

Consistent condom use among Botswana's female population and associated factors

Women's Health
Volume 20: 1–8
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DOI: 10.1177/17455057241266453
journals.sagepub.com/home/whe



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Abstract

Background: Botswana is one of the countries severely impacted by the HIV/AIDS pandemic. Despite an extensive HIV prevention campaign, the incidence of HIV, particularly among women, remains high. Condoms play a significant role in preventing new HIV infections, although men and women do not consistently use them.

Objective: The study assessed the individual, relationship and community factors associated with consistent condom use among women in Botswana.

Design: A cross-sectional study using secondary data drawn from a national survey on Gender-Based Violence Indicators in 2012.

Methods: The primary survey sampled 639 women, aged 18 years and older, using a multistage procedure. The final sample size for the secondary analysis included a total of 480 women who were sexually experienced and had reported using condoms with their male partners. Multivariate logistic regression analysis was employed to assess the association between consistent condom use and the explanatory variables. The multivariate logistic regression adjusted for cluster/community random effects.

Results: About 43% of the women used condoms consistently in the past year. Consistent condom use was more likely among women who were employed in the past year (adjusted odds ratio = 1.77; 95% confidence interval = 1.25–2.50). While, women who lived with their partners (adjusted odds ratio = 0.46; 95% confidence interval = 0.28–0.74), had non-Christian beliefs (adjusted odds ratio = 0.52; 95% confidence interval = 0.29–0.92), perceived that their partners would be angry if they ask to use a condom (adjusted odds ratio = 0.19; 95% confidence interval = 0.06–0.58) and perceived that their community says women need their husband's permission to do paid work (adjusted odds ratio = 0.56; 95% confidence interval = 0.38–0.83) were less likely to use condoms consistently.

Conclusion: Consistent condom use among Botswana's female population is suboptimal. Consistent condom use was higher among women with employment, and lower among women who lived with their partners, had non-Christian beliefs, feared their partners' reaction upon asking for condom use and held inequitable community gender beliefs. To enhance women's consistent use of condoms, friendly condom use information, female economic empowerment strategies and programmes that involve religious leaders and promote progressive and healthy masculine practices in Sexual Reproductive Health/HIV interventions should be considered.

Keywords

consistent condom use, gender beliefs, relationship control, risky sexual behaviour

Date received: 18 August 2023; revised: 20 May 2024; accepted: 18 June 2024

Introduction

At the end of 2019, approximately 36.2 million adults were living with Human Immunodeficiency Virus (HIV) worldwide, and new HIV infections were estimated at 1.5 million.¹ If not treated, HIV progresses to a life-threatening and ultimately fatal condition called acquired

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immune-deficiency syndrome (AIDS). Sub-Saharan African (SSA) countries are significantly affected by the epidemic, accounting for 59% of new HIV infections globally, with three out of five new infections occurring among women in 2019.

Botswana has an estimated HIV prevalence of 20.7%² and has consistently been among the highest in the Eastern and southern African region.¹ The number of newly diagnosed cases was 9500 in 2019.¹ The HIV incidence varies between males and females and was reportedly higher among females (5 300) than males (4 200) in 2019.¹ Females are affected by HIV in distinct ways.³ For instance, HIV can cause complications during childbirth, most notably vertical transmission to the foetus, increased risk of cervical cancer, cardiovascular disease (CVD), side effects and drug interactions.³

The Botswana Government declared the HIV epidemic a national emergency and set a target of zero HIV infections by 2016.^{4,5} The country has implemented many initiatives to combat the epidemic, including, but not limited to, anti-retroviral treatment (ART), free condom distribution, and safe male circumcision.⁶ The use of condoms is embraced as an essential basic component of achieving this goal.⁴ Condoms are readily available and provided for free to the public.⁷ The Botswana Government and Population Services International (PSI) distribute condoms for free.⁷ However, the use of condoms remains sub-optimal among females and males.⁸ Furthermore, according to the fifth Botswana Behavior AIDS Impact Survey (BAIS) report (2021), the use of condoms by females (47.7%) was reportedly lower than males (48.6%).⁸

Condoms have a dual role of preventing unplanned pregnancy and sexually transmitted infections (STIs)/HIV.⁷ When used consistently, condoms effectively prevent heterosexual transmission of HIV by 80% to 90%^{9,10} and STIs by 60%.¹¹ Biologically, women are more vulnerable to HIV/STI infections when they do not use condoms consistently than men.^{12,13} Furthermore, lack of consistent condom use among women living with HIV leads to further risk of STIs.^{14,15}

Consistent condom use is influenced by multiple factors acting at the individual, relationship and community level. These factors include level of education, income, age, marital status, religion, less fear of contracting HIV/STIs, discussion of HIV/STIs with partner, knowing partner's HIV status, drug or alcohol abuse, partner abuse and societal norms.^{6,14,16–23} Although there is evidence of factors influencing consistent condom use, few studies in Botswana have been conducted to ascertain the factors associated with condom use among women.^{6,24} Also, these studies mainly focused on individual factors.^{6,24} There is still a need to investigate the influence of relationship and community factors on condom use in this population to have a better understanding of safer sex practice behaviour and develop effective targeted interventions. Therefore,

this study assesses individual, relationship and community factors associated with consistent condom use among women in Botswana.

Methods

Study design

This study was a cross-sectional study using secondary data from a national survey on Gender-Based Violence Indicators (GBVI) in Botswana in 2012. The survey covered multiple aspects including condom use, socioeconomic and demographic characteristics, drug or alcohol abuse, risky sexual practices, relationship control and community gender beliefs.²⁵ The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines were followed in preparing this article.

Participants

The survey employed multistage random sampling strategy to obtain a nationally representative sample of adult women. First, Primary Sampling Units (PSUs)/clusters were selected from the sampling frame provided by Central Statistics. In each PSU/cluster, researchers then randomly selected 20 households using a sampling interval. The sampling interval was calculated by dividing the total number of households in each PSU by the number households required. In each selected household, only one eligible woman was selected and required to provide written consent to participating in the study. To be eligible in the primary study, a woman had to be 18 years and above and a resident of the selected household. When researchers found more than one eligible woman in a household, they selected one eligible woman by writing names on papers and drawing the name from the pool.

Six hundred and thirty-nine women gave written consent and voluntarily participated in the research and a total of 480 women were considered for this analysis. Sample power analysis was done to determine adequacy of final sample size to detect differences in effects of exposure factors on consistent condom use. The power calculation was based on study proportion differences between consistent (43%) and inconsistent condom use (57%), using one sample size proportion of 480 participants. We obtained sample power above 0.80 (1.00); therefore, our final sample size of 480 participants was adequate to detect differences in effects of exposure factors on consistent condom use.

Inclusion and exclusion criteria

Women who were in a heterosexual relationship, ever had sex and responded to items asking about condom use were included in the study. Women who were in a same sex relationship were excluded in the study.

Data collection and measurement

Trained female researchers collected data in the primary survey, observing safety guidelines for conducting violence research, that is, privacy, confidentiality and safety precautions.²⁶ Participants self-administered standardized questionnaire in English or Setswana using Personal Digital Assistants (PDAs) and skipped questions they did not wish to answer using a skip button.²⁵

The secondary analysis used selected variables from the primary survey. The dependent variable was condom use defined as ‘consistent’ if women reported always using condoms (whether feminine or masculine condoms) with any male partner in the past year, and ‘inconsistent’ if women reported using condoms sometimes, not always and never used condoms with any male partner in the past year.²⁷ The independent variables in this study were selected based on literature and availability in the survey data.^{6,14,16–23} The independent variables included individual, relationship and community. The individual characteristics included level of education (incomplete high school, complete high school and above), employment in the past 12 months (no, yes), age group (18–29, 30–44, 45+ years), religion (Christian, non-Christian including Islam, Judaism and Hinduism), HIV status (unknown, negative and positive), used method to delay pregnancy (on, yes), used contraceptives (no, pill/injection, other), history of STIs (no, yes) and sexual partners in the past year (1, 2+).

Relationship characteristics comprised of relationship status (no partner, not living with a partner, living with a partner), ever emotionally abused by partner (no, yes), ever sexually abused by partner (no, yes) and ever economically abused by partner (no, yes).²⁸ We also assessed relationship characteristics related to relationship control using four items on the relationship control from the modified Sexual Relationship Power Scale. The items on relationship control were, *if I ask my partner to use a condom, he would beat or hit me; if I ask my partner to use a condom, he would get angry; if I ask my partner to use a condom, he would think that I’m having sex with other people and my partner has more to say than I do about important decisions that affect us.*

With regard to community characteristics, four items adapted from the modified Gender Equitable Men (GEM) Scale²⁹ were used to assess community gender beliefs including *my community thinks that if a woman works she should give her money to her husband, my community thinks that a man should have the final say in all family matters, my community thinks that a woman needs her husband’s permission to do paid work and my community thinks that a woman cannot refuse to have sex with her husband.* The relationship control and community gender beliefs items were scored on a 4-point Likert-type scale; strongly agree (1), agree (2), disagree (3) and strongly disagree (4), and then recorded in a binary form as ‘yes’ if

participants said they strongly agree and agree and as ‘no’ if participants said they disagree and strongly disagree.

Statistical analyses

All statistical analysis was done using STATA version 17 (Stata Corp, College Station, Texas, USA). All analysis adjusted for cluster effects. Individual, relationship and community characteristics were described using frequencies and proportions. Stepwise backward regression was used to select variables at the significant level of $p < 0.2$. Stepwise regression is a technique used to build predictive models by choosing the explanatory variables from a group of candidate variables through a series of automated steps.³⁰ Stepwise regression is used to prune a list of plausible explanatory variables down to a parsimonious collection of the ‘most useful’ variables based on a statistical criterion.³⁰ A backward-elimination rule begins with all possible explanatory variables and then removes the least statistically significant variables, one by one.³¹ The removal stops when each variable remaining in the equation has reached the set statistical criteria.³¹ However, potential confounders such as age and relationship status were kept in the model regardless of the level of significance.³² The selected variables were considered for the logistic regression. Multivariate logistic regression analysis was performed to identify the variables that would significantly influence consistent condom use adjusting for potential confounders. The results were reported in terms of odds ratios (ORs) and 95% confidence interval (CI), and the level of significance was determined at a p -value of ≤ 0.05 .

Results

Summary characteristics of study participants

Table 1 shows a summary of individual characteristics of study participants. A total of 480 women were included in the analysis. Most women did not complete high school education (58.7%). Over half of the women had employment in the past year (56.0%). Over two-fifths of the women were aged 18–29 years (47.3%). Majority of the women were Christians (90.2%). About 19% of the women were HIV positive (18.9%) and 26% had a history of STIs (26.2%). Over one-fifth of the women had two or more sexual partners in the past year (23.4%). Over two-thirds of the women used a method to delay pregnancy (68.3%). Over half of the women used pills/injections to delay pregnancy (54.7%). About 43% of the women used condoms consistently in the past year (43.1%).

Table 2 shows a summary of relationship and community characteristics of participants. Over two-fifths of the women were living with a partner (43.7%). About 37% of the women were ever physically abused by their partners

Table 1. Summary of individual characteristics of study participants (N = 480).

Variables	n (%)
Individual characteristics	
<i>Education level</i>	
High school incomplete and lower	281 (58.7)
High school complete and over	198 (41.3)
<i>Employment in the past year</i>	
No	211 (44.0)
Yes	269 (56.0)
<i>Age group</i>	
18–29	227 (47.3)
30–44	172 (35.8)
45+	81 (16.9)
<i>Religion</i>	
Christian	431 (90.2)
Non-Christian	47 (9.8)
<i>HIV status</i>	
Unknown	24 (5.3)
Negative	345 (75.8)
Positive	86 (18.9)
<i>History of STIs</i>	
No	352 (73.8)
Yes	125 (26.2)
<i>Sexual partners in the past year</i>	
1	340 (76.6)
2+	104 (23.4)
<i>Used method to delay pregnancy</i>	
No	151 (31.7)
Yes	326 (68.3)
<i>Used contraceptives</i>	
No	151 (31.7)
Pill/injection	261 (54.7)
Other	65 (13.6)
<i>Consistent condom use</i>	
No	273 (56.9)
Yes	207 (43.1)

(36.5%). Nearly 16% of the women were ever sexually abused by their partners (15.6%). Over two-fifths of the women were ever emotionally abused by their partners (45.4%). Nearly 31% of the women were ever economically abused by their partners (30.8%). About 5% of the women said their partners would beat or hit them (4.8%) if they asked to use a condom, 12% said their partners would get angry (11.7%) if they asked to use a condom and 27% said their partners would think they are having sex with other people (27.1%) if they asked to use a condom. About 17% of the women said their partners have more to say than they do about important decisions that affect them (17.4%). About 43% of the women said their community thinks that if a woman works, she should give her money to her husband (42.5%) and 50% said their community thinks that a man should have the final say in all family matters (50.3%). About two-thirds of the women said their

community thinks that a woman needs her husband's permission to do paid work (60.0%). Over half of the women said their community thinks that a woman cannot refuse to have sex with her husband (56.2%).

Factors associated with consistent condom use

Table 3 shows results of the multivariate analysis of factors associated with consistent condom. Individual, relationship and community factors were associated with consistent condom use. Consistent condom use was more likely among more women who were employed in the past year (adjusted odds ratio (aOR)=1.77; 95% CI=1.25–2.50). Consistent condom use was less likely among women who lived with their current partner (aOR=0.46; 95% CI=0.28–0.74), women who were not Christians (aOR=0.52; 95% CI=0.29–0.92), women who perceived that their partners would get angry if they ask to use a condom (aOR=0.19; 95% CI=0.06–0.58) and women who perceived that their community says a woman needs her husband's permission to do paid work (aOR=0.56; 95% CI=0.38–0.83).

Discussion

Our research gives empirical evidence that is crucial for enhancing Sexual Reproductive Health (SRH) and HIV programmes. Condom use remains a critical component for protection against HIV/AIDS in SSA, especially in settings with high HIV incidence like Botswana.³³ Condoms also remain the primary protective barrier against other STIs that facilitate the spread of HIV and reinfection with drug-resistant HIV strains among HIV positive people.³⁴ The proportion of women who used condoms consistently was 43.1% in this study, which was higher than that obtained in similar study settings like South Africa.³⁵ However, more than half of the women in our study did not use condoms consistently placing them at a higher risk of contracting HIV and STIs.

Among individual factors, employment status and religion were significantly associated with consistent condom use. Our study found that women with employment in the past year were more likely to use condoms consistently than those without employment. These findings are consistent with previous research that has shown an established relationship between earning an income and condom use.^{36,37} A possible explanation for this finding could be that financially empowered women have more autonomy in decision-making with regards to condom use.^{36,37} Our study also showed that women who were non-Christian including Islam, Judaism and Hinduism were less likely to use condoms consistently. Faith-based beliefs can influence attitudes about condom use. For instance, some religions frown on use of condoms as their use can be deemed

Table 2. Summary of relationship and community characteristics of study participants (N = 480).

Variables	n (%)
Relationship characteristics	
<i>Relationship status</i>	
No current partner	73 (15.3)
Not living with current partner	196 (41.0)
Living with current partner	209 (43.7)
<i>Partner abuse</i>	
<i>Ever physically abused by partner</i>	
No	301 (63.5)
Yes	173 (36.5)
<i>Ever sexually abused by partner</i>	
No	401 (84.4)
Yes	74 (15.6)
<i>Ever emotionally abused by partner</i>	
No	259 (54.6)
Yes	215 (45.4)
<i>Ever economically abused by partner</i>	
No	328 (69.2)
Yes	146 (30.8)
<i>Relationship control issues</i>	
<i>If I ask my partner to use a condom, he would beat or hit me</i>	
No	415 (95.2)
Yes	21 (4.8)
<i>If I ask my partner to use a condom, he would get angry</i>	
No	385 (88.3)
Yes	51 (11.7)
<i>If I ask my partner to use a condom, he would think that I'm having sex with other people</i>	
No	323 (72.9)
Yes	120 (27.1)
<i>My partner has more to say than I do about important decisions that affect us</i>	
No	356 (82.6)
Yes	75 (17.4)
Community characteristics	
<i>My community thinks that if a woman works she should give her money to her husband</i>	
No	244 (57.6)
Yes	180 (42.5)
<i>My community thinks that a man should have the final say in all family matters</i>	
No	228 (49.7)
Yes	321 (50.3)
<i>My community thinks that a woman needs her husband's permission to do paid work</i>	
No	175 (40.0)
Yes	263 (60.0)
<i>My community thinks that a woman cannot refuse to have sex with her husband</i>	
No	189 (43.8)
Yes	242 (56.2)

unnatural³⁸ and some religious leaders discourage use of condoms, claiming the use of condoms encourages promiscuity.³⁹

Relationship status and relationship control were among the relationship factors associated with consistent condom use. Our study found that women who were living with their partners were less likely to use condoms consistently. Our findings corroborate with previous research.^{40,41} This suggests low acceptability of condom use in long-term relationships, which raises the risk of HIV transmission. These findings could be related to women's lack of autonomy in making sexual decisions in long-term or stable relationships, which may be influenced by societal norms that place women in a submissive role to males.⁴² Negotiating or discussing condom use may also indicate a lack of trust or infidelity.⁴² Thus, women in long-term or stable relationships may not insist on asking their partners to use condoms if it is deemed as lack of trust in their partner.

Our study found that women who perceived that their partners would be angry if they asked to use a condom were less likely to use condoms consistently. Our findings concur with previous research.²⁰ Some of the relationship reasons cited in the literature for non-condom use have been associated with fear of the partner's reaction,⁴³ fear of rejection or abandonment by the partner²⁰ and fear that asking a partner to use a condom will result in a partner's distrust.⁴⁴

Our study also found that community factors were associated with consistent use. Women who perceived that their community says a woman needs her husband's permission to do paid work were less likely to use condoms consistently. Our finding is confirmed in the literature.⁴⁵ Culture is another factor that influences women's ability to negotiate condom use.⁴⁵ In the African culture, males are socialised to be in charge of decision-making in all aspects of life including financial decisions, and consequently, women have to surrender to those decisions, even if it is at the harm of their health, including the aspect of negotiating for condom use.⁴⁵ Moreover, financial dependence on men has been identified as a key structural factor at the root of women's vulnerability to unsafe sex practice, HIV and STIs.^{36,37}

Strength and limitations

Findings for this study should be considered in light of several limitations. The study was cross-sectional; hence, no causal inferences can be drawn. Primary survey collection of data on condom use and associated factors was self-reported and subject to information bias. The reporting of condom use did not ascertain on the type of sexual act. Participants might have provided socially acceptable responses to sensitive questions. Questionnaires were self-administered with the assistance of trained female researchers, and assurance of confidentiality was given to participants, thereby reducing this limitation. Variable selection methods like stepwise regression procedures are less effective when there are a large number of candidate explanatory variables. Despite the limitations, the study

Table 3. Multivariate analysis of factors associated with consistent condom use among women in Botswana.

	Unadj OR (95% CI)	p	aOR (95% CI)	p
<i>Employment in the past year</i>				
No	Ref			
Yes	1.19 (0.86-1.65)	0.284	1.77 (1.25-2.50)	0.002**
<i>Age group</i>				
18–29	Ref			
30–44	0.84 (0.56-1.24)	0.362	1.18 (0.68-2.04)	0.548
45+	0.43 (0.21-0.86)	0.020**	0.85 (0.41-1.77)	0.652
<i>Religion</i>				
Christian	Ref			
Non-Christian	0.48 (0.25-0.90)	0.024**	0.52 (0.29-0.92)	0.026**
<i>Education level</i>				
High school incomplete and lower	Ref			
High school complete and over	1.78 (1.28-2.48)	0.001**	1.53 (0.97-2.41)	0.065
<i>Relationship status</i>				
No current partner	Ref			
Not living with current partner	0.99 (0.62-1.58)	0.954	0.72 (0.38-1.34)	0.280
Living with current partner	0.56 (0.34-0.95)	0.032**	0.46 (0.28-0.74)	0.003**
<i>If I ask my partner to use a condom, he would get angry</i>				
No	Ref			
Yes	0.15 (0.05-0.39)	0.001**	0.19 (0.06-0.58)	0.005**
<i>My community thinks that if a woman works she should give her money to her husband</i>				
No	Ref			
Yes	0.52 (0.34-0.80)	0.005**	0.56 (0.38-0.83)	0.005**

Unadj OR = unadjusted odds ratio; aOR = adjusted odds ratio; CI = confidence interval.

**Significant $p < 0.05$, model adjusted for age and relationship status as potential confounders.

has several strengths; the sampling strategy used entailed a random and representative sample that can be generalisable to the national population. This is also one of the few studies that evaluated an interplay of factors influencing consistent condom use at the individual, relationship and community level.

Conclusion

Less than half of Botswana's female population use condoms consistently. Individual, relationship and community factors were found to be associated with consistent condom use. Women who were employed were more likely to use condoms consistently. While women who lived with their partners, had non-Christian beliefs, feared their partners' reaction upon request to use a condom and held inequitable community gender beliefs were less likely to use condoms consistently. These findings highlight the need for the government to increase employment opportunities for women, make SRH information on condom use more accessible and tailored to women with low literacy levels, and involve religious leaders in HIV programmes. It is also imperative that interventions take into consideration societal norms that shape decisions in sexual matters in relationships, particularly in patriarchal societies. Consistent condom use

should be promoted as a positive, progressive and healthy attribute of successful masculinity, along with promotion of gender equity and male participation in SRH/HIV programmes.

Declarations

Ethics approval and consent to participate

Ethics Approval was given by the University of Witwatersrand Human Research Ethics Committee (ethics approval ID: M1611118). Participants enrolled in the study voluntarily and were told that non-participation would not affect them in any way. The written consent statement was read to the participants and the participants signed the consent statements. To maintain confidentiality and privacy of information from participants, data access was restricted to researchers and there was de-identification of participants by generation of ID numbers.

Consent for publication

Not applicable.

Author contribution(s)

Chenai Mlandu: Conceptualization; Formal analysis; Investigation; Methodology; Writing – original draft; Writing – review & editing.

Mercilene Machisa: Conceptualization; Investigation; Methodology; Supervision; Writing – review & editing.
Nicola Christofides: Conceptualization; Investigation; Methodology; Supervision; Writing – review & editing.

Acknowledgements

The authors are grateful to South African Medical Research Council for availing the data and appreciate the initial collaboration by Gender Links and Women Affairs Department on the primary survey.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Competing interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Availability of data and materials

The data sets generated and/or analysed during this study are not publicly available due to confidentiality but are available from the corresponding author on reasonable request.

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