

Acceptability of pre-exposure prophylaxis and associated factors among Adolescent Girls and Young Women in Kenya: Analysis of the 2022 Kenya demographic and health survey.

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Abstract

Background: Human Immunodeficiency Virus (HIV) remains a significant public health challenge in Kenya, with Adolescent Girls and Young Women (AGYW) at an increased risk. Although pre-exposure prophylaxis (PrEP) was integrated into Kenya's HIV prevention program close to a decade ago, it is still underutilized among AGYW outside the key populations at high risk for HIV. Understanding PrEP acceptability is crucial for scaling prevention efforts.

Objective: To determine the acceptability of PrEP and associated factors among AGYW in Kenya.

Methods: This was a cross-sectional study using secondary data from the 2022 Kenya Demographic and Health Survey (KDHS), which used a two-stage stratified sampling approach. Participants were 1,668 AGYW from the 2022 KDHS who were aware of PrEP, HIV negative, and of age 16 to 24 years. Data was analyzed using STATA 17 in the survey window and acceptability of PrEP was estimated with 95% confidence intervals (CIs). Modified Poisson regression was used to determine associated factors.

Results: The prevalence of PrEP acceptability among AGYW was 73.7% (95% CI: 70.6–76.5). A higher likelihood of PrEP acceptability was observed among participants residing in Eastern (adjusted prevalence ratio [aPR] = 1.34; 95% CI: 1.07–1.68), Nyanza (aPR = 1.55; 95% CI: 1.22–1.98), and Nairobi (aPR = 1.50; 95% CI: 1.21–1.86) regions compared to Central region. Ethnicity was also associated with PrEP acceptability, with higher prevalence among Luhya (aPR = 1.26; 95% CI: 1.07–1.49) and Mijikenda/Swahili (aPR = 1.26; 95% CI: 1.01–1.57) compared to Luo.

Moreover, a higher likelihood of PrEP acceptability was observed among participants belonging to other religious groups (Hindu, traditional beliefs, no religion, and other affiliations) (aPR = 1.21; 95% CI: 1.10–1.34) and among those who did not desire children (aPR = 1.11; 95% CI: 1.06–1.17). In contrast, participants with tertiary education (aPR = 0.90; 95% CI: 0.82–1.00) and those with justification of wife beating (aPR = 0.87; 95% CI: 0.79–0.96) had a lower likelihood of PrEP acceptability compared to those with secondary education and no justification of wife beating, respectively.

Conclusions: PrEP acceptability among adolescent girls and young women in Kenya was high (73.7%), although 26.3% did not accept PrEP. Acceptability varied significantly by region, ethnicity, education, religion, desire for children, and attitudes towards wife beating, stressing the influence of individual and sociocultural factors on PrEP decision-making. Targeted, culturally responsive, youth-friendly, and gender-sensitive PrEP interventions are needed to address these differences and improve PrEP acceptability among AGYW.

Background

HIV remains a critical public health challenge, particularly in Sub-Saharan Africa (SSA), which accounts for over two-thirds of the global HIV burden, with women comprising 53% of the 39 million people living with HIV worldwide (1). Kenya, with the seventh-largest HIV burden globally, had 1.3 million people living

with HIV/AIDS, with women accounting for 67% of the 22,154 new infections reported in 2022 (1). Adolescent girls and young women (AGYW) are disproportionately affected, facing a fivefold higher likelihood of HIV infection compared with men, driven by gender inequality, economic dependence, intimate partner violence, transactional relationships, and low condom use (2). According to the UNAIDS Population Size Estimates for 2024, Kenya had an estimated 5,100,540 adolescent girls and young women (AGYW) aged 15–24 years, of whom 2,612,436 were considered at heightened risk of HIV. An estimated 96,687 AGYW aged 15–24 years were living with HIV (3).

Pre-exposure prophylaxis (PrEP) is a highly effective HIV prevention strategy for populations at substantial HIV risk (4). PrEP is available in oral, injectable, and vaginal rings, and it reduces HIV acquisition risk by up to 75% when used consistently, as demonstrated in clinical trials (5). Since its introduction in Kenya in 2016 and integration into the national HIV prevention program in 2017, PrEP has been prioritized for key and priority populations at high risk for HIV, including AGYW, female sex workers (FSWs), and Sero discordant couples, unlike other women in the general population (2, 6).

Despite progress in PrEP scale-up, with approximately 44,000 Kenyans using PrEP by 2020, awareness AGYW and uptake among women remain low, particularly among AGYW (7, 8). Studies indicate that only 34% of Kenyan women are aware of PrEP, with uptake rates as low as 4% among eligible AGYW and 27% among serodiscordant couples (9, 10). Barriers to PrEP awareness, acceptability, and use included low HIV risk perception, concerns about pill burden, side effects, and intimate partner violence, while facilitators included PrEP education, healthcare provider support, and social networks (9, 11). In contrast, PrEP awareness and acceptability also varied across SSA, with Tanzania reporting 8% and Nigeria 7.8% awareness among women in the general population (12, 13). These inconsistencies highlight the need for population-based data to inform targeted interventions.

The limited focus on PrEP awareness and acceptability among the general population of **AGYW** in Kenya represents a critical research gap. Most studies targeted key and priority populations at high risk for HIV attending specialized clinics, with the concept remaining under-explored in the general population of **AGYW** (14, 15). Understanding the factors influencing PrEP awareness and acceptability among **AGYW** is essential for reducing HIV stigma, increasing PrEP uptake, and scaling up prevention efforts in general. Consequently, this is vital for reducing HIV incidence among women, in line with the global goal of reducing new infections to fewer than 370,000 annually by 2025 (1). The 2022 KDHS provides a nationally representative dataset to investigate these determinants, offering insights into factors influencing PrEP acceptability among AGYW. Therefore, this study aimed to address this gap by investigating the sociodemographic, lifestyle behavioral, sexual behavioral, psychosocial, and intimate partner violence factors associated with PrEP acceptability among AGYW in Kenya. The study findings may contribute to evidence-based strategies for HIV prevention in Kenya and other SSA countries.

Methods

Data source, sample design, and collection

We analysed secondary data from the 2022 Kenya Demographic and Health Survey (KDHS), a nationally representative cross-sectional survey conducted by the Kenya National Bureau of Statistics in collaboration with the Ministry of Health and other partners (16). The 2022 KDHS employed a two-stage stratified sampling design. In the first stage, 1,692 enumeration areas (clusters) were selected from the Kenya Household Master Sample Frame, which was developed from the 2019 Kenya Population and Housing Census. In the second stage, household listing was conducted within the selected clusters, after which 25 households were systematically selected from each cluster. In clusters containing fewer than 25 households, all households were selected. Overall, 42,022 households were selected for the survey, of which 37,911 were successfully interviewed.

All women aged 15–49 years who were usual members of the selected households or who had stayed in the selected households the night preceding the survey were eligible for the women's interview. A total of 33,879 women aged 15–49 years were identified as eligible for individual interviews, of whom 32,156 were successfully interviewed, corresponding to a response rate of approximately 95%. Data collection was conducted between February and July 2022 using standardized KDHS questionnaires administered by trained field teams (16).

For the present study, no separate sample size calculation was performed because this was a secondary analysis of an existing nationally representative dataset. Instead, all women in the 2022 KDHS dataset who met the study eligibility criteria were included. The analysis was restricted to adolescent girls and young women aged 16–24 years who were HIV-negative and were aware of pre-exposure prophylaxis (PrEP). After applying these eligibility criteria, 1,668 participants constituted the final analytical sample.

Study variables

The selection and organisation of variables were guided by an adapted Socio-Ecological Model (SEM). The SEM recognises that health behaviours and health-related decision-making may be influenced by factors operating at multiple levels. For this study, variables available in the 2022 Kenya Demographic and Health Survey were organised into three broad levels: individual-level, interpersonal/household-level, and community/sociocultural-level factors. Within these levels, variables were further described according to their sociodemographic, lifestyle behavioural, sexual and reproductive health, psychosocial, autonomy, and intimate partner violence domains.

Dependent/outcome variables

The primary outcome of this study was acceptability as captured by the following survey question: Do you approve of people who take a pill every day to prevent getting HIV? Women who answered yes were coded as 1; otherwise as 0.

Independent variables

The factors included in the analysis were categorized into five, namely, sociodemographic, lifestyle behavioral, sexual behavioral, psychosocial, and intimate partner violence factors. The 15 sociodemographic factors that were included in the analysis, are; age in years, wealth index (poorest, poorer, middle, richer, and richest), education (none/primary, secondary or tertiary), working status (Yes vs No), residence (rural vs urban), religion (Christian, Muslim, or others), marital status (married/cohabiting, or unmarried), region (categorized into Kenya's eight provinces; Northeastern, Coast, Eastern, Rift Valley, Western, Central, Nairobi and Nyanza), household size (≥ 5 vs ≤ 4 members), and ethnicity (categorized into Kenya's 12 tribes; Kalenjin, Embu, Kamba, Kikuyu, Luhya, Kisii, Maasai, Luo, Mijikenda/Swahili, Meru, Taita/Taveta, Somali, and Others). Using principal component analysis, the wealth index was calculated by 2022 KDHS from information on household asset ownership (17). Additionally, the husband's education and working status were also included in the analysis.

Autonomy was assessed through four proxy variables namely, who heads the household (male vs female), who makes decisions related to healthcare-seeking, major household purchases, and earnings (jointly with partner or another person, self, partner, or others). The participants perceived health status at the time of the interview (good, moderate, bad), and exposure to mass media such as television, radio, newspapers, and internet (No vs Yes) were also included in the analysis.

Three lifestyle behavioral factors were also analysed: whether the participants and their sex partners (husbands) consumed alcohol or used tobacco (yes/no). We also examined nine variables that were related to sexual behaviors, which included the age of the participant at first sexual intercourse in years (≤ 14 , 15–24), recent sexual activity (active vs inactive), current pregnancy (yes/no), number of sex partners in last 12 months (1 partner vs ≥ 2 partners), number of living children (≤ 2 , 3–4), number of lifetime sex partners (≤ 5 , 6–10), and whether one had gotten any symptoms of sexually transmitted infections (STIs) in the last 12 months preceding the survey in the form of a genital ulcer or discharge (yes/no). Additionally, this study sought to investigate if the use of other HIV prevention services such as condom use at last sex (yes/no), and HIV testing and counselling (yes/no) had an influence on PrEP acceptability.

Four psychosocial factors were included in the analysis such as the desire for more children (wants, does not want, undecided), whether their wives were justified to refuse sex if they had other women (yes/no), HIV knowledge, and stigma. Knowledge of HIV as a binary variable was computed from 5 items about HIV transmission and prevention with answer options of "Yes", "No" or "Don't Know". A correct response for each item was awarded a score of 1 with a maximum score of 5 which was further categorized as poor (≤ 2), or good knowledge (≥ 3). HIV stigma was operationalized as having stigmatizing attitudes towards people living with HIV, measured by the item "Would you buy vegetables from a vendor with HIV" (yes/no).

We sought to establish if intimate partner violence (IPV) related factors had an influence on PrEP acceptability among Adolescent girls and young women by including in the analysis, variables such as the participant being afraid of their husband/partner (yes/no), justified beating (yes/no), and

experiencing economic, controlling, emotional, physical, and sexual forms of IPV (yes/no). It is worth noting that justified beating (5 items), controlling (5 items), emotional (4 items), physical (7 items), and sexual (3 items) IPV variables were composite variables constructed from numerous binary response items, where an agreement to any of the statements or items (≥ 1) indicated justified beating or an experience of any forms of IPV.

Statistical analysis

The data was analyzed using Stata version 17 in survey window, accounting for the complex survey design of the Kenya Demographic and Health Survey. The data was declared survey data by using the `svyset` command to incorporate sampling weights, clustering, and stratification variables.

Prior to analysis, the dataset was cleaned and relevant variables to the topic were re-coded, including the creation of dummy variables for categorical predictors. Numeric data was presented using median and interquartile range because it was not normally distributed and categorical data was presented using weighted percentages and frequencies.

We checked for multicollinearity and there was no collinearity between variables since they all had VIF less than 10. Both bivariate and multivariable analysis were conducted using modified poisson regression with robust standard errors under the survey design (`svy: poisson`) to identify factors associated with PrEP acceptability because the outcome was not rare. Variables with not more than 15% missing data and a p-value less than 0.2 at the bivariate analysis were considered for multivariable analysis. There was no interaction between all the variables and no variable was confounder. Crude and adjusted prevalence ratios (aPRs) with their corresponding 95% confidence intervals (CIs) were reported.

Ethical consideration

No ethical approval was required to examine the secondary data since it is publicly accessible. Nevertheless, authorization to access the 2022 KDHS datasets was granted by MEASURE DHS (<https://www.dhsprogram.com/data/available-datasets.cfm>). Approval for the study detailed in the datasets was granted by the Institutional Review Board of the Inner-City Fund (ICF). The Kenya National Bureau of Statistics carried out the study in partnership with various stakeholders.

Results

Distribution of Sociodemographic, media exposure, lifestyle, sexual behavioural, reproductive health and HIV service-related, psychosocial, autonomy, and intimate partner violence factors of Adolescent Girls and Young Women in Kenya.

Most participants resided in urban areas (50.8%, $n = 796$) and were predominantly from Rift Valley (23.1%, $n = 451$), with Luo being the most represented ethnic group (22.7%, $n = 392$). Most participants had secondary education (53.9%, $n = 945$), were christian (90.7%, $n = 1,488$), unmarried (62.6%, $n = 1,025$), and not working (64.1%, $n = 1,069$). The largest proportion belonged to the richest wealth quintile (30.3%,

n = 391), lived in male-headed households (59.9%, n = 974), and had four or fewer household members (52.1%, n = 846), with most reporting good health status (83.7%, n = 1,394).

Most participants reported joint decision-making with their partners regarding health-seeking (51.5%, n = 327), purchases (64.6%, n = 409), and earnings (58.5%, n = 357). The majority had access to radio (77.6%, n = 1,276), television (74.2%, n = 1,184), and internet (66.5%, n = 1,033), while most did not read newspapers (75.5%, n = 1,276). Nearly all participants reported no tobacco use (100.0%, n = 1,668) or alcohol use (100.0%, n = 1,561), and most reported that their partners did not consume alcohol (69.9%, n = 344).

Sexually, most participants initiated sexual activity between 15–24 years (90.0%, n = 1,232), were sexually inactive (61.0%, n = 1,008), had one sexual partner in the past 12 months (92.0%, n = 1,117), and had fewer than five lifetime sexual partners (91.7%, n = 1,285). Most reported no genital ulcers (94.0%, n = 1,588) or discharge (91.5%, n = 1,536) and had two or fewer children (97.8%, n = 1,622).

Regarding HIV-related services, most participants had ever tested for HIV (100.0%, n = 1,666), did not use condoms at last sex (79.3%, n = 1,109), and were not pregnant or unsure of their pregnancy status (92.1%, n = 1,534). Psychosocially, most participants desired children (84.3%, n = 1,406), had good HIV knowledge (99.1%, n = 1,647), expressed no stigma towards people living with HIV (84.4%, n = 1,375), and agreed that a wife is justified in asking her husband to use a condom (89.2%, n = 1,431).

Most participants reported never being afraid of their partner (77.7%, n = 365), did not justify wife beating (74.5%, n = 1,216), and did not experience emotional (77.6%, n = 363), physical (76.3%, n = 368), sexual (91.1%, n = 430), or economic IPV (88.7%, n = 424), although controlling behaviors were commonly reported (67.3%, n = 309) (Table 1).

Table 1

Sociodemographic, media exposure, lifestyle, sexual behavioural, reproductive health and HIV service-related, psychosocial, autonomy, and intimate partner violence factors of Adolescent Girls and Young Women in Kenya (N = 1,668).

Variable	PREP ACCEPTABILITY		Total (n)	TOTAL (Weighted %)
	Yes	No		
	n (weighted)	n (weighted)		
Sociodemographic factors				
Age (Median 21 [IQR: 19–23])	1225(73.6)	443 (26.4)	1668	100
Residence				
Urban	580 (73.7)	216 (26.3)	796	50.8
Rural	645 (73.6)	227 (26.4)	872	49.3
Region/Province				
Coast	118 (74.6)	54 (25.4)	172	7.7
North East	11 (48.5)	13 (51.5)	24	0.5
Eastern	165 (77.2)	50 (22.8)	215	10.3
Central	97 (57.3)	61 (42.7)	158	13.9
Rift Valley	318 (68.0)	133 (32.0)	451	23.1
Western	93 (68.0)	38 (32.0)	131	7.6
Nyanza	360 (81.3)	83 (18.7)	443	20.7
Nairobi	63 (86.8)	11 (13.2)	74	16.2
Ethnicity				
Embu	11 (60.2)	5 (39.8)	16	0.6
Kalenjin	193 (68.3)	83 (31.7)	276	13.6
Kamba	118 (74.8)	38 (25.2)	156	10.0
Kikuyu	163 (67.2)	72 (32.8)	235	18.4
Kisii	107 (73.1)	36 (26.9)	143	7.7
Luhya	153 (79.1)	48 (20.9)	201	15.7
Luo	302 (77.5)	90 (22.5)	392	22.7
Maasai	16 (66.2)	8 (33.9)	24	1.3

Variable	PREP ACCEPTABILITY		Total (n)	TOTAL (Weighted %)
	Yes n (weighted %)	No n (weighted %)		
Meru	70 (73.8)	26 (26.2)	96	4.0
Mijikenda/Swahili	56 (81.1)	17 (18.9)	73	4.0
Somali	21 (70.4)	13 (29.6)	34	1.2
Taita/Taveta	12 (75.8)	5 (24.2)	17	0.5
Other	3 (73.2)	2 (26.8)	5	0.3
Education				
None/Primary	213 (73.0)	90 (27.0)	303	16.9
Secondary	718 (76.3)	227 (23.7)	945	53.9
Tertiary	294 (69.1)	126 (30.9)	420	29.2
Religion				
Christian	1,090 (72.4)	398 (27.6)	1,488	90.7
Islam	75 (79.9)	34 (20.2)	109	4.3
Others*	60 (91.0)	11 (9.0)	71	5.0
Marital status				
Unmarried	750 (72.3)	275 (27.7)	1,025	62.6
Married	475 (75.9)	168 (24.1)	643	37.4
Working status/occupation				
No	799 (75.3)	270 (24.7)	1,069	64.1
Yes	426 (70.8)	173 (29.2)	599	36.0
Wealth index				
Poorest	130 (73.9)	54 (26.1)	184	9.0
Poorer	219 (75.4)	69 (24.6)	288	15.6
Middle	250 (73.9)	89 (26.2)	339	17.6
Richer	338 (70.7)	128 (29.3)	466	27.6
Richest	288 (75.2)	103 (24.8)	391	30.3

Variable	PREP ACCEPTABILITY		Total (n)	TOTAL (Weighted %)
	Yes	No		
	n (weighted)	n (weighted)		
Sex of Household head				
Male	713 (74.2)	261 (25.8)	974	59.9
Female	512 (72.8)	182 (27.2)	694	40.1
Household number				
≤ 4 members	624 (74.4)	222 (25.6)	846	52.1
5 + members	601 (72.8)	221 (27.2)	822	47.9
Health status				
Good	1,034 (74.8)	360 (25.2)	1,394	83.7
Moderate	177 (68.0)	77 (32.0)	254	15.2
Bad	14 (63.0)	6 (37.0)	20	1.1
Health seeking decision making (n = 643)				
Self	161 (75.1)	60 (24.9)	221	34.5
Jointly with partner	246 (77.5)	81 (22.5)	327	51.5
Partner	68 (72.0)	27 (28.0)	95	14.0
Purchases decision making (n = 643)				
Self	69 (75.0)	23 (25.0)	92	12.8
Jointly with partner	304 (76.5)	105 (23.5)	409	64.6
Partner	98 (74.4)	40 (25.6)	138	22.3
Others	4 (100.0)	0 (0.0)	4	0.3
Earnings decision making (n = 632)				
Self	38 (71.5)	18 (28.5)	56	8.3
Jointly with partner	263 (77.1)	94 (22.9)	357	58.5
Partner	167 (75.5)	52 (24.5)	219	33.2
Husband Education (n = 635)				

Variable	PREP ACCEPTABILITY		Total (n)	TOTAL (Weighted %)
	Yes n (weighted %)	No n (weighted %)		
Primary/None	127 (77.6)	57 (22.4)	184	25.7
Secondary	198 (74.0)	65 (26.0)	263	42.1
Tertiary	158 (77.3)	30 (22.8)	188	32.2
Husband's Working status/occupation (n = 619)				
No	23 (77.7)	10 (22.3)	33	4.7
Yes	437 (76.3)	149 (23.7)	586	95.3
Newspaper				
No	944 (74.3)	332 (25.8)	1,276	75.5
Yes	281 (71.8)	111 (28.2)	392	24.5
TV				
No	354 (76.1)	130 (23.9)	484	25.8
Yes	871 (72.8)	313 (27.2)	1,184	74.2
Radio				
No	271 (71.7)	121 (28.3)	392	22.5
Yes	954 (74.2)	322 (25.8)	1,276	77.6
Internet use				
No	471 (74.3)	164 (25.7)	635	33.5
Yes	754 (73.3)	279 (26.7)	1,033	66.5
Lifestyle Behavioural factors				
Tobacco use				
No	1,225 (73.7)	443 (26.3)	1,668	100.0
Yes	0 (0.0)	0 (100.0)	0	0.0
Alcohol use (n = 1,561)				
No	1,147 (73.6)	414 (26.4)	1,561	100.0

Variable	PREP ACCEPTABILITY		Total (n)	TOTAL (Weighted %)
	Yes n (weighted %)	No n (weighted %)		
Yes	0 (0.0)	0 (0.0)	0	0.0
Husband drinks Alcohol (n = 464)				
No	240 (67.7)	104 (32.3)	344	69.9
Yes	87 (65.8)	33 (34.3)	120	30.1
Sexual behavioural factors				
Age at first sex (years) (n = 1,382)				
< 15 years	112 (76.8)	38 (23.2)	150	10.0
15–24 years	908 (73.6)	324 (26.4)	1,232	90.0
Sexual activity				
Inactive	740 (73.4)	268 (26.6)	1,008	61.0
Active	485 (74.0)	175 (26.0)	660	39.0
Number of sex partners in last 12 months (n = 1,200)				
1 partner	827 (74.1)	290 (26.0)	1,117	92.0
≥ 2 partners	57 (67.0)	26 (33.0)	83	8.0
Number of lifetime sex partners (n = 1,382)				
< 5	941 (73.1)	344 (26.9)	1,285	91.7
5–10	68 (80.0)	15 (20.1)	83	6.8
> 10	11 (94.8)	3 (5.2)	14	1.6
Genital ulcer in last 12 months				
No	1,165 (73.9)	423 (26.1)	1,588	94.0
Yes	60 (69.8)	20 (30.2)	80	6.0
Genital Discharge in the last 12 months				
No	1,124 (73.2)	412 (26.8)	1,536	91.5
Yes	101 (78.4)	31 (21.6)	132	8.5

Variable	PREP ACCEPTABILITY		Total (n)	TOTAL (Weighted %)
	Yes n (weighted %)	No n (weighted %)		
Number of living children				
≤ 2	1,193 (73.6)	429 (26.5)	1,622	97.8
3–4	32 (69.6)	14 (30.4)	46	2.8
Use of other HIV services				
Condom use at Last Sex (n = 1,382)				
No	813 (75.0)	296 (25.0)	1,109	79.3
Yes	207 (69.8)	66 (30.2)	273	20.7
Ever tested for HIV				
No	0 (0.0)	2 (100.0)	2	0.0
Yes	1,225 (73.7)	441 (26.3)	1,666	100.0
Pregnant				
No or unsure	1,123 (73.2)	411 (26.8)	1,534	92.1
Yes	102 (78.5)	32 (21.5)	134	7.9
Psychosocial factors				
Desire for children (n = 1,659)				
Wants	1,007 (71.7)	399 (28.3)	1,406	84.3
Does not want	141 (82.9)	30 (17.1)	171	11.8
Undecided	69 (85.8)	13 (14.2)	82	3.9
HIV knowledge				
≤ 2 (Poor)	10 (63.8)	11 (36.2)	21	0.9
≥ 3 (Good)	1,215 (73.7)	432 (26.3)	1,647	99.1
Would buy vegetables from vendors with HIV (n = 1,649)				
No (Stigma)	194 (71.0)	80 (29.0)	274	15.6
Yes (No stigma)	1,018 (74.2)	357 (25.8)	1,375	84.4

Variable	PREP ACCEPTABILITY		Total (n)	TOTAL (Weighted %)
	Yes	No		
	n (weighted)	n (weighted)		
Wife justified in asking her husband to use a condom (n = 1,662)				
No	173 (75.8)	58 (24.2)	231	10.8
Yes	1,048 (73.4)	383 (26.6)	1,431	89.2
IPV factors				
Respondent afraid of Husband (n = 464)				
Never	259 (66.3)	106 (33.7)	365	77.7
Yes	68 (70.2)	31 (29.8)	99	22.3
Justified beating (n = 1,666)				
No	922 (75.9)	294 (24.1)	1,216	74.5
Yes	301 (66.8)	149 (33.2)	450	25.5
IPV forms				
Emotional IPV (n = 464)				
No	255 (65.7)	108 (34.3)	363	77.6
Yes	72 (72.1)	29 (27.9)	101	22.4
Controlling IPV (n = 464)				
No	111 (64.9)	44 (35.1)	155	32.7
Yes	216 (68.2)	93 (31.8)	309	67.3
Physical IPV (n = 464)				
No	259 (64.8)	109 (35.2)	368	76.3
Yes	68 (74.7)	28 (25.3)	96	23.7
Sexual IPV (n = 464)				
No	302 (66.2)	128 (33.8)	430	91.1
Yes	25 (76.8)	9 (23.2)	34	8.9
Economic IPV (n = 464)				

Variable	PREP ACCEPTABILITY		Total (n)	TOTAL (Weighted %)
	Yes	No		
	n (weighted)	n (weighted)		
No	296 (66.2)	128 (33.8)	424	88.7
Yes	31 (74.6)	9 (25.4)	40	11.3

* Hindu, traditional beliefs, no religion, and other affiliations n represent the number of respondents.

PrEP acceptability among Adolescent Girls and Young Women in Kenya.

PrEP acceptability among **AGYWA** was 73.7% (95% confidence interval [CI]: 70.6%–76.5%) (Table 2).

Table 2
PrEP Acceptability among AGYW in Kenya

Variable	Category	Proportion (%)	95% CI (%)
PrEP acceptability	Accept	73.7	70.6–76.5
	Do not accept	26.3	23.5–29.4

Bivariate and multivariable analysis of factors associated with PrEP acceptability among Adolescent Girls and Young Women in Kenya.

Variables with more than 15% missing data were excluded from both bivariate and multivariable analyses to minimize bias and ensure robustness of estimates.

At bivariate analysis, region/province (Coast: cPR = 1.302, 95% CI: 1.069–1.585; p = 0.009; Eastern: cPR = 1.347, 95% CI: 1.106–1.640; p = 0.003; Nyanza: cPR = 1.419, 95% CI: 1.184–1.702; p < 0.001; Nairobi: cPR = 1.515, 95% CI: 1.240–1.851; p < 0.001), ethnicity (Kalenjin: cPR = 0.881, 95% CI: 0.765–1.014; p = 0.077; Kikuyu: cPR = 0.867, 95% CI: 0.732–1.026; p = 0.097), education (tertiary: cPR = 0.90, 95% CI: 0.82–1.00; p = 0.058), religion (others: cPR = 1.258, 95% CI: 1.161–1.362; p < 0.001), working status (yes: cPR = 0.940, 95% CI: 0.860–1.028; p = 0.174), health status (moderate: cPR = 0.909, 95% CI: 0.810–1.021; p = 0.107), desire for children (does not want: cPR = 1.156, 95% CI: 1.054–1.267; p = 0.002; undecided: cPR = 1.196, 95% CI: 1.030–1.388; p = 0.019), and justification of beating (yes: cPR = 0.880, 95% CI: 0.796–0.972; p = 0.012) were considered for multivariate analysis as they had p-values less than 0.2.

At multivariable analysis, region was significantly associated with PrEP acceptability, with participants from Eastern (aPR = 1.337, 95% CI: 1.066–1.677; p = 0.012), Nyanza (aPR = 1.549, 95% CI: 1.215–1.975; p < 0.001), and Nairobi (aPR = 1.502, 95% CI: 1.213–1.859; p < 0.001) showing higher likelihood of PrEP acceptability compared to those from Central region.

Ethnicity was also associated with PrEP acceptability, with Luhya (aPR = 1.259, 95% CI: 1.067–1.486; $p = 0.007$) and Mijikenda/Swahili (aPR = 1.258, 95% CI: 1.011–1.566; $p = 0.040$) showing higher likelihood compared to Luo.

Religion was significantly associated with PrEP acceptability, with participants in the “other” religious category showing higher likelihood compared to Christians (aPR = 1.211, 95% CI: 1.098–1.337; $p < 0.001$). Desire for children was also associated with PrEP acceptability, with those who did not want children showing higher likelihood compared to those who wanted children (aPR = 1.111, 95% CI: 1.057–1.169; $p < 0.001$). Participants with tertiary education had lower likelihood of PrEP acceptability compared to those with secondary education (aPR = 0.901, 95% CI: 0.816–0.995; $p = 0.039$).

Justification of wife beating was negatively associated with PrEP acceptability (aPR = 0.872, 95% CI: 0.793–0.959; $p = 0.005$) (Table 3).

Table 3

Bivariate and multivariable analysis of factors associated with PrEP acceptability among adolescent girls and young women in Kenya

Variable	cPR (95% CI)	P value	aPR (95% CI)	P value
Age	1.008 (0.991–1.025)	0.381		
Residence				
Urban	Ref			
Rural	0.998 (0.922–1.080)	0.960		
Region/Province				
Central	Ref			
Coast	1.302 (1.069–1.585)	0.009	1.188 (0.929–1.520)	0.170
North East	0.847 (0.426–1.685)	0.635	0.912 (0.404–2.057)	0.823
Eastern	1.347 (1.106–1.640)	0.003	1.337 (1.066–1.677)	0.012
Rift Valley	1.186 (0.977–1.441)	0.085	1.220 (0.991–1.503)	0.061
Western	1.187 (0.960–1.468)	0.112	1.115 (0.892–1.394)	0.337
Nyanza	1.419 (1.184–1.702)	< 0.001	1.549 (1.215–1.975)	< 0.001
Nairobi	1.515 (1.240–1.851)	< 0.001	1.502 (1.213–1.859)	< 0.001
Ethnicity				
Luo	Ref			
Embu	0.776 (0.429–1.403)	0.401	1.005 (0.514–1.967)	0.988
Kalenjin	0.881 (0.765–1.014)	0.077	1.067 (0.890–1.278)	0.484
Kamba	0.965 (0.830–1.122)	0.644	1.066 (0.850–1.337)	0.578
* Hindu, traditional beliefs, no religion, and other affiliations, cPR=Crude Prevalence Ration aPR=Adjusted Prevalence Ratio				

Variable	cPR (95% CI)	P value	aPR (95% CI)	P value
Kikuyu	0.867 (0.732–1.026)	0.097	1.108 (0.895–1.371)	0.346
Kisii	0.943 (0.805–1.104)	0.465	0.989 (0.853–1.148)	0.889
Luhya	1.020 (0.909–1.145)	0.734	1.259 (1.067–1.486)	0.007
Maasai	0.853 (0.657–1.107)	0.232	1.061 (0.781–1.442)	0.703
Meru	0.951 (0.792–1.142)	0.592	1.119 (0.901–1.389)	0.310
Mijikenda/Swahili	1.045 (0.908–1.203)	0.538	1.258 (1.011–1.566)	0.040
Somali	0.907 (0.622–1.324)	0.614	1.058 (0.643–1.738)	0.825
Taita/Taveta	0.977 (0.760–1.258)	0.859	1.163 (0.852–1.589)	0.341
Other	0.944 (0.564–1.581)	0.828	1.145 (0.675–1.943)	0.614
Education				
Secondary	Ref			
None/Primary	0.96 (0.87–1.05)	0.374	0.964 (0.877–1.060)	0.449
Tertiary	0.90 (0.82–1.00)	0.058	0.901 (0.816–0.995)	0.039
Religion				
Christian	Ref			
Islam	1.103 (0.966–1.260)	0.147	1.056 (0.907–1.229)	0.485
Others*	1.258 (1.161–1.362)	0.000	1.211 (1.098–1.337)	< 0.001
Marital status				
Unmarried	Ref			
* Hindu, traditional beliefs, no religion, and other affiliations, cPR=Crude Prevalence Ratio aPR=Adjusted Prevalence Ratio				

Variable	cPR (95% CI)	P value	aPR (95% CI)	P value
Married	1.050 (0.970–1.137)	0.225		
Working status/occupation				
No	Ref			
Yes	0.940 (0.860–1.028)	0.174	0.972 (0.894–1.057)	0.502
Wealth index				
Poorest	Ref			
Poorer	1.020 (0.907–1.146)	0.744		
Middle	0.999 (0.886–1.126)	0.987		
Richer	0.957 (0.845–1.084)	0.487		
Richest	1.017 (0.893–1.159)	0.794		
Sex of Household head				
Male	Ref			
Female	0.982 (0.904–1.067)	0.664		
Household number				
≤ 4 members	Ref			
5 + members	0.979 (0.904–1.061)	0.606		
Health status				
Good	Ref			
Moderate	0.909 (0.810–1.021)	0.107	0.898 (0.799–1.008)	0.069
Bad	0.842 (0.568–1.249)	0.393	0.816 (0.531–1.253)	0.353
Newspaper				
* Hindu, traditional beliefs, no religion, and other affiliations, cPR=Crude Prevalence Ratio aPR=Adjusted Prevalence Ratio				

Variable	cPR (95% CI)	P value	aPR (95% CI)	P value
No	Ref			
Yes	0.967 (0.884–1.058)	0.465		
TV				
No	Ref			
Yes	0.957 (0.885–1.036)	0.277		
Radio				
No	Ref			
Yes	1.035 (0.948–1.130)	0.445		
Internet use				
No	Ref			
Yes	0.988 (0.911–1.071)	0.764		
Sexual activity				
Inactive	Ref			
Active	1.021 (0.908–1.147)	0.733		
Genital ulcer in last 12 months				
No	Ref			
Yes	0.945 (0.783–1.139)	0.550		
Genital Discharge in the last 12 months				
No	Ref			
Yes	1.071 (0.946–1.212)	0.280		
Number of living children				
≤ 2	Ref			
* Hindu, traditional beliefs, no religion, and other affiliations, cPR=Crude Prevalence Ration aPR=Adjusted Prevalence Ratio				

Variable	cPR (95% CI)	P value	aPR (95% CI)	P value
3–5	0.962 (0.765–1.208)	0.736		
Condom use at Last Sex (n = 1,382)				
No	Ref			
Yes	0.931 (0.827–1.047)	0.233		
Pregnant (n = 1,668)				
No or unsure	Ref			
Yes	1.072 (0.958–1.200)	0.227		
Desire for children (n = 1,659)				
Wants	Ref			
Does not want	1.156 (1.054–1.267)	0.002	1.111 (1.057–1.169)	< 0.001
Undecided	1.196 (1.030–1.388)	0.019		
HIV knowledge				
≤ 2 (Poor)	Ref			
≥ 3 (Good)	1.155 (0.737–1.810)	0.528		
Would buy vegetables from vendors with HIV (n = 1,649)				
No (Stigma)	Ref			
Yes (No stigma)	1.044 (0.940–1.160)	0.418		
Wife justified in asking her husband to use a condom (n = 1,662)				
No	Ref			
Yes	0.968 (0.875–1.072)	0.534		
Justified beating (n = 1,666)				
* Hindu, traditional beliefs, no religion, and other affiliations, cPR=Crude Prevalence Ratio aPR=Adjusted Prevalence Ratio				

Variable	cPR (95% CI)	P value	aPR (95% CI)	P value
No	Ref			
Yes	0.880 (0.796–0.972)	0.012	0.872 (0.793–0.959)	0.005
* Hindu, traditional beliefs, no religion, and other affiliations, cPR=Crude Prevalence Ratio aPR=Adjusted Prevalence Ratio				

Discussion

This study found that PrEP acceptability among adolescent girls and young women in Kenya was high at 73.7%. This is higher than the approximately 20% to 22% initiation rates observed in early Kenyan demonstration projects integrated into family planning clinics (18, 19). However, it aligns with broader systematic reviews that have reported theoretical interest in PrEP ranging from 54% to 87% among women in SSA (20). This high level of acceptability is encouraging and suggests growing awareness of biomedical HIV prevention among Kenyan women, likely influenced by the country's strong scale-up efforts since 2017 and increased public health awareness (21).

Despite the high overall acceptability (73.7%), 26.3% of adolescent girls and young women demonstrated a lack of PrEP acceptability. This could be due to fear of PrEP side effects, HIV-related stigma, low perceived risk of HIV infection, concerns about taking a daily pill, limited knowledge about PrEP, and lack of partner or family support (22).

The generally high acceptability may also reflect the study population's characteristics. Most women had high HIV knowledge (99.1%), had ever tested for HIV (100%), and expressed low HIV-related stigma (84.4%). These factors are known to shape positive attitudes toward preventive interventions (7). Furthermore, 89.2% of women agreed that a wife is justified in asking her husband to use a condom, suggesting a high degree of sexual health autonomy, which is a significant predictor of reproductive health outcomes and HIV prevention uptake (23).

Region was statistically significantly associated with PrEP acceptability. Compared with the Central region, women from Eastern, Nyanza, and Nairobi were significantly more likely to accept PrEP. This reflects national data where HIV incidence and prevalence are not uniformly distributed; Nyanza and Nairobi, for instance, have historically faced a higher burden and more intensive service integration (21, 24). These findings imply that region-based risk perception and service accessibility strongly shape PrEP acceptability. The Ministry of Health should implement region-specific PrEP awareness strategies in counties with lower acceptability by combining peer mentor-led safe spaces with digital health education. Using the DREAMS model, trained peer mentors can provide culturally appropriate PrEP education, address HIV-related stigma, and improve risk perception, while SMS, WhatsApp, and tele-counselling platforms can deliver confidential and accurate PrEP information to adolescent girls and young women, thereby increasing awareness and acceptability.

Ethnicity was significantly associated with PrEP acceptability. Luhya women and Mijikenda/Swahili women were more likely to accept PrEP compared to Luo women. A study in Sub Saharan Africa reported that sociocultural norms, stigma, partner attitudes, and community perceptions influence PrEP utilization among AGYW in SSA (25). Cultural identity often dictates trust in healthcare systems and social norms regarding sexual health (26). The Ministry of Health should implement culturally tailored PrEP awareness programmes in communities with lower acceptability by using peer mentors, community health workers, and local leaders. Delivering PrEP information in local languages and involving families can reduce stigma, improve trust, and increase PrEP acceptability among adolescent girls and young women.

Education was statistically significantly associated with PrEP acceptability. Women with tertiary education were less likely to accept PrEP than those with secondary education. While higher education is often linked to better health literacy, this contrast may reflect lower perceived HIV susceptibility among highly educated women (7, 18). This finding contrasts with a study in Uganda that associated higher education with better uptake of preventive health services (27). The implication is that knowledge and formal education alone do not guarantee PrEP acceptability when perceived personal risk is low. The Kenyan Ministry of Health should target tertiary-educated women through universities, workplaces, professional associations, and digital platforms, using personalised HIV risk-assessment messages to address low perceived susceptibility and improve PrEP acceptability.

Religion was significantly associated with acceptability, with women in the "other" religious category more likely to accept PrEP than Christians. Religious norms can either facilitate or hinder acceptance depending on how prevention tools are framed as markers of "promiscuity" or as tools for "health preservation" (7). A study among AGYW in Kenya found that some religious groups were unsupportive of PrEP and instead promoted abstinence, while concerns that PrEP could encourage sexual activity also influenced community perceptions (28). The Ministry of Health should engage Christian faith leaders and youth ministries to provide PrEP education to adolescent girls and young women through churches and Christian youth groups, framing PrEP as a means of HIV prevention and health preservation rather than an encouragement of sexual activity. Faith-sensitive messages should also address misconceptions and stigma surrounding PrEP.

Similarly, women who did not want children were more likely to accept PrEP than those who wanted children. Studies show that concerns about medication safety during pregnancy and breastfeeding often influence PrEP preferences (29). Similar study among pregnant and postpartum women in Kenya and South Africa found that fertility intentions and concerns about medication safety during pregnancy strongly influence PrEP preferences, with women who were not focused on immediate childbearing being more open to biomedical prevention options (30). PrEP services should, therefore, integrate reproductive counseling that emphasizes PrEP safety for women throughout their reproductive lifecycle.

Women who justified wife beating were less likely to accept PrEP than those who did not justify it. The findings are consistent with studies reporting that gender-based power imbalances and fear of partner

violence can limit women's ability to make decisions about HIV prevention (23, 26). In many contexts, women fear that taking PrEP might lead to accusations of infidelity or physical retaliation (31). This finding emphasizes that harmful gender norms directly reduce women's autonomy to make independent health decisions. PrEP programming must therefore integrate gender-transformative counseling and routine IPV screening to address these structural barriers to acceptability (32).

Strength and limitations

This study is based on the latest nationally representative data from the 2022 KDHS, supporting generalizability, reliability, and comparability through its large sample size and standardized data collection methods. However, reliance on retrospective self-reported data may introduce recall and social desirability biases. Some variables may also have been poorly measured, while residual confounding and omission of potentially important variables may have influenced the observed associations. Additionally, the cross-sectional design limits the ability to establish causal relationships or capture changes in PrEP awareness and acceptability over time.

The study also assessed PrEP acceptability rather than actual uptake or continued use, limiting conclusions about real-world PrEP utilization. Therefore, although the findings may provide an indication of potential PrEP uptake, they should not be interpreted as a direct measure or prediction of actual PrEP use among AGYW.

Conclusions

This study found that PrEP acceptability among adolescent girls and young women in Kenya was 73.7%, indicating a generally high level of acceptability and potential for PrEP to contribute to HIV prevention in this population.

The study also found that region, ethnicity, education, religion, desire for children, and attitudes towards wife beating factors were associated with PrEP acceptability.

These findings indicate that PrEP programming for AGYW should move beyond general awareness campaigns and adopt targeted, culturally responsive and gender-sensitive approaches. The Kenyan Ministry of Health should implement region-specific PrEP awareness strategies in counties with lower acceptability by combining peer mentor-led safe spaces, similar to the DREAMS model, with digital health education. Trained peer mentors can provide culturally appropriate PrEP education, address HIV-related stigma, and improve risk perception, while SMS, WhatsApp, and tele-counseling can provide confidential and accurate PrEP information to AGYW.

Culturally tailored PrEP programmes should also be implemented in communities with lower acceptability through peer mentors, community health workers, and local leaders, with information delivered in local languages and families appropriately involved to strengthen trust and reduce stigma. For tertiary-educated women, the Ministry of Health should use universities, workplaces, professional

associations, and digital platforms to deliver personalised HIV risk-assessment messages that address low perceived susceptibility to HIV.

Given the association between religion and PrEP acceptability, the Ministry of Health should also engage Christian faith leaders and youth ministries to provide PrEP education through churches and Christian youth groups. Faith-sensitive messages should frame PrEP as a means of HIV prevention and health preservation rather than an encouragement of sexual activity, while addressing misconceptions and stigma surrounding its use.

Finally, PrEP programming should incorporate gender-transformative counselling and routine IPV screening to address gender-based power imbalances and fear of partner violence that may limit women's ability to make independent HIV prevention decisions. Collectively, these targeted approaches may improve PrEP acceptability and support greater uptake among AGYW in Kenya. However, because this study assessed acceptability rather than actual PrEP uptake or continued use, further research is needed to establish whether the high level of acceptability translates into sustained PrEP utilization.

Abbreviations

Abbreviation

Full Form

AGYW	Adolescent Girls and Young Women
Apr	
adjusted Prevalence Ratio	
CI	Confidence interval
cPR	crude Prevalence Ratio
EA	Enumeration area
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
ICF	
Inner-city Fund	
KDHS	Kenya Demographic and Health Survey
MOH	Ministry of Health
MSM	Men Who Have Sex with Men
NASCOP	

National AIDS and STI Control Programme
PrEP
Pre-exposure prophylaxis
PWID
People Who Inject Drugs
UNAIDS
United Nations Programme on HIV and AIDS
WHO
World Health Organization

Declarations

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Availability of data and materials

In this study, the data set used is freely available upon seeking permission from the MEASURE DHS website (URL: <https://www.dhsprogram.com/data/available-datasets.cfm>). However, the authors are not authorized to share this dataset with the public. In case one is interested in the dataset, one can seek it with written permission from the MEASURE DHS website (URL: <https://www.dhsprogram.com/data/available-datasets.cfm>).

Authors' contributions

J.B.A, L.N and SN Conceived the idea, drafted the manuscript, performed analysis, interpreted the results, and drafted the subsequent versions of the manuscript. E.A, R.K, A.N, I.N and J.K reviewed the first draft, helped in results interpretation, and drafted the subsequent versions of the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate.

High international ethical standards are fully ensured during MEASURE DHS surveys and the study protocol is performed following the relevant guidelines. The 2022 KDHS survey protocol was reviewed and approved by the ICF Institutional Review Board. Then, written informed consent was obtained from human participants and written informed consent was also obtained from legally authorized representatives of minor participants.

Consent for publication

This is not applicable in this study.

Competing interests

In this study, all the authors declare that they have no competing interests.

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