uptake of contraception among HIV-positive women need to be adopted (3).

Preventing unplanned births in women who live with HIV is a key intervention that helps in reducing the rate of transmitting HIV to infants and children (4). To promote the prevention of HIV transmission from mother to baby, World Health Organization (WHO) identifies preventing unintended pregnancies to be one of the four approaches it uses, (5). In Kenya Children 0-14 years account for 9% (6,613) of the total new HIV infections as reported in the Kenya AIDS Response Progress Report of 2016. Utilization of antiretroviral therapy (ART) during pregnancy would have averted most of these infections compounded with a fourth mechanism of the use of contraceptives among HIV-positive clients as a method of preventing mother-to-child transmission (PMTCT).

Almost a third of all maternal deaths could be reduced by ensuring the unmet need for family planning is satisfied. Despite this knowledge, an estimated 215 million women are unable to access effective and safe contraception even if they would wish to avoid or delay a pregnancy, thus along with providing skilled maternal care, contraceptive use contributes significantly in preventing maternal mortality(2).

A study conducted in Ghana at Komfo Anokye Teaching Hospital conducted in 2012 revealed that among female clients living with HIV, only 42.6% used modern contraceptives. In the same year July 2012, another study was done in Eastern Sudan found out that 44.8% of women who had ever-married and are in the ages of reproduction had an unmet need for family planning. Studies have presented on the prevalence of contraceptives, the levels that show the unmet need for FP, and even fertility rates in the general population however there is inadequate information on contraceptive use among reproductive-aged HIV-positive female clients in Sub Saharan Africa (3).

The prevalence rate for modern contraceptives in Kenya was estimated at 53% and unmet need of 25% among married women while Kwale County had a contraceptive prevalence among women of childbearing age estimated at 32.5% with an unmet need of 35%

(6). According to KAIS 2012, only 68.7% of HIV-infected women of childbearing age in Kenya were on modern contraception. Family planning use by HIV-positive women in Kwale County is however not documented.

Based on WHO MEC 2015, the various choices for FP including oral methods for FP, Injectable, Implants, Intrauterine Devises (IUD), Barrier methods, and Spermicides could be a good choice for HIV positive mothers especially those that have not advanced in the disease and are using antiretroviral (ARV) treatment.

According to the Kenya AIDS Response Progress Report (7), Kwale County had a Mother to child transmission of HIV recorded at 21% way far above the national target of less than 5% transmission. Without preventing unintended pregnancies by HIV positive mothers, the National agenda of eliminating mother to child transmission of HIV will never be realized (6).

Contraceptive use can help women positive for HIV have controlled births and prevent unwanted pregnancies. Kwale County had 352 Known HIV-positive women that were recorded to be pregnant in 2018. Kwale County had a Mother-Child transmission of HIV recorded at 21% which is way above the national target of less than 5% transmission rate that could have been avoided if the HIV-positive women were using family planning (8).

Today Kwale County has at least one health worker in each health facility trained in Long-Acting Reversible Contraception yet family planning utilization by the HIV-positive female clients of ages 15-49 years is still low.

Contraceptive use can help HIV-positive female clients have controlled births and prevent unwanted pregnancies. Today people living with HIV are surviving longer due to better treatment. More HIV-positive women will want to choose whether and when to have a child. A key strategy in reducing the transmission of HIV to children and infants is by making sure unintended pregnancies especially in women infected with HIV are prevented (4).

Even with the significant investment that the County has made in strengthening the institutional capacity to provide LARC services to women that have started bearing children including those that are HIV-infected in Kwale County still has a significant (35%) unmet need for FP (6). The study will therefore intend to determine the contraception among HIV-positive women in Kwale County.

Materials and Methods

A cross-sectional study design was used among HIV-positive female clients of childbearing age attending Comprehensive Care Clinics (CCC) in Kwale County, between March and April 2021. Thirty-three CCCs with at least 30 registered clients were purposively selected from among the 89 CCCs in Kwale County, Kenya. To participate in the study, the women had to be aged 15- 49 years of age, postpartum, pregnant, or non-pregnant women utilizing services in the selected CCCs for at least three months before the time of the study. Only clients who agreed to be in the study were picked for participation in the study.

The number of study participants was equitably determined based on the percentage contribution of the number of clients per CCC within the 33 CCC sites. A simple random sampling technique was used where yes and no papers were used to select the clients that responded to the questionnaire.

According to the KAIS 2012, 68.7% of HIV clients on ART were recorded to be on modern contraception.

The sample size was determined based on Andrew Fisher's exact formula as follows:

$$n = \frac{(Z^2Pq)}{d^2}$$

Where:

n= the desired sample size

Z=standard normal deviation (set at 1.96, 95% Confidence Interval)

P=Proportion of the target population (HIV-positive women of childbearing age, using contraceptives in Kenya.

q = % of HIV Positive women not using modern contraception

d =degree of accuracy set at 0.05%

Therefore:

$$n = 1.962 \times \frac{0.687 \times 0.313}{0.052}$$

n = 331

To correct for a population less than 10,000, the sample size was determined as:

nf= n/1+n/N

331/1+331/6252

nf = 315

To cater for non-responses during data collection, an additional 10% of the sample was introduced to the sample size. In this respect, the study sample size was 347 participants.

The study subjects were picked from the CCC sites as illustrated in Supplementary Table 1. Semi-structured questionnaires were used for data collection. The questionnaires were designed carefully, pretested, and necessary adjustments were done before the final one set for data collection. Research assistants were also trained to ensure the quality of data collected.

A record review of the files of the interviewed HIV-positive clients' was also done to get the viral load status of the clients and verify when they started the services in the respective CCCs. The pre-test was done in selected ART sites (Mariakani Sub County hospital and Kokotoni dispensary) in Kilifi County and Mbuta Health centre in Likoni Sub-County Mombasa County.

Pre-analysis and data cleaning were done to check for wrongly captured data, missing information, outliers, and repetition using Ms Excel. STATA 16 was used for the analysis with a p-value of <0.05 considered statistically significant.

Ethical approval to conduct the study was from the Kenyatta University Ethics Review Committee Ethics number PKU/2212/11356, and National Council for Science and Technology while procedural approval was requested and granted by the County Government of Kwale department of health services leadership and the facility in-charges of the facilities where the study was conducted. Informed consent was obtained from all participants before data collection.

Results

Contraceptive prevalence rate and unmet need

The contraceptive prevalence rate among HIV-Positive women of reproductive age in Kwale County was 79 % (95% CI 74.3; 82.9). The total number of women with an unmet need for family planning consists of two groups: (a) those with an unmet need for limiting, herein denoted as UL, and (b) those with an unmet need for spacing herein denoted as the US.

We define women with an unmet need for limiting as those who are not using any method of family planning and do not feel the need to have any more children.

Table 1: Prevalence Estimates for Unmet Need for Contraception Use

Unmet FP need	Prevalence estimate	95% Confidence Interval	
		Lower	Upper
U_L	18.2	14.4	22.6
U_S	2.9	1.6	5.3
U_T	21.0	17.1	25.7

In this context, we define women with an unmet need for spacing as those who are also currently not using a method of family planning but on the other hand, feel the need to have additional children in the future. The unmet FP need (UT) is, therefore derived as, UL + US. The unmet need for FP among HIV-positive women in Kwale County is approximately 21% with about 18% and 3% being the unmet need for limiting and spacing respectively. Table 1 presents the prevalence estimates plus 95% confidence intervals.

Socio-demographic profile

A total of 348 eligible HIV-positive women. The age was normally distributed with a mean of 32 years and ranged from a minimum of 17 years to a maximum of 49 years. Parity was skewed, with a median of 3 (IQR 0-9), and ranged from a minimum of 0 to a maximum of 11. Figure 1 illustrates the distributions for age and parity.

The majority (212) of the respondents were married, representing 61% of the sampled women. Marital status for the rest of the respondents was as follows: separated (17%), single (11%), widowed (9%), and cohabiting (2%). Islam was the dominant religion with 192 (56%) of the women being Muslims, followed by Christianity at 152 (44%). The Christians belonged to four different denominations i.e. Full gospel churches (54%), Anglican (18%), Catholic (18%), and Sabbath Adventists (9%).

Formal employment was low at 30%. Other important sources of livelihood were farming (29%) and small-scale businesses (30%). Eleven per cent of the women were fully dependent on either spouse or parent whereas less than one respondent was a commercial sex worker. Figure 2 summarizes the sources of livelihoods.

Contraception method mix

Most respondents were aware of injectables, implants, oral pills, condoms, and IUCD as the methods of family planning. The main source of this awareness were health workers within health facilities and the media. Of the women who were currently on a modern family planning method, 48% were on injectables, 36% on implants, 8% were using condoms while 4% were on the pill as

Women who were not on FP highlighted sexual inactivity as the main reason. Other reasons were the desire to have more children coupled with the fear of side effects resulting from FP (Figure 3).

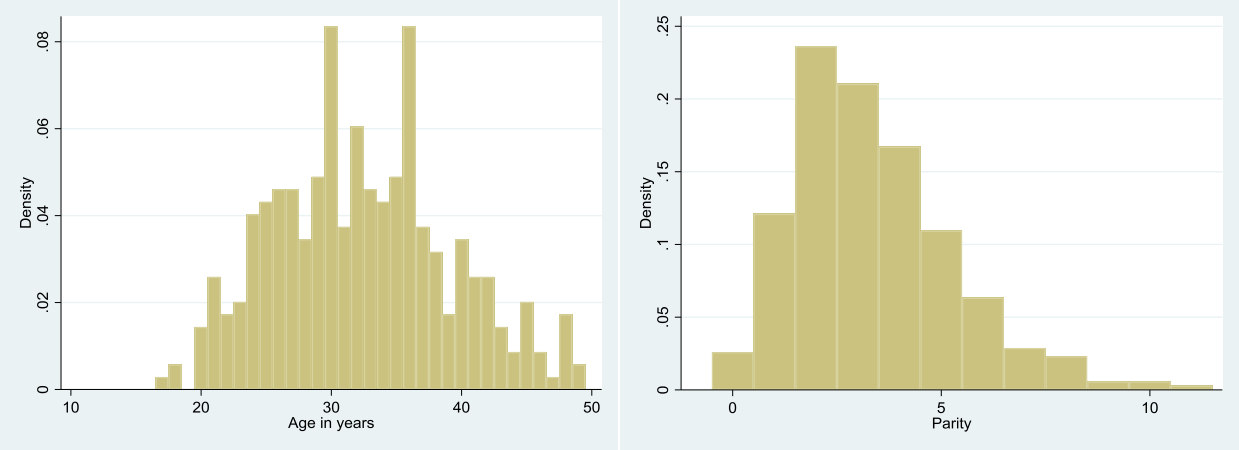

Figure 1: Frequency Distribution for Age and Parity

Socio-demographic factors and contraceptive use

There was a statistically significant ($p < 0.05$) association between contraceptive use and several demographic factors. Among the factors that were associated with contraception use were maternal age, marital status and parity.

The chi-square results show that most of the women 148(42.6%) on FP were aged between 25-34 years) while most 22(6.3%) and 28(8.06%) of those with unmet FP needs were between ages 22-34 and 35-44 respectively. among the women between 45 and 49, most 16(4.6%) had an unmet need for FP. These findings were statistically significant at $X^2=53.9031$, $p=0.000$.

In regards to the marital status, most of the women on FP were married women (191) while most of those with unmet needs were separated (23) widowed (21), and married (21). All those cohabitating (6) were on FP. Marital status was statistically significant at $X^2=68.7855$, $p=0.000$.

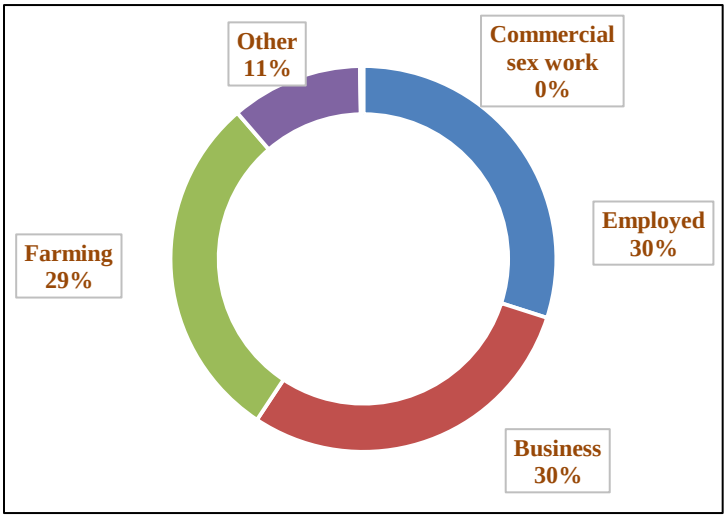

Figure 2: Sources of Livelihoods

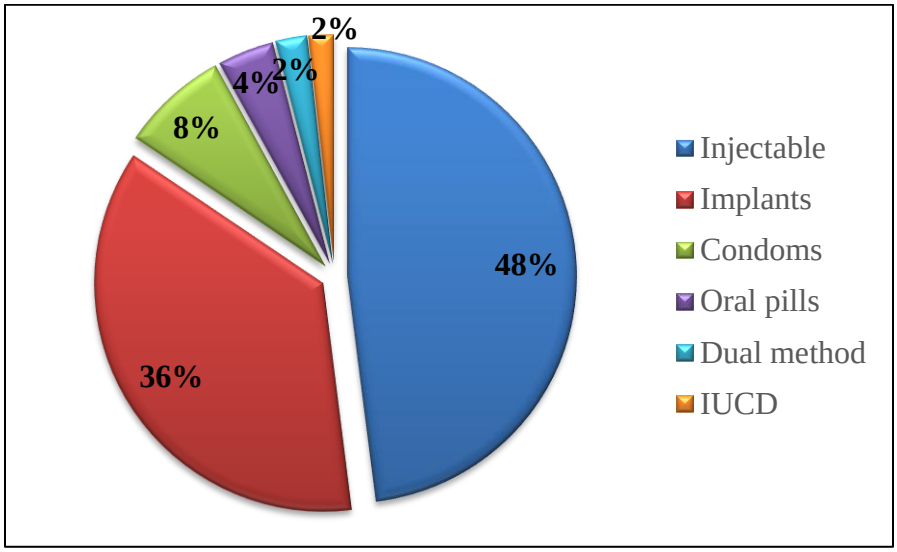

Figure 3: FP Methods Currently in Use

Table 2: Factors Influencing the Unmet Need for Contraception Use

Variable	N (%)		X^2 – Value	P-Value
	On FP	Unmet Need		
Age in Years				
15-24	37 (10.6)	7(2.02)	53.9031	0.000*
25-34	148 (42.6)	22 (6.3)		
35-44	86 (24.7)	28 (8.06)		
45-49	3 (0.86	16 (4.6)		
Marital Status				
Cohabiting	6 (100.0)	0 (0.0)	68.7855	0.000*
Married	191 (90.1)	21 (9.99)		
Separated	37 (61.7)	23 (38.3)		
Single	29 (78.4)	8 (21.6)		
Widowed	10 (32.3)	21 (67.7)		
Parity				
Nulliparous	5 (55.6)	4 (44.4)	7.9921	0.018*
Low multiparity	165 (83.8)	32 (16.2)		
Grand multipara	104 (73.8)	37 (26.2)		
Nulliparous	5 (55.6)	4 (44.4)		
Religion				
Christian	110 (72.4)	42 (27.6)	-	0.003*
Muslim	163 (84.9)	29 (15.1)		
Other	1 (100.0)	0 (0.0)		
Traditional	0 (0.0)	1 (100.0)		
Christian Denominations				
Anglican	22 (78.6)	6 (21.4)	7.637	0.054
Catholic	20 (71.4)	8 (28.6)		
Full gospel churches	54 (65.9)	28 (34.1)		
Sabbath Adventist	14 (100.0)	0 (0.0)		
Duration of HIV Status				
< 1 year	30 (75.0)	10 (25.0)	3.8116	0.149
1-3 years	105 (84.7)	19 (15.3)		
> 3 years	139 (76.0)	44 (24.0)		
< 1 year	30 (75.0)	10 (25.0)		
Duration on ARVs				
< 1 year	30 (75.0)	10 (25.0)	3.8116	0.149
1-3 years	107 (83.6)	21 (16.4)		
> 3 years	135 (76.3)	42 (23.7)		
Viral Load				
Unsuppressed (≥ 1000 copies/ml)	6 (85.7)	1 (14.29)	-	1.000
Low level viremia (401-999 copies/ml)	7 (87.5)	1 (12.5)		
Suppressed (≤ 400 copies/ml)	261 (78.6)	71 (21.4)		
FP Awareness				
No	7 (30.4)	16 (69.6)	34.6124	0.000*
Yes	265 (82.3)	57 (17.7)		
History of Unintended Pregnancies				
No	198 (77.3)	58 (22.7)	1.9183	0.166
Yes	75 (84.3)	14 15.7)		

Most of those who were on FP were low multiparity (165) and grand multipara (104) while most of those with unmet FP needs were also from the same group where 32(16.2%) were low multiparity and 37 were grand multipara. The parity status was likely to influence the women's contraceptive use at X^2=, 7.9921 p=0.018.

Determinants of contraceptive unmet need

Independent variables that were significant during bivariate analysis were included in a logistic regression model and odds ratios were calculated. Age, marital status, and parity were significant determinants of contraceptive use. HIV-positive women aged between 45 to 49 years were 10 times more likely to have unmet FP need as compared to those aged 15 to 24 years (p=0.014). Additionally, being widowed increased the odds of unmet FP need by 6.5 times as compared to being married at a p-value of 0.002 (Table 3).

Discussion

Contraceptive prevalence rate and unmet need

Generally, the contraceptive prevalence rate (CPR) among HIV-Positive women of childbearing age in Kwale county can be considered as high (79%) since it surpasses the national CPR of 61% (9). However, this rate only considers HIV-positive women who were on treatment and who already show good healthcare-seeking behaviour by seeking care and treatment at the CCCs. Recruiting participants from the community level could probably provide a lower CPR. This high prevalence could also be attributed to free Fp services as well as deployment of Long-Acting & Reversible Contraception (LARC) trained health care workers in the CCCs in this county, who as competent in counselling for FP services with a very good referral system. This agrees with the results of a study conducted in the Kilimanjaro region, northern Tanzania, and KAIS 2012, that showed a high FP prevalence rate by HIV-Positive women of 68.7%.

The unmet need for FP among the participants was 21% with 18% and 3% being the unmet need for limiting and spacing respectively. This is coherent with the findings of a study conducted in Lesotho which reported an unmet need of 21.6%.

Table 3: Determinants of Contraception Use from a Multivariate Analysis (Logistic Regression)

Variables	Odds Ratio(OR)	95% CI for OR		P-value
		Lower	Upper	
Age in years				
15-24 (Ref)				
25-34	0.569	0.165	1.964	0.372
35-44	0.722	0.192	2.722	0.631
45-49	9.954	1.587	62.43	0.014*
Marital status				
Married	(Ref.)			
Separated	1.934	0.667	5.604	0.225
Widowed	6.549	2.003	21.415	0.002*
Single	0.807	0.199	3.277	0.765
Parity				
Nulliparous	(Ref.)			
Low parity	0.625	0.087	4.504	0.641
Grand multipara	1.251	0.156	10.046	0.833

*Significant at p < 0.05

Most women (48%) who were on contraceptives were mainly on injectables followed by 36% who were using implants, IUCD was the least used FP method.

Demographic factors associated with unmet need for contractive use

The majority of the respondents were aged between 25-35 years, Para three married, Muslim, and engaged in small-time farming or businesses.

Age had a statistically significant association with contraceptive use. Most of the women on contraceptives were below thirty-five years of age even though most women in the age group also had a high unmet need for contraceptives. Asiimwe, Ndugga, and Mushomi (2014) also found that the age of the client is one of the outstanding factors for contraceptive use in underdeveloped and developing countries (10). These findings imply that the older a woman gets, the less likely she will have contraception unmet needs.

Women aged between 45 to 49 years were 10 times more likely to have unmet FP need as compared to those aged 15 to 24 years (p=0.014). These findings are contradicted by those of Oyebode *et al* (5) who found that the unmet need for FP is higher among adolescent women than in adults and it tends to decline as one advance in age. However, this was among women in Latin America and Caribbean countries and the circumstances could be different from those of the Sub-Saharan Africa situation.

The women's marital status had a statistically significant influence on the HIV-positive women's uptake of contraceptives (X^2=68.7855, p=0.000). The majority of married women were on contraceptives while those separated from their spouses or husbands had the highest unmet contraceptive needs. The multivariate analysis revealed that being widowed increased the odds of unmet FP need by 6.5 times as compared to being married at a P-value of 0.002. These findings are corroborated by those by Asiimwe *et al* (2014) who reported that having a male spouse actively involved in reproductive health services played a crucial role in the reduction of the unmet need for contraception (10). Furthermore, Wulifan *et al*., (2016) found that a husbands' approval and participation play an important role in influencing contraceptive use (11). Spousal support could probably explain why married women in this cohort were more likely to use contraceptives.

Parity status was statistically significantly associated with the women's contraceptive use at X^2=, 7.9921 p=0.018. These findings further showed that most women with low multiparity had low unmet contraceptive needs while most of the grand multipara had an unmet need for contraception. From these results, women's parity influenced their contraceptive use, as supported by Asiimiwe and colleagues (12) who found that a woman's gravidity and the number of living children affected utilization of contraception. From our findings, women who have at least 1-4 children alive had a higher likelihood of using modern family planning in comparison to those without any surviving children.

Study limitations

The study participants were recruited from health facilities with comprehensive care centres. This could have resulted in a bloated contraceptive prevalence rate and an understated unmet need.

Conclusion

The contraceptive prevalence rate and unmet needs were 79% and 21% respectively among HIV-positive women of childbearing age in Kwale County. Age of 45-49 years, widowed, and nulliparous status was associated with unmet needs for contraception.

Recommendations

There should be policies that promote public health education and focus on women living with HIV to increase their awareness of contraceptive use and to dispense of the negative perceptions of the effects of contraceptives.

Widowed and separated or cohabitating women should be targeted in public health education and awareness creation programs to promote their use of contraceptives and to increase their ability to make independent choices regarding FP services.

Authors contribution

EM: Developed the concept, wrote the project proposal, collected the research data through the research assistants, analyzed the data, and wrote the thesis

RM: Corrected the concept, Provided guidance, and corrections at the proposal writing, data analysis, and thesis writing.

AO: Provided correction at the proposal writing stage as well as at the point of writing of the thesis**.**

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The research did not have any external support. It was fully funded by the principal researcher.

Conflict of interest

There is no conflict of interest in this work.

Data availability

Data is available upon a reasonable request

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References

1. **Wanyenze RK, Matovu JKB, Kamya MR, Tumwesigye NM, Nannyonga M, Wagner GJ**. Fertility desires and unmet need for family planning among HIV-infected individuals in two HIV clinics with differing models of family planning service delivery. *BMC Women's Health*. 2015;15(1):1–12.
2. U**nited nations.** The Millennium Development Goals Report. *United Nations.* New York; 2015.
3. **Damian DJ, George JM, Martin E, Temba B, Msuya SE.** Prevalence and factors influencing modern contraceptive use among HIV-positive women in Kilimanjaro region, northern Tanzania. 2018;1–9.
4. **MDGs 2015.** Vol. 1. 2015.
5. **Oyebode T, Sagay A, Musa J, Ekwempu C, Agaba P, Idoko J, *et al*.** Unmet need for contraception among human immunodeficiency virus-positive women in Jos, Nigeria: A call to integrate family planning and human immunodeficiency virus services. *Journal of HIV and Human Reproduction.* 2017;4(1):13.

6. **DHS.** The 2014 Kenya Demographic and Health Survey. *Kenya National Bureau of Statistics*. 2015;603.
7. **Bakibinga, Pauline, Mutombo, Mukira, Kamande, Ezeh M**. Kenya AIDS *responseprogress report* 2016. Nairobi; 2016.
8. **Pauline B, Dennis J M, Rogers A, Joseph R, Charles M, Amendah Djesika, *et al***. Pregnancy history and current use of contraception among women of reproductive age in Burundi, Kenya, Rwanda, Tanzania, and Uganda: analysis of demographic and health survey data. *BMJ Open* [Internet]. 2016;(6). Available from: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwibkYWn0Z7zAhWiyoUKHXXgDycQFnoECA0QAQ&url=https%3A%2F%2Fbmjopen.bmj.com%2Fcontent%2Fbmjopen%2F6%2F3%2Fe009991.full.pdf&usg=AOvVaw2NO_KujhE0TDS9pauw-PB7
9. **United Nations Foundation.** Kenya | Family Planning 2020 [Internet]. FP2030. 2021 [cited 2021 Sep 27]. Available from: https://www.familyplanning2020.org/kenya
10. **Asiimwe JB, Ndugga P, Mushomi J, Manyenye Ntozi JP**. Factors associated with modern contraceptive use among young and older women in Uganda; a comparative analysis. *BMC Public Health.* 2014 Sep 8;14:926.
11. **Wulifan JK, Brenner S, Jahn A, De Allegri M.** A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle-income countries. *BMC Women's Health*. 2016 Jan 15;16(1):2.
12. **Asiimwe JB, Ndugga P, Mushomi J**. with Older Women in Uganda. Determinants of Contraceptive Use in Uganda. 2014;67(February):23–36.

Appendix

Supplementary Table 1: CCC Sites Contributing Participants to the Study

SNO	HEALTH FACILITY	TOTAL CLIENT	PROPORTION OF CLIENTS
1	Alwalidyn Dispensary	300	19
2	Diani Health Centre	546	34
3	Godo Dispensary	40	2
4	Gombato Dispensary (CDF)	76	5
5	Kafuduni Dispensary	30	2
6	Kikoneni Health Centre	238	15
7	Kilimanjaro Dispensary	75	5
8	Kinango Hospital	466	29
9	Kinondo Kwetu Community Dispensary	527	33
10	Kizibe Dispensary	75	5
11	Kwale District Hospital	329	20
12	Lungalunga Sub County Hospital	265	16
13	MacKinnon Road Dispensary	67	4
14	Magodzoni Dispensary	57	4
15	Mazeras Health Centre	203	13
16	Mkongani Health Centre	143	9
17	Mnyenzeni Health Centre	41	3
18	Msambweni County Referral Hospital	525	32
19	Mwaluphamba Dispensary	107	7
20	Mwangulu Community Dispensary	55	3
21	Ndavaya Health Centre	87	5
22	Ng'ombeni Dispensary	75	5
23	Perani Private Clinic	51	3
24	Samburu Health Centre	208	13
25	Shimba Hills Health Centre	98	6
26	Shimoni Dispensary	68	4
27	Taru Dispensary	62	4
28	Tiwi RHTC	267	16
29	Ukunda Diani Catholic Dispensary	91	6
30	Vanga Health Centre	119	7
31	Vigurungani Dispensary	50	3
32	Vitsangalaweni Dispensary	180	11
33	Waa Dispensary	69	4
TOTAL		**5590**	**347**