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RESEARCH ARTICLE

Utilization of Female Condoms among Women Living with Human Immunodeficiency Virus (HIV) in Murang'a County, Kenya

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ABSTRACT

Background: **To prevent the risk of transmission of the Human Immune Deficiency Virus (HIV) and other sexually transmitted infections (STIs), as well as achieve family planning targets, the use of Female Condom, a women-initiated method, has been prioritized across the globe. Nevertheless, knowledge regarding the utilization of Female Condoms among HIV-positive women remains inconclusive. The main objective of this study was to determine the utilization of Female Condoms (FC) among HIV-positive women in Murang'a County, Kenya.**

Method: **This study adopted a cross-sectional analytical survey design. A total of 204 women living with HIV (WLHIV) were recruited in the study. Multi-stage sampling was conducted to get three participating sub-counties and three clinics. Systematic sampling and purposive sampling techniques were used to select WLHIV. Structured questionnaires, interview schedules and focus group discussions were used to collect data. Descriptive and inferential statistics were generated using Statistical Package for Social Sciences (SPSS) version 25.0. The statistical significance of the association between categorical variables was determined using Pearson's Chi-square test. The level of significance was fixed at a P-value of 0.05 level of significance ($p \leq 0.05$).**

Results: **38.8% of the respondents were aged 31–40 years (Mean = 3.11; SD = 1.004). 42.2% of study participants had attained secondary education (mean = 2.05; SD = 0.899). FC use was low at 17.6% among the women living with HIV. There was a statistically significant association between the age of the respondents and the view that FC has the potential to prevent unwanted pregnancy ($p = 0.002$; $\chi^2 = 17.246$; df = 4). The relationship between marital status and "ever heard about FC" ($p = 0.042$; $\chi^2 = 32.529$; df = 5), "ever seen an FC" ($p = 0.048$; $\chi^2 = 34.982$; df = 5), "FC has a potential to prevent unwanted pregnancy" ($p = 0.006$; $\chi^2 = 23.079$; df = 5) was significant. Married women who were revealed to have seen FC were significantly associated with the current use of the FC ($p = 0.001$; $\chi^2 = 12.852$; df = 1). 26.5% of the participants put on FC as a measure to prevent HIV during sexual activities. Most married women did not know whether their sexual partner does not like them to use FC when having sex compared to separated, cohabiting, divorced or single WLHIV ($p = 0.034$; $\chi 2 = 7.949$; df = 10).**

Conclusion: **The relatively high knowledge among WLHIV does not translate to the use of FC for appropriate and consistent utilization of the device.**

Keywords: Female condom (FC), human immunodeficiency virus, Utilization, Women.

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1. Introduction

Women are more likely than men to contract Human Immunodeficiency Virus (HIV) and other Sexually Transmitted Infections (STIs) after unprotected sex with infected people, and they are more affected by the consequences of unwanted pregnancies [1]. This convention has been partly addressed by the development of the Female Condom (FC), a female-initiated approach. Female condoms are tools that empower women because they allow them to take responsibility for their own self-protection, which boosts their sexual confidence and autonomy [2]. Most importantly, the FC is a potentially successful approach for preventing STIs and pregnancy [3].

Globally, women are significantly affected by HIV compared to men as they represent about 55% of all the infected people. The most significant mode of HIV and STI transmission remains heterosexual. Despite intervention methods, such as the use of FCs, this mode of HIV infection transmission among women keeps on rising, particularly in sub-Saharan Africa [4]. Out of the over 37,700,000 people living with HIV worldwide, 67% live in sub-Saharan Africa [5]. Notably, the Joint United Nations Program on HIV/AIDS, [6] documented that out of the 37,700,000 people, 1,700,000 people are in Kenya.

About 80% of the HIV infections in Kenya are linked to heterosexual transmission [7]. According to the NACC [7] report, out of 53,000 new HIV infections in Kenya, 27,000 (51%) occurred among women. There is also an increased prevalence of STIs among HIV-positive women, most of which have been linked to HIV [7]. Statistics show that the prevalence of HIV among women is higher (7.7%) compared to men (2.8%) in Murang'a County [7]. This implies that women in the county are more vulnerable to HIV infection than men.

The use of FC among WLHIV is a significant determinant in Preventing Mother-to-Child Transmission (PMTCT), unwanted pregnancies, cross infections and the emergence of resistant strains [8]. Despite these benefits, the use of FC by female consumers is still low, particularly in sub-Saharan Africa [3], [9]. Unreliable distribution channels, utilization patterns and lack of FC on the market have been suggested to contribute to the low utilization of FC [9], [10].

Factors that include, but are not limited to marital status, age, income, awareness, educational level, cultural factors and socio-economic status have been described as variables that influence the use of FC among HIV-infected people [3], [10]. Understanding the relationship between FC use, pregnancy, HIV, and other STIs is critical in tracking and estimating the prevalence of HIV in populations. Despite intervention mechanisms in place, HIV continues to be a health and socio-economic burden on the human population as there is little information on the pattern of FC use among WLHIV in Muranga County. This study proposes to determine the utilization of FC among WLHIV attending Comprehensive Care Clinics in Murang'a County.

2. Materials and Methods

A cross-sectional survey design was used in this study. The research was conducted in Murang'a County (0.7839° S, 37.0400° E), in three sub-counties: Kiharu, Maragua and Gatanga. The population of Murang'a County is 1,063,721, with 522,970 males (49%) and 540,751 females (51%), respectively [11]. At 4.2%, Murang'a has a lower HIV prevalence than the national average [6]. Murang'a County is home to 1.8% of Kenya's total number of HIV-positive persons. The target population consisted of women living with HIV in Murang'a County. The study population was 204 women living with HIV who had lived in Murang'a County for at least 6 months attending HIV clinics and met the inclusion and exclusion criteria. The sample size was estimated using Fischer *et al*.'s formula [12]:

$$n = Z^2\, pq/d^2$$

where
n - minimum sample size (desired sample size when study target population is >10,000),
d - degree of precision/Error margin (taken as 0.05),
Z - standard normal deviation at 95% confidence interval which is 1.96,
p - proportion of the target population (estimated at 14%; 14/100 = 0.14). 14% is the prevalence of the FC uptake in Kenya,
q - alternate proportion (1 − P) which is 1 − 0.14 = 0.86.

$$n = \frac{(1.96)^2 \times (0.14) \times (0.86)}{(0.05)^2} = 185$$

Proportion of non-response factored at 10% = 185 + 18.5 = 203.5 (approx. 204).

n = 204 − the sample size used to collect data for WLHIV in Murang'a County.

The 95% confidence interval, the precision of 0.05, and the prevalence rate were used to compute the sample size. According to the findings of a 2006 study, 14% uptake of female condoms was reported [13]. A semi-structured questionnaire was used to collect data using-through face-to-face interviews. Within the tool, Sociodemographic information and knowledge of HIV-related characteristics were integrated. The instruments were developed in English and administered in Swahili where the client was not conversant with the English language which took about 20 minutes. Reliability for data collection was ensured by training five research assistants. The data was subjected to SPSS (Statistical Package for Social Sciences) version 25.0 to generate inferential and descriptive statistics. Interpretative and descriptive statistics were applied to qualitative data. The statistical significance of the association between categorical variables was determined using Pearson's Chi-square test. Information was presented in the form of tables, graphs and pie charts. Statistical significance was assumed at $p \leq 0.05$. All ethical requirements governing the collection of human data were considered in the research.

3. Results

3.1. Socio-Demographic and Economic Characteristics of the Respondents

Socio-demographic information is indicated in Table I, revealing that 78 (38.8%) of the respondents were aged 31–40 years. This was followed by participants aged 21–30 years who represented 50 (24.9%) of the participants (mean = 3.11 ± 0.071; SD = 1.004; n = 201). A high number of respondents: 85 (42.1%) indicated secondary school as the highest academic qualification. Only 60 (29.4%) respondents had acquired primary school as their highest academic qualification (mean = 2.05 ± 0.063; n = 202; SD = 0.899). Majority of the respondents: 105 (54.1%) were married, while 54 (27.8%) were single at a mean = 2.14 ± 0.085 SD = 1.181 and n = 194.

3.2. Knowledge of Respondents on Female Condoms

Results in Table II demonstrate the detailed information of knowledge on female condoms. Majority of the respondents 118 (58.4%), admitted to having seen a pack of FC that was displayed to them, while 84 (41.6%) of the respondents admitted that they had never seen the pack (mean = 0.58 ± 0.035; n = 202; SD = 0.494). When asked what is contained in the pack, 105 (97.2%) respondents, who had earlier admitted seeing the pack, positively identified the pack as containing FC. When asked whether they had ever heard about FC, a majority 190 (93.6%) of the participants supported this statement, while 13 (6.4%) disagreed that they had not heard about FC (Mean = 0.94 ± 0.017; n = 203; SD = 0.245). Majority of the respondents (65.4%) reported having never seen FC. (50.5%) of the study participants submitted that they did not know how to fit a FC correctly. According to the results, 176 (95.7%) of the respondents supported that FC prevents unwanted pregnancies. 189 (94.0%) of the respondents agreed that there is a need for FC.

The results of the Chi-Square test revealed that the age of the respondents was insignificant with regards to having seen a pack of FC ($p = 0.096$; $\chi^2 = 2.253$; df = 4), positively identifying the pack as containing FC ($p = 0.122$; $\chi^2 = 12.713$; df = 4), ever heard about FC ($p = 0.118$; $\chi^2 = 7.367$; df = 4), ever seen a FC ($p = 0.143$; $\chi^2 = 7.042$; df = 4), correctly fit FC ($p = 0.278$; $\chi^2 = 5.097$; df = 4), and the need for FC ($p = 0.759$; $\chi^2 = 1.871$; df = 4). On the contrary, there was a statistically significant association between the age of the respondents and the view that FC has the potential to prevent unwanted pregnancy ($p = 0.002$; $\chi^2 = 17.246$; df = 4). A proportion aged 31–40 followed by those aged 21–30 and 41–50 highly supported this view.

The marital status of the respondents was insignificant with regards to having seen a pack of FC ($p = 0.223$; $\chi^2 = 6.967$; df = 5), positively identifying the pack as containing

TABLE I: Socio-Demographic and Economic Characteristics of the Respondents

Characteristic	Category	Frequency	Percentage (%)
Age (years)	<21	7	3.5
	21–30	50	24.9
	31–40	78	38.8
	41–50	46	22.9
	50	20	10.0
	Total (n)	201	100.0
Marital status	Single	54	27.8
	Married	105	54.1
	Divorced	7	3.6
	Separated	15	7.7
	Cohabit	8	4.1
Widow	5	2.6	
	Total (n)	194	100.0
Highest academic qualification	Primary school	60	29.7
	Secondary school	85	42.1
	College	45	22.3
	University	10	5.0
	Others	2	1.0
	Total (n)	202	100.0
Religion	Catholic	88	44.7
	Protestant	104	52.8
	Muslim	2	1.0
	Others	3	1.5
	Total (n)	197	100.0
Occupation	Business	45	24.0
	Employed	28	15.0
	Casuals	16	8.6
	Farmers	81	43.3
	House wife	15	8.0
	Student	2	1.0
	Total (n)	187	100

TABLE II: KNOWLEDGE OF RESPONDENTS ON FEMALE CONDOMS

	Percentage (Frequency)		Total % (n)	Mean ± Std. error of mean	Std. deviation
	Yes	No			
Have you ever seen this pack? (a female condom displayed)	58.4% (118)	41.6% (84)	100% (202)	0.58 ± 0.035	0.494
Have you ever heard about female condom?	93.6 % (190)	6.4% (13)	100% (203)	0.94 ± 0.017	0.245
Have you ever seen a female condom?	64.5% (129)	35.5% (71)	100% (200)	0.65 ± 0.034	0.480
Can you correctly fit a female condom?	49.5% (95)	50.5% (97)	100% (192)	0.49 ± 0.036	0.501
Does female condom prevent unwanted pregnancy?	95.7% (176)	4.3% (8)	100% (184)	0.96 ± 0.048	0.684
Is there a need for female condom?	94.0% (189)	6.0% (12)	100% (201)	0.94 ± 0.017	0.238

TABLE III: APPROPRIATE AND CONSISTENT UTILIZATION OF FEMALE CONDOMS

	Percentage (Frequency)		Total (n)	Mean ± Std. error of mean	Std. deviation
	Yes	No			
Have you ever used a female condom?	17.6% (36)	82.4% (168)	204	0.18 ± 0.027	0.382
Are you currently using a female condom?	6.9% (14)	93.1% (190)	204	0.07 ± 0.018	0.253
Do you know how the female condom is used?	50.0% (102)	49.5% (101)	204	0.51 ± 0.037	0.530
I would recommend female condoms to friends	89.6% (181)	10.4% (21)	202	0.90 ± 0.022	0.306

FC ($p = 0.052$; $\chi^2 = 18.182$; df = 10), correctly fit FC ($p = 0.595$; $\chi^2 = 3.689$; df = 5), and the need for FC ($p = 0.143$; $\chi^2 = 8.245$; df = 5). On the other hand, the relationship between marital status and "ever heard about FC" ($p = 0.042$; $\chi^2 = 32.529$; df = 5), "ever seen a FC" ($p = 0.048$; $\chi^2 = 34.982$; df = 5), "FC has a potential to prevent unwanted pregnancy" ($p = 0.006$; $\chi^2 = 23.079$; df = 5) was significant where married women revealed higher levels of awareness compared to single or divorced.

3.3. *Appropriate and Consistent Utilization of Female Condoms among WLHIV*

Results in Table III revealed that majority of the respondents supported that they have never used FC (82.4%; mean = 0.18 ± 0.027; SD = 0.382). A total of 190 (93.1%) of the study participants submitted that they are not currently using FC (mean = 0.07 ± 0.018; SD = 0.253). Interestingly, "the need for FC" and "having heard about FC" did not significantly translate to the current use of FC by the respondents as revealed by chi-square tests ($p = 0.181$; $\chi^2 = 1.781$; df = 1) and ($p = 0.166$; $\chi^2 = 1.922$; df = 1), respectively. Notably, "having seen" an FC was significantly associated with the current use of the same ($p = 0.001$; $\chi^2 = 12.852$; df = 1), where a majority of respondents who admitted to having seen the device were currently using it. Age ($p = 0.484$; $\chi^2 = 1.380$; df = 1) and marital status ($p = 0.261$; $\chi^2 = 6.489$; df = 5) of the respondents were insignificant with regards to whether they were currently using FC or not.

Regarding how FC is used, 102 (50.0%) of the respondents supported that they know how it is used (mean = 0.51 ± 0.037). This finding was neither influenced by age ($p = 0.325$; $\chi^2 = 5.816$; df = 5) nor marital status ($p = 0.782$; $\chi^2 = 6.387$; df = 10) of the respondents. The results revealed that 89.6% of the study participants were willing to recommend FC to friends at a mean of 0.90 ± 0.022.

3.4. *Participants View on the Utilization of Female Condom*

The findings are presented in Table IV. Based on the results, at a mean of 2.33, 112 (54.9%) of the participants submitted that they don't know whether the FC is difficult to use/insert. On the other hand, 47 (23.0%) disagreed while 45 (22.1%) agreed with the statement. At a mean of 1.38, 139 (72.0%) of the study participants agreed that they would use an FC if available. A total of 103 (51.0%) of people interviewed agreed that the overall use mechanism of FC is easy at the mean of 2.22. At 68.3% (138) of the study participants supported that using a female condom during sex is not comfortable. Participants disagreed at 61.2% (123) that using FC means that they do not trust their partner.

3.5. *Men's Views and Choices on Female Condom*

Fig. 1 illustrates how Men's views and choices influence the use of female condoms. The results revealed that men's views and choices negatively influenced the use of FC as represented by 98 (49.0%) of the respondents. Only (11) 5% reported that men's view positively influences the use of FC. n = 201.

TABLE IV: PARTICIPANTS' VIEW ON THE UTILIZATION OF FEMALE CONDOM

	Agree	Disagree	Don't know	Mean ± S.E	Std deviation	Total (n)
The female condom is difficult to use/insert	22.1% (45)	23.0% (47)	54.9% (112)	2.33 ± 0.057	0.815	204
I would use female condom if available	72.0% (139)	17.6% (34)	10.5% (20)	1.38 ± 0.048	0.668	193
The overall use mechanism of female condom is easy	29.2% (59)	19.8% (40)	51.0% (103)	2.22 ± 0.061	0.871	202
Using female condom during sex is not comfortable	9.9% (20)	21.8% (44)	68.3% (138)	2.58 ± 0.047	0.666	202
Using female condom means that I do not trust my partner	26.4% (53)	61.2% (123)	12.4% (25)	1.86 ± 0.043	0.609	201

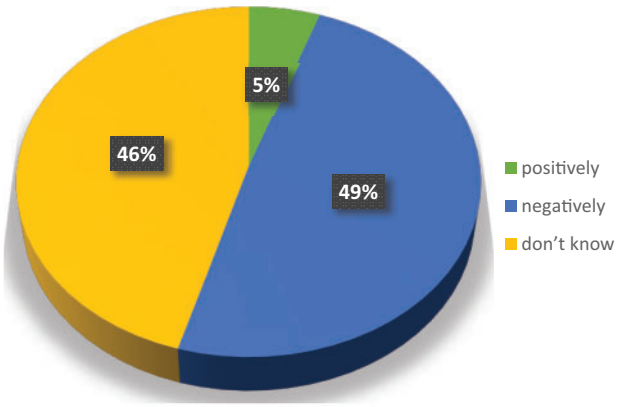

Fig. 1. Men's views and choices on female condoms.

3.6. Frequency of Inserting/Putting on a Female Condom before Starting a Sexual Act

Fig. 2 illustrates the frequency by which WLHIV insert/put on FC before starting a sexual act. The results showed that 157 (77.0%) of the women never put on FC before starting sexual acts. Only 20 (9.9%) of the females put/insert FC before starting sex sometimes. Whereas, 13 (6.3%) and 14 (6.8%) supported that they put/insert FC most of the time and all the time, respectively, before they start sex (mean = 1.43 ± 0.064; SD = 0.885; n = 204).

4. Discussion

4.1. Socio-Demographic and Economic Characteristics of the Respondents

The study was done to establish the utilization of female condoms among women living with human immunodeficiency virus (WLHIV). Female condom use has been known to offer dual protection to women against sexually transmitted infections and unwanted pregnancy. Participants were aged above 18 years with even distribution across the ages. The respondents' level of education varied, with more than 70% indicating that they had obtained primary education or higher. This percentage is slightly lower than the nationwide proportion of people with a primary education or higher which stands at 77.3% [11].

About 54.1% of respondents were married while 27.8% were single. This percentage is below the nationwide percentage (61%) of married people [11]. The population of single WLHIV may indicate some level of autonomy in reproductive decision-making. The primary occupations of a majority of the study participants were farmers (39.7%), employed (13.7%) and others. According to the findings, Women's employment was lower than the national average of 61% [14]. In terms of religion, a majority of the study participants were Protestants (52.8%) followed by Catholics (44.7%).

4.2. Knowledge of Female Condoms among WLHIV

Knowledge of FC among women can contribute to its uptake as an important public health strategy for family planning, and HIV and STI prevention. In the present study, 41.6% of the respondents admitted that they had never seen the pack of FC. This number is lower compared to 46.1% of the women who reported that they had not seen an FC in a pack in a study carried out in Ghana [10]. Nonetheless, having 41.6% of WLHIV not able to identify a pack containing FC is alarming because this is the population that is expected to be more knowledgeable when it comes to FC. When further probed, only half of the respondents, who earlier admitted seeing the pack, positively identified the pack as containing FC. This result reflects those of a study carried out in Rwanda [15]. Where a majority of the study participants were unable to describe FC physically regardless of their knowing its role in preventing STIs and unwanted pregnancies. The current study points to a poor level of physical knowledge of FC by the respondents. The relationship between marital status and "ever heard about FC" and "ever seen an FC" was significant where married women revealed higher levels of knowledge compared to single, separated, cohabiting, widows or divorced WLHIV.

A majority of the respondents supported that they had heard about FC, and agreed to have seen FC while only a few stated that they had never seen a FC. Most respondents submitted that they did not know how to fit an FC correctly. Findings from this study show that slightly above 50% of the participants had overall knowledge regarding FC. Despite the awareness programs on FC implemented by the County and National governments in the study area,

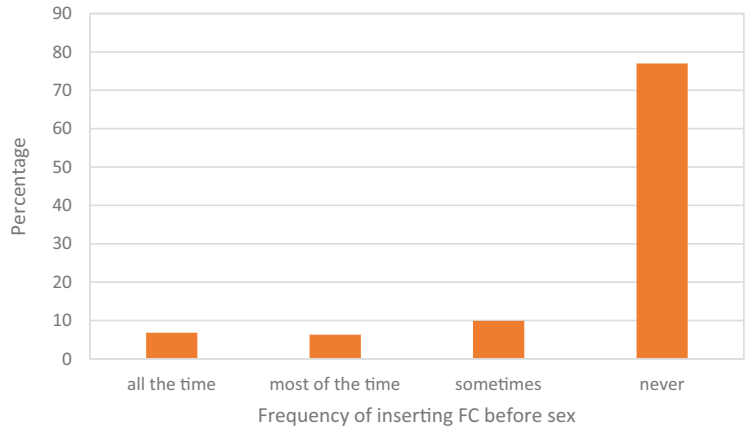

Fig. 2. Frequency of inserting/putting on a female condom before starting a sexual act.

these findings indicate that such initiatives have not offered optimum solutions to the research question at hand. The current findings are inconsistent with those of a study carried out in Ghana where only 40% of the women of reproductive age demonstrated overall knowledge of FC usage [10]. Similarly, findings in a sample of Zimbabwean women of reproductive age revealed that their knowledge of the FC was low [16]. This inconsistency could be due to the sample compositions. While the present study focused on WLHIV, the aforementioned studies focused on women of reproductive age. There is an interesting trend in the current study whereby respondents have a limited practical understanding of FC. These findings therefore point to the need to come up with novel initiatives to further physical/practical awareness and knowledge of FC in the study population.

Acceptance of the FC as a protective tool for unwanted pregnancies is likely to inform the utilization of the FC. According to the results, majority of the respondents supported that FC prevents unwanted pregnancies. The view was significantly associated with the age and marital status of the respondents. This importantly gives insights into which areas to target when implementing FC use initiatives among the study population. The respondents unanimously supported that there is a need for FC. These findings suggest that the level of knowledge regarding the use of preventing unwanted pregnancies is high. These findings of relatively low FC knowledge were reported in a study that investigated FC awareness among women of reproductive age in Zimbabwe [16]. The variation between the studies could be related to sample demographics and initiatives for FC use awareness.

The response rate for participants who submitted that there is no need for FC was low. On the contrary, a low level of FC acceptance was reported in a systematic review of FC acceptability in the sub-Saharan African region [17]. To further understand the level of knowledge on FC among WLHIV, the respondents were asked to state their level of agreement with the statement regarding the utilization of FC. A majority of WLHIV disagreed that FC fresh from the pack can transmit an infection when used during sexual intercourse. Most of the respondents argued that the use of FC provides more safety to women, believed that using FC during sex can prevent HIV/STIs, and agreed that FC offers dual protection against HIV/STIs and pregnancy. These findings are in tandem with previous studies carried out in Malaysia [18], and South Africa [19]. In all the studies, participants independently expressed confidence in the potential of FC to prevent HIV/STIs and unwanted pregnancy. While many respondents in the present study had favourable attitudes towards the FC and its potential to prevent unwanted pregnancies and HIV/STIs, utilization skills of FC were low.

4.3. Appropriate and Consistent Utilization of Female Condoms among WLHIV

The present study investigated the appropriate and consistent utilization of FC among WLHIV in the study area. The magnitude of consistent condom use among WLHIV was revealed to be very low with a majority of the respondents supporting that they have never used FC. Most of the study participants confirmed that they were not currently using FC. Notably, "having seen" an FC was significantly associated with the current use of the same. These findings are in line with a study carried out by [20]. The authors reported that despite extensive condom promotion efforts, condom use in sub-Saharan Africa remained very limited. The current study's findings are however lower compared with previous studies conducted in Ethiopia [21], [22] and Kenya [23]. The difference might be due to a lack of awareness of the rural population in the current study area, their negligence and carelessness to use condoms, and lack of condoms at a time of casual sexual contact. Given the high number of WLHIV with above primary education in the present study, one would expect FC uptake to be higher because they would have a better understanding of any form of information about the FC. However, the results revealed that most of the study participants were willing to recommend FC to friends.

To evaluate the qualitative aspect of the appropriateness and consistent utilization of FC, participants were required to give their level of agreement with the statements regarding this aspect. Based on the results, majority of the participants submitted that they don't know whether the FC is difficult to use/insert, a few of the respondents disagreed while others agreed with the statement. These results indicate the need for demonstration sessions on how to use FC. In China, education and demonstration sessions significantly increased participants' knowledge and acceptance of FCs [24].

At 68.3% the study participants supported that they do not know whether using FC during sex is not comfortable. These results suggest that condom knowledge in Murang'a County has not yet transformed into its usage. Nonetheless, about 72.0% of the study participants agreed that they would use an FC if available. Similarly, a high intention to use FC has been reported in previous studies such as that of Care [23] in Kenya and [25] in South Africa where over 85% of the study participants expressed an intention to use FC in the future. Nonetheless, the intention to use FC for the current study is higher compared to a study carried out in Lusaka-Zambia [26]. Participants disagreed with 61.2% and 64.7% that using FC means that they do not trust their partner and they do not like when their main partner asks them to use an FC.

The study further sought to understand how men's views and choices influence the use of FC. The results showed that men's views and choices negatively influenced the use of FC. Ahmed *et al*. [27] argue that FC must be acceptable to both men and women to prevent STIs and unwanted pregnancies. The authors further point out that women may be able to negotiate the use of the FC more easily than the male condom, giving them potentially more power to protect themselves in a sexual relationship. Maticka-Tyndale [28] documented that across multiple diverse cultural groups, men in sub-Saharan Africa control sex and condom use. Gender inequality and the issue of power relations in which men play dominant roles in decision-making in the family exert too much influence on women's decisions [29].

The study results sought to understand the frequency by which WLHIV insert/put on FC before starting a sexual

act. The results showed that 77.0% of the women never put on FC before starting a sexual act. Only 9.9% of the females put/insert FC before starting sex sometimes. Whereas, 6.3% and 6.8% supported that they put/insert FC most of the time and all the time respectively, before they start sex. These percentages suggest low FC utilization which poses a serious public health challenge to the study population. The findings are consistent with those in Ghana that the condom is one of the least employed contraceptive methods by women of reproductive age [30]. Similar findings of low FC utilization have been reported by other researchers [31]. The low level of consistent condom use among WLHIV in Murang'a may be attributed to the rural nature of the study population in the County. A study carried out in Gondar reported that people living with HIV in rural residences were less likely to use condoms consistently [32].

Although our data demonstrate that appropriate and consistent condom use continues to be inconsistent among this study population, overall data from the Demographic and Health Surveys (DHS) in sub-Saharan Africa suggests increased condom use over the past decades [33]. Most participants recognize that condoms prevent diseases and pregnancy. However, safe sexual practices seem to be influenced more by other factors, such as relationship dynamics and self-efficacy than the perception of infection or transmission risk [34]. While this study supports that awareness of and counselling on FC would increase interest and possible use, it is clear that FC awareness alone appears to be insufficient to stimulate uptake.

5. Conclusions

Utilization of female condoms (FC) remain to be of public health importance across the globe. Women are at more risk of contracting sexually transmitted diseases (STI) and HIV than men and get unwanted pregnancy after an episode of unprotected sex. FC, the only female-initiated approach, empowers women to take responsibility for their own self-protection, which boosts their sexual confidence and autonomy. However, the study revealed that despite there being knowledge of FC use among WLHIV in Murang'a County, Kenya, it did not translate to FC uptake among the study population which was low. It was importantly noted that physical knowledge about FC and appropriate and consistent utilization was low among the study population. Therefore, there is a need for the government and other stakeholders to use educational strategies on FC utilization. This can be achieved through health education in the community and health facilities to scale up acceptance, and appropriate and consistent utilization of the device. More emphasis needs to be put on men's involvement in promotions of FC use since the study revealed that their views and decisions had an impact on its utilization. The results of the study reveal the need for further research or replication of the same in the rest of the county and beyond to reduce the spread of HIV, STIs and unwanted pregnancies.

Conflict of Interest

Authors declare that they do not have any conflict of interest.

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