BMC Women's Health

RESEARCH

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Predictors of female condom utilisation among women of reproductive age (15–49 years) in Rakai district, Uganda: a cross-sectional study

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Abstract

Background The female condom serves as a dual protective device, preventing the spread of HIV/AIDS, unintended pregnancies and other sexually transmitted infections (STIS). When it comes to sexual protection and contraception, the female condom is an essential tool for women's empowerment. Females are more susceptible than males to acquiring STIs due to their biological makeup. Females are particularly vulnerable to sexual abuse following substance use. The uptake of female condoms has been a significant challenge in Uganda, and their uptake remains low. Limited research exists on the subject of female condom use in Uganda; hence, this study was undertaken and used the Health Belief Model to investigate the prevalence and factors associated with the use of female condoms among women of reproductive age in Rakai district, Uganda.

Methods This cross-sectional study used a multistage random sampling method with a sample size of 125 women. Data were gathered using an interviewer-administered questionnaire and assessed with the Health Belief Model against the outcome variable, which was Female Condom utilisation. Log-binomial regression model analysis was done using SPSS version 25.

Results The prevalence of utilising female condoms was 34%. The socio-demographic variables of the respondents that influenced FC utilisation were age (26–35 years) (aPR: 0.84, CI: 0.76–0.93, $p < 0.001$) and Monthly income (200,000-500,000 Ugx) (aPR: 0.14, CI: 0.03–0.74, $p = 0.021$). Also, perceived severity (aPR: 2.9, CI: 1.14–7.35, $p = 0.026$) and perceived benefits (aPR: 6.6, CI: 1.19–36.70, $p = 0.031$) were significantly associated with the outcome variable. Our significance level was 0.05 with a 95% confidence interval.

Conclusions The prevalence of utilisation of female condoms was low; age, religion, marital status, monthly income, perceived severity and benefits were the predictors of female condom use among women of reproductive age. Therefore, health education and awareness should be carried out at the community level to increase the sensitisation of female condoms by emphasising the importance of their use in preventing HIV/AIDS, STIs, and unintended pregnancies.

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Keywords Female condom, Rakai district, Health belief model, Utilisation

Background

The World Health Organisation (WHO) states that unwanted pregnancies continue to be a significant public health concern. Every year, 74 million women in low- and middle-income nations become pregnant unintentionally, which results in 25 million unsafe abortions and 47,000 maternal deaths worldwide [1]. There are 38.4 million HIV-positive individuals worldwide, and 1.5 million new HIV infections occur each year [2]. The risk of contracting HIV is 13 times greater for transgender individuals, 29 times higher for injecting drug users, 30 times higher for sex workers, and 26 times higher for gay men and other males who have sex with men. Approximately 4,500 young women between the ages of 15 and 24 contract HIV each week. In sub-Saharan Africa, girls account for 5 out of 6 new infections among adolescents aged 15 to 19. Compared to men, young women are twice as likely to be HIV positive. Of children aged 0–14 living with HIV, just 53% have access to life-saving HIV therapy [2]. The pandemic is still affecting different nations and areas disproportionately; in Africa, for example, 1 in 25 adults are living with HIV, which accounts for more than two-thirds of all people living with HIV globally [3].

Studies have revealed that the utilisation and promotion of female condoms in sub-Saharan Africa across all age and gender groups remains very low and limited [4, 5]. To avoid sexually transmitted infections/diseases (STI/Ds) and unintended pregnancies, both men and women must find acceptance for the female condom [6]. Furthermore, this study clarifies that women have the power to negotiate the use of the female condom more easily compared to the male condom [6]. Women who encouraged their spouses to use male condoms felt more vulnerable to HIV transmission, had a considerably higher attitude, and a high level of perceived self-efficacy in preventing STIs [7]. However, reported difficulties with the accessibility, cost, and simplicity of insertion of female condoms have been established [8]. In addition, a discordance between awareness and the preventive practice of female condom use has also been established [9]. When used properly, female condoms, which are composed of thin, soft synthetic latex, are 95% effective in preventing pregnancy and STDs [10]. Furthermore, a study on the awareness and use of female condoms among street youths in Ibadan, an urban setting in South-West Nigeria, revealed that nearly half of the respondents (47.9%) had heard of them; only 16.8% had ever seen one, and 4.3% had ever used one [11].

In East Africa, 25% of women don't have access to family planning [12]. Additionally, a 2021 study on the socio-demographic factors influencing the use of female condoms among women in the Kisauni sub-county of Mombasa, Kenya, aged 18 to 24 years, found no correlation between the use of female condoms and the participants' age, marital status, level of education, employment status, or religion [13]. However, 13% of sampled women utilised female condoms [14]. Similar studies indicated a significant correlation with the social variables [15, 16]. Female condoms were introduced in Uganda in the 1990s. The contemporary contraceptive utilisation gap in Uganda is still quite low, with a 39% recorded utilisation prevalence in the year 2020. Formal access to female condoms in Uganda is made possible by a mix of international collaborations, national policies, and designated distribution routes. To increase access to and usage of male and female condoms, the Ministry of Health and its partners have created the National Comprehensive Condom Programming Strategy (NCCPS). Some public and private non-profit health clinics provide free distributions of the female condom, specifically the FC2. Additionally, some private clinics in Kampala sell it, but at a higher cost than male condoms [17, 18].

The disparity in the usage of contemporary contraception has been growing since 2012 [16, 19], with a 2% female condom usage in Kampala as opposed to 98% usage for male condoms. Over ten births among Ugandan women are unplanned, which increases the risk of unsafe abortions, maternal harm, and even death [20]. In Uganda, 46% of women became pregnant against their will in 2021 [20, 21]. Rakia District, in southwestern Uganda, has a high fertility rate (6.7%) and high HIV prevalence (12%), higher than the national average (5.1%) [22] [23, 24] [23, 25]. Furthermore, Rakai district features a sizable population of high-risk individuals engaging in risky sexual behaviour who have restricted access to health care [26–28], in addition to females having a significantly high prevalence of HIV [29]. The foundation of any effective HIV prevention program is a theory explaining how and why people alter their behaviour. The Health Belief Model (HBM) was created to tackle this problem. The components of HBM—perceived vulnerability, perceived severity, perceived benefit, perceived barriers, and perceived self-efficacy are used in this study as the framework to investigate the factors associated with respondents' utilisation of female condoms. The HBM is built on the following foundation [30, 31]:

A An individual will act in a health-related manner (using a female condom) if she feels that a negative health condition (HIV) can be prevented.

B An individual will prevent a negative health condition (HIV) if she has a positive expectation of the advised action (using a female condom).
C An individual will act in a health-related manner if she feels that she can successfully carry out the advised health action (using the female condom comfortably and confidently).

Numerous studies have shown that the HBM has been applied to several studies, such as the psychosocial predictors of condom use [32], risks of contracting HIV in Cameroon [33], and the study of obesity and overweight in Iran [34]. Hence, the authors decided to utilise HBM in this study because it has been tested and proven by several studies with a similar research focus.

Therefore, the purpose of the study was to establish the factors that are linked to the utilisation of female condoms among women in the Rakai district of Uganda who are between the ages of 15 and 49 years, using the Health Belief Model. This objective will aid in addressing the paucity of data issues and promote healthy and safe sex among adults in the community.

Methods

Study design

A community-based cross-sectional study design was used to ascertain the prevalence and factors associated with the utilisation of female condoms from 1 June 2023 to 30 July 2023.

Study setting

Rakai District is in the Southwestern region of Uganda, west of Lake Victoria. It lies between longitudes 310e, 320e and latitudes 00s. Its southern boundaries are part of the internal border between Uganda and Tanzania. It is bordered by Masaka District in the East, Kalangala District in the South-East, Isingiro District in the West, and Lyantonde District in the North. The district has 4 counties, 11 sub-counties, 41 parishes and 727 villages [21]. The health infrastructure is organised from the lower level (Village Health Teams- VHT), which is the first point of contact for the community members and the health care system. The second level is Health Centre Two, followed by Health Centre Three and Health Centre Four. The latter serves as the district hospital. The services each provide advance from one level to another.

Study population

Rakai district's population was found to be 324,800 in the 2014 Census, with 161,800 males and 163,000 females, according to the district and mid-year population forecast (2015–2021) [21]. From this, a sample of sexually active women in the reproductive age group (15–49 years) was selected.

Inclusion criteria

All women of reproductive age (15–49 years) in the district of Rakai and those who consented to take part in the study.

Exclusion criteria

Any selected respondent who was ill or suffered from any psychological issues (depression, anxiety, suicidal thoughts) was excluded from this study. This was done because psychological and other types of illnesses may affect women of reproductive age.

Sample size

The Kish and Leslie (1965) [35] formula for sample determination was applied to arrive at the optimal sample size for the study.

Formula: $n = z2\ pqe2$

where n is the sample size, Z is the Z-score corresponding to the desired confidence level, p is the prevalence (i.e., the proportion of female condom demand), and q (1-p) is the variation in the sampling error (margin of error). A second formula was used, which aimed at calculating the final sample size. P (0.08) is the percentage demand for female condoms (Koster et al. 2015) [36], (1-p) = 0.92, CI level = 1.962 (3.8416) and $e^2 = 0.05$.

Substituting in the formula for sample size

$n = (1.96)\,2 \times 0.081 - 0.92\,(0.05)\,2$

$n = 113.2$

Therefore, **n** is 113.2 women.

Factoring in the 10% non-response rate,

The new sample size = (10) (113.09)100 + n.

= 11.309 +113.2

= 125

= 125 women

Sampling strategies and procedures

Multistage random sampling was used to select the households. At the sub-county level, 4 sub-counties (Byakabanda, Kagamba, Kifamba, and Kacheera) were randomly sampled from which respondents were recruited. At the town council level, two town councils were randomly selected from which samples were collected. At the village level, households were selected using proportionate sampling. A total of 147 villages were gathered from the 4 sampled sub-counties. Also, villages with larger population sizes were selected compared to villages with smaller populations. 125 households were selected, and one person was randomly recruited from each selected household for this study.

Data collection methods

Data collection tools

Data was collected by trained research assistants using an interviewer-administered structured questionnaire. The development of this questionnaire was benchmarked from a similar study on determinants of female condom use among female tertiary students [37] and then used to suit the objective of this study.

Pre-testing of the data collection tool

The questionnaire was pretested on 12 women of reproductive age. Women who participated in the pretesting of the questionnaire were excluded from the main study. The questionnaire was pre-tested in Kyotera district (22 km) before data collection to assess the questions' applicability and relevance; this was done due to its comparability.

Measurement of variables

Independent variables

Socio-demographic variables such as:

a) Age (this was self-reported by respondents in years).
b) Marital status (was measured as single, married or cohabiting).
c) Religious affiliation (was measured as Catholic, Anglican, Muslim, Born Again and others, such as Atheist, Seventh Day Adventists, Jehovah's Witnesses, and Buddhism).
d) Monthly income (was dichotomised into different ranges).

The six components of the Health Belief Model (HBM) were measured using an 18-item questionnaire. Each item used a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Two items each were used to assess perceived susceptibility, perceived severity, perceived benefits, self-efficacy, and perception of risk. Eight items were used to assess perceived barriers.

Composite scores for each HBM construct were created by summing responses to the relevant items and dividing by the number of items for that construct. These composite scores were treated as continuous variables, assuming that Likert-type responses approximate interval-level measurements when averaged. This approach allowed the use of means and standard deviations and their inclusion in parametric analyses [38].

Dependent variable

Female condom use was defined as whether the respondent had ever used a female condom; this was measured with a binary scale of 1 for a 'yes' and 0 for a 'no'. The question focused on lifetime use.

Data analysis

Quantitative data were cleaned and coded in Microsoft Excel and analysed using SPSS version 25. Descriptive statistics were computed, including frequencies and percentages for categorical variables and median with interquartile range for continuous variables (composite HBM scores). Bivariate analyses (unadjusted models) and multivariate analyses (adjusted models) were conducted using log-binomial regression to identify factors associated with female condom use. The log-binomial model was selected for its suitability in estimating prevalence ratios, especially when the outcome is common [39]. Independent variables with p-values less than 0.2 in bivariate analyses were entered into a multivariable log-binomial regression model to estimate adjusted prevalence ratios (aPR) with 95% confidence intervals and ensure that important variables are not excluded from the multivariate analysis [40]. Variables were considered statistically significant at $p < 0.05$ using Chi-Square tests. The log-binomial model was used because it can give more precise estimates.

Results

Baseline characteristics

Of the 125 women enrolled, the median age was 30 years (IQR: 11 years). The age distribution ranged from 16 to over 45 years. The majority (70.4%, $n = 88$) of the respondents were from the Central region, married (63.2%, $n = 79$), and Protestant (37.6%, $n = 47$) by religion. 40.8% ($n = 51$) of respondents earned 500,000 UGX or more (Table 1).

As can be seen in Fig. 1, out of 125 respondents, 42 participants (34%) reported having ever used a female condom.

Table 2 shows the distribution of Health Belief Model (HBM) constructs among female condom users ($n = 42$) and non-users ($n = 83$). Across all six constructs—perceived susceptibility, perceived severity, perceived benefits, self-efficacy, perceived barriers, and perception of risk—median scores were similar between the two groups.

Perceived susceptibility was slightly lower among users (median = 0.42) than non-users (median = 0.46), but interquartile ranges overlapped substantially. Perceived severity showed identical median values (3.5) across groups, although users exhibited a wider range, indicating more variability. Similarly, perceived benefits and self-efficacy had equal medians (3.0 and 3.5, respectively), with negligible differences in variability.

Perceived barriers were marginally higher among users (median = 1.03) than non-users (median = 1.00), though interquartile ranges were narrow in both groups, suggesting limited variation. Perception of risk also shared the

Table 1 Socio-demographic characteristics of 125 women of reproductive age participating in the study in Rakai district, Uganda (June- July 2023)

Variable	Frequency ($n=125$)	Percentage (%)
Age (years)		
16–25	35	28.0
26–35	54	43.2
36–45	32	25.6
>45	4	3.2
Region of origin		
Central	88	70.4
Northern	4	3.2
Western	33	26.4
Marital status		
Single	40	32.0
Married	79	63.2
Divorced/Widowed	6	4.8
Religion		
Born again	16	12.8
Catholic	42	33.6
Islam	20	16.0
Protestant	47	37.6
Monthly income (UGX)		
<200 000	45	36.0
200 000–499 999	29	23.2
≥500 000	51	40.8

same median (3.0) across groups, with greater variability among users.

Overall, the central tendencies and variability of HBM constructs were largely consistent between users and non-users, with no construct showing substantial differences by female condom use status.

The results of the bivariate analyses of the association between sociodemographic variables and female condom use are presented in Table 3. A statistically significant association was observed between age and female condom use (likelihood ratio $\chi^2 = 30.541$, $p<0.001$). Among women who reported using a female condom ($n=42$), the largest proportion were aged 26–35 years (47.6%), followed by those aged 36–45 years (45.2%). Use was lowest among women aged 16–25 (2.4%). Marital status was also significantly associated with female condom use ($\chi^2 = 4.590$, $p=0.032$), with married women comprising 76.2% of users.

A significant association was found between religion and female condom use ($\chi^2 = 11.263$, $p=0.010$). Women identifying as Born Again Christians represented 26.2% of users, while Catholic, Protestant, and Muslim women accounted for 33.3%, 31.0%, and 9.5% of users, respectively. Monthly income was significantly associated with female condom use ($\chi^2 = 9.625$, $p=0.008$). Among users, 45.3% reported earning ≥ UGX 500,000 per month, while 19.0% reported earning less than UGX 200,000.

No statistically significant association was observed between the region of residence and female condom use (likelihood ratio $\chi^2 = 0.693$, $p=0.707$).

Factors associated with the utilisation of female condoms

The bivariate and multivariate analyses of sociodemographic and HBM components of female condom use are shown in Table 4.

Although age, marital status, religion and monthly income were significantly associated with female condom use in the bivariate analyses ($p<0.05$), the sociodemographic factors independently associated with female

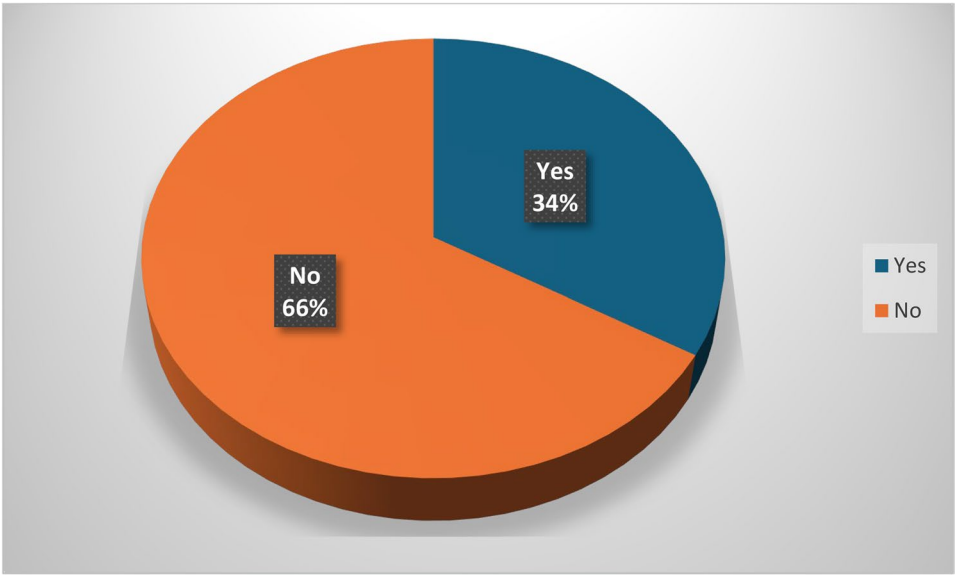

Fig. 1 Female condom usage during sexual intercourse with male partners among 125 rakai females

Table 2 Distribution of health belief model constructs by female condom use among women of reproductive age in Rakai district, Uganda (June–July 2023)

HBM Component[a]*	Female condom use						Total (*n* = 125)		
	Yes (*n* = 42)			No (*n* = 83)					
	Median	IQR	Min, Max	Median	IQR	Min, Max	Median	IQR	Min, Max
Perceived susceptibility	0.42	0.46	0.17, 1.00	0.46	0.46	0.29, 1.00	0.46	0.46	0.17, 1.00
Perceived severity	3.50	1.13	1.50, 4.00	3.50	0.50	1.50, 500	3.50	0.50	1.50, 5.00
Perceived benefit	3.00	0.50	2.00, 4.00	3.00	0.00	1.50, 4.00	3.00	0.00	1.50, 4.00
Self-efficacy	3.50	0.50	1.50, 4.50	3.50	0.50	1.00, 4.50	3.50	0.05	1.00, 4.50
Perceived barrier to use	1.03	0.11	0.85, 1.17	1.00	0.10	0.86, 1.17	1.00	0.10	0.85, 1.17
Perception of risk	3.00	1.00	2.00, 5.00	3.00	0.00	1.50, 4.50	3.00	0.00	1.50, 5.00

HBM, health belief model; IQR, inter-quartile range; Min, Max, minimum, maximum

[a]Each variable is an interval-scaled measure on a 5-point Likert scale

*None of the HBM components is normally distributed for the female condom users, non-users and both; Shapiro-Wilk p<0.001 for users (except perceived barrier to use (p=009), non-users, and both

Table 3 Distribution of female condom use by Socio-Demographic characteristics among women of reproductive age in Rakai District, Uganda (June–July 2023)

Characteristics	Female condom use				Chi-square	*p*-value
	Yes		No			
	n	%	*n*	%		
Age (years)					30.541[a]	**< 0.001****
16–25	1	2.4	34	41.0		
26–35	20	47.6	34	41.0		
36–45	19	45.2	13	15.6		
>45	2	4.8	2	2.4		
Regions					0.693[b]	0.707
Central	28	66.7	60	72.3		
Northern	2	4.8	2	2.4		
Western	12	28.5	21	25.3		
Marital status[c]					4.59	**0.032***
Married	32	76.2	47	56.6		
Not married	10	23.8	36	43.4		
Religion					11.263	**0.010***
Born again	11	26.2	5	6.0		
Catholic	14	33.3	28	33.7		
Islam	4	9.5	16	19.3		
Protestant	13	31.0	34	41.0		
Monthly income (UGX)[d]					9.625	**0.008***
<200 000	8	19.0	37	44.6		
200 000–499 999	15	35.7	14	16.9		
≥500 000	19	45.3	32	38.5		

[a]2 cells (25%) have expected count less than 5, likelihood ratio reported, [b]2 cells (33.3%) have expected count less than 5, likelihood ratio reported, [c]Not married includes single, divorced and widowed; [d]UGX, Ugandan shilling;

*Significant at $p < 0.05$; **Significant at $p < 0.001$

condom use in multivariate analysis included age and monthly income, while perceived severity and perceived benefit were the only HBM components significantly associated with female condom use. As women's age increases, the likelihood of ever using a female condom decreases significantly (adjusted prevalence ratio [aPR] = 0.84; 95% CI: 0.76–0.93, $p < 0.001$). Women in the income category (200,000–499,999) were significantly less likely to have ever used a female condom than those in the 500,000 or greater income group (aPR = 0.14; 95% CI: 0.03–0.74, $p = 0.021$). All six components of the HBM showed significant association with female condom use in the bivariate analyses ($p < 0.05$), but only perceived severity (aPR = 2.89, 95% CI: 1.14–7.35, $p = 0.026$) and perceived benefit (aPR = 2.89 95% CI: 1.14–7.35, $p = 0.026$) remained independently associated with female condom use in the multivariate analysis.

Table 4 Factors associated with female condom use among women of reproductive age in Rakai district, Uganda (June–July 2023)

Factor	cPR	95% CI	*p*-value	aPR[δ]	95% CI	*p*-value
Age (continuous)	0.98	0.96–0.97	**<0.0001*****	0.84	0.76–0.93	**<0.001****
Regions						
Central	1.07	0.80–1.44	0.650			
Northern	0.79	0.29–2.16	0.641			
Western	Reference					
Marital status						
Married	0.76	0.60–0.96	**0.024***	0.48	0.10–2.32	0.364
Not married	Reference			Reference		
Religion						
Born again	0.43	0.20–0.91	**0.028***	0.28	0.05–1.65	0.160
Catholic	0.92	0.70–1.22	0.564	0.25	0.06–1.06	0.060
Islam	1.11	0.83–1.47	0.484	2.61	0.45–15.22	0.286
Protestant	Reference			Reference		
Monthly income (UGX)[b]						
<200 000	1.31	1.02–1.64	**0.035***	1.44	0.39–5.29	0.585
200 000–499 999	0.77	0.50–1.19	0.234	0.14	0.03–0.74	**0.021***
≥500 000	Reference			Reference		
Health Belief Model Constructs (continuous)[c]						
Perceived susceptibility	0.15	0.10–0.23	**<0.0001*****	5.87	0.45–76.88	0.177
Perceived severity	0.73	0.67–0.78	**<0.0001*****	2.89	1.14–7.35	**0.026***
Perceived benefit	0.69	0.63–0.75	**<0.0001*****	6.60	1.19–36.70	**0.031***
Self-efficacy	0.72	0.67–0.78	**<0.0001*****	1.37	0.36–5.23	0.644
Perceived barrier to use	0.35	0.27–0.44	**<0.0001*****	0.22	0.001–421.73	0.694
Perceived risk	0.71	0.66–0.77	**<0.0001*****	0.63	0.25–1.61	0.332

[δ]Variables with $p < 0.2$ in the bivariate analyses (unadjusted model) were included in the multivariate analysis (adjusted model), [a]Not married includes single, divorced and widowed; [b]UGX, Ugandan shilling; aPR, Adjusted prevalence ratio; 95%CI, 95% Confidence interval, [c] We included all variables with $p < 0.20$ in unadjusted models in the multivariable analysis (adjusted model). All HBM constructs were entered as continuous variables based on their averaged Likert-scale scores.

*Significant at $p < 0.05$; **Significant at $p < 0.001$; ***Significant at $p < 0.0001$

Discussion

Prevalence of utilisation of female condoms

The prevalence of the utilisation of female condoms, as revealed in this study, was 34% among the 125 respondents recruited for this study. The prevalence from this study reveals that female condom use was a bit high and encouraged despite the long distance to get one. This result contrasted with the findings from the Rwanda Demographic Health Survey (RDHS) 2019/2020 [41], which stated a 10.8% prevalence in the utilisation of all types of condoms, and the findings from the research on the utilisation of female condoms among street youths in Ibadan, Nigeria [42]; which revealed a prevalence of 4.3%. Another similar study that assessed the social and psychological factors affecting the utilisation of female condoms in Migori County established a prevalence of 0.3% [43]. The contrasted findings may be because these research findings focused on a population in a rural district with low and little infrastructure, while those of Rwanda and Nigeria were conducted in Urban areas with a large population size. However, the prevalence in this study aligns with the data from the research on knowledge and attitude toward female condom use in Rwanda [44]; the prevalence was 39.1%. It somewhat differs from the Ugandan Demographic Health Survey (UDHS) [45], which states a prevalence of 26.4% among young women.

Factors associated with the utilisation of female condoms

This research revealed that the variables of age and monthly income were significantly associated with the utilisation of female condoms at the multivariable level. These findings align with the research findings on the socio-demographic factors affecting the utilisation of female condoms in Kenya [44] but are in contrast with other research findings from Kenya [16]. The conclusions of this study can be interpreted as follows: Young girls are prone to utilise female condoms, but as they advance in age, the desire to use them decreases. In addition, the degree of financial independence attained by a woman aids her in making an independent decision on the affordability and use of female condoms.

Components of HBM influencing the utilisation of female condoms

The findings from this study on the components of HBM align with several findings from the research on knowledge and attitude to female condom use in Kigali [44], which revealed that respondents showed a favourable

attitude towards the efficacy of female condom use in the prevention of sexually transmitted infections (STI); a study in Nigeria [46]; Italy (knowledge, attitude and willingness to use FC) [47], and Zimbabwe (FC uptake and acceptability) [48] which revealed high efficacy of FC in the prevention of unintended pregnancies and STIs. A study on factors associated with female condom utilisation [49] stated that the majority (85%) of women had a high perceived severity (avoidance/control of STIs and unintended pregnancies) in utilising female condoms.

This study revealed that FC was easy to insert and use, as stated by the majority of the respondents (92%), but was in contrast with a similar study [44] and another study on FC utilisation [47], which revealed difficulties in the insertion and use of FC. The results of this study on insertion and use were similar to a study among sex workers in Zimbabwe [50], which stated that FC was easy to use and became easier with consistency. In addition, this study revealed the perceived barriers by the respondents in utilising FC; this was in line with the research on the determinants of female and male condom use among immigrant women [51], which revealed that condom use and sex negotiation with partner influenced the choice of condoms to be used; hence spousal/partner support in the utilisation of FC is very vital. Other barriers to using FC, as revealed in this study, were a decrease in sexual pleasure, lack of knowledge, and religious and cultural beliefs. These perceived risks to utilisation were both internal and external triggers. This was similar to the findings in Thailand and Kenya [52], and Brazil, Ghana, Zimbabwe and South Africa [53]. In addition, the data from this research on distance-acquiring FC were similar to the findings on Reproductive Health Matters [54].

Finally, it is important to note that this study revealed that only perceived severity and benefits were the associated components of the HBM that were statistically significant with the outcome variable, the utilisation of FC. This implies that if women feel susceptible to several sexually transmitted diseases/infections and are aware of the benefits of female condom usage, their willingness to use FC will greatly increase among the women of Rakai, Uganda.

Limitations of the study

The scope of this study was restricted to the respondents' capacity to honestly answer the questions, which led to a possible recall bias since participants had trouble remembering previous occurrences. This was minimised by cross verifying the data with the study objectives. Also, due to the sample size and study design of this study, the findings might not be generalizable in all districts in the region and Country; this is mainly due to funding availability.

Conclusion

Our study found that the prevalence of utilisation of FC among women of reproductive age in the Rakai district was below average. Perceived severity and perceived benefits were significantly associated with FC usage. In addition, the socio-demographic variables of the respondents that influenced FC utilisation were age and income. This implies that a woman's willingness to use FC increases during the early adult stage but greatly declines as they approach menopause. Therefore, the authors recommend that there should be an increase in conducting health education and awareness at the community level to enable the sensitisation of female condoms [44, 55, 56] by emphasising the importance of female condoms in preventing HIV/AIDS, sexually transmitted infections/diseases and unintended pregnancies. This awareness and sensitisation campaign should be championed by the Uganda Ministry of Health and implemented by the Village Health Teams (VHTs).

Female condoms should be as widely distributed as male condoms to encourage acceptance by all sexual partners and reduce the long distances in acquiring them. This should be championed by the pharmaceutical industries nationwide to encourage more supplies and availability.

Abbreviations

FC	Female Condom
HBM	Health Belief Model
REC	Research Ethics Committee
SPSS	Statistical Package for Social Sciences
TASO	The AIDS Support Organisation

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12905-025-03977-9.

Supplementary Material 1.

Acknowledgements

The authors acknowledge all district officials and women in Rakai District-Uganda.

Authors' contributions

(A) AS (B) NUK (C) MAG. Authors A and B took part in the conceptualization, data analysis and drafting of the manuscript. Author C reanalyzed and reviewed the data; and made the final approval before submission.

Funding

No funding was obtained for this study.

Data availability

All data for this research is available within the manuscript, and the raw data can be made available upon request.

Declarations

Ethics approval and consent to participate

Ethical approval to conduct the study was obtained from The AIDS Support Organisation (TASO) Research Ethics Committee (REC), reference number

TASO-2023-230. The research protocol was registered with the Uganda National Council for Science and Technology (UNCST) with approval number HS5443ES. Permission was sought from local authorities in Rakai district, and written informed consent was obtained from study participants. Confidentiality and anonymity were maintained throughout the study. This study followed the ethical declaration of Helsinki (1964).

Consent for publication
Not Applicable.

Competing interests
The authors declare no competing interests.

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Received: 28 May 2024 / Accepted: 12 August 2025
Published online: 26 September 2025

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