

Charles I. Tobin-West\*, Omosivie Maduka, Victor N. Onyekwere and Adedayo O. Tella

# Awareness, acceptability, and use of female condoms among university students in Nigeria: implications for STI/HIV prevention

## Abstract

**Background:** Most university students in Nigeria are sexually active and engage in high risk sexual behaviors. The aim of this study was to assess the acceptability and use of female condoms in the context of HIV prevention in order to provide basic information that can stimulate female condom programming to promote sexually transmitted infection and HIV prevention among youths in tertiary institutions.

**Materials and methods:** A descriptive, cross-sectional study was carried out among 810 undergraduate students of the University of Port Harcourt from October to November 2011, using a stratified sampling method and self-administered questionnaires.

**Results:** Most of the students, 589 (72.7%) were sexually active; 352 (59.7%) reported having just one sexual partner, while 237 (40.3%) had multiple partners. The mean number of sexual partners in the past six months was  $2.2 \pm 0$ . Consistent condom use was reported among 388 (79.2%) students, 102 (20.8%) reported occasional usage, while 99 (16.8%) did not use condoms at all. Only 384 (65.2%) of the students had ever been screened for HIV. Although 723 (89.3%) were aware of female condoms, only 64 (8.9%) had ever used one due to unavailability, high cost, and difficulty with its insertion. Nevertheless, 389 (53.8%) of the students expressed willingness to use them if offered, while 502 (69.4%) would recommend it to friends/peers.

**Conclusion:** This study highlights significant challenges in the use of female condoms among university students. These include unavailability, high cost, and difficulty with insertion. Therefore, deliberate efforts using social marketing strategies, appropriate youth-friendly publicity, and peer education must be exerted to provide affordable female condoms and promote usage; such efforts should target vulnerable youths in Nigerian tertiary institutions.

**Keywords:** female condoms; Nigeria; students.

---

\*Corresponding author: Dr. Charles I. Tobin-West, Department of Preventive and Social Medicine, College of Health Sciences, University of Port Harcourt, P. M. B. 5323, Port Harcourt, Nigeria, Phone: +234 803 317 0115, E-mail: drtobinwest@gmail.com

**Omosivie Maduka:** Department of Preventive and Social Medicine, University of Port Harcourt, Rivers State College of Health Science Technology, Port Harcourt, Nigeria

**Victor N. Onyekwere and Adedayo O. Tella:** Department of Community Medicine, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria

## Introduction

HIV and AIDS have remained a threat to the global realization of key developmental goals, including the Millennium Development Goals (MDGs). Despite the reported gradual decline in the epidemic, it has remained a cause of great concern for developing countries in sub-Saharan Africa, where two-thirds of all infected persons live and three quarters of global deaths occur (1, 2). Young people between the ages of 15 and 24 years are at the center of the epidemic, accounting for 40% of all new infections (1). In Nigeria, about 3.5 million people are living with the virus, with about 300,000 new infections occurring annually and young people contributing 60% of these new infections (3).

Women are disproportionately affected by the epidemic, accounting for 31% of new infections, and such infection rates are two to three times as high as in men (3). Several factors, such as biological, socio-cultural and economic factors, account for women's higher risk of infection. The female reproductive tract is more susceptible to HIV infection than the male reproductive system, and young women are at the highest risk of the infection due to an immaturity of the reproductive tract (4, 5). Furthermore, sexual violence and coercion that occur in college settings, along with the unfavorable social norms that condone gender inequality, frequently play a significant role in the inability of women and girls to practice safer sex in developing countries like Nigeria (6). Most youths in Nigeria and elsewhere are sexually active and engage in risky sexual behaviors, such as early sexual debut, unprotected sex, multiple sexual partnerships, anal sex, and lopsided knowledge about sexually transmitted infections (STIs) (7, 8). In addition, they lack the confidence to negotiate sex or contraceptive use, while many do not perceive themselves as being at risk of contracting STIs, including HIV and AIDS (9, 10).

Most university students are single youths, and the university environment accords them liberty from parental control, thus exposing them to untold peer pressure that could result in permissive attitudes and risky sexual behaviors. Such risky behaviors make them vulnerable to STIs, including HIV and AIDS.

Correct and consistent use of condoms, including female condoms (FC) is one of the best ways to prevent STIs, including HIV and AIDS (11). When condoms are correctly and consistently used during sexual intercourse, the risk of HIV may be lowered by 70%–94% (12–15). Unfortunately, however, only 30%–60% of sexually active students in Nigeria with multiple or casual partners reported using a condom during their last involvement in sexual intercourse (16–18). Presently, there are two types of female condoms available in Nigeria (FC1 and FC2). FC1 is made of polyurethane plastic, while the newer one (FC2) is made of synthetic latex. Both are thin, soft, and odorless. They are durable and have the advantage of being used with oil- and water-based lubricants to prevent the risk of breakage, unlike the male condoms (19). There are also no serious local side effects or allergies associated with their use (20). Apart from these advantages, the female condom is also a veritable tool for women's empowerment, enabling young women to take the initiative to protect their own and their partners' health, as they can initiate it by themselves and insert the condom up to 8 h before intercourse (20). This is particularly valuable in many African settings, where women are subordinate to men economically, socially and sexually, making them vulnerable to STIs, including HIV and AIDS (19).

However, despite good knowledge of the existence of female condoms and the advantages they offer, their acceptability and use among young people has remained poor, especially among youths in tertiary institutions in Nigeria (21). It has been suggested that knowledge about STIs and their protective measures reduces the risk taken by young people (22). The aim of the current study was to assess the knowledge, acceptability, and use of female condoms among university students, in order to provide information that can stimulate interest to address female condom programming in the context of empowering youths in STI/HIV prevention and control in Nigeria.

## Materials and methods

### Study area

The study was carried out at the University of Port Harcourt, a public university in Nigeria. It is located in Choba, a suburban area of

Port Harcourt, the capital of Rivers State, in the oil-rich Niger Delta region of Nigeria. It was established in 1975 as University College, but became a full-fledged university in 1977. It has 11 faculties, namely, Faculties of Humanities, Science, Management Sciences, Education, Social Sciences, Engineering, Basic Medical Sciences, Clinical Sciences, Pharmacy, Dentistry, and Agriculture. Admission into the university is through a centralized joint admissions and matriculation system in Nigeria, which makes it possible for all ethnic and socio-economic groups in the country to be represented. The student population is 28,000. The university has a health center in its main campus and a University Teaching Hospital adjacent to it. These institutions cater to the health needs of students. HIV screening, using the Opt-out policy is implemented in the university for newly admitted students as part of their mandatory comprehensive medical examination.

### Study design and population

A descriptive, cross-sectional design was used to carry out the study among undergraduate students of the university between October and November 2011. A minimum sample size of 770 was determined for the study using the formula for estimation of sample sizes for descriptive studies (23). The computation was based on 11.3% prevalence of the use of female condoms among students of University of Ibadan, South-west Nigeria (21), an error margin of 3%, design effect (DEFT)=1.5, and non-response rate of 20%.

Study participants were randomly selected from each department of the 11 faculties using a stratified sampling method proportionate to size. A department was randomly selected from each of the 11 faculties by a simple random method. Thereafter, 85–100 questionnaires were distributed among students at the various levels of study in each of the departments. They were semi-structured, pre-coded, and consisted of sections (Section one: Demographic characteristics of respondents, Section two: Sexual history of respondents, Section three: Knowledge, access, acceptability and use of female condoms, and Section four: Determinants of acceptability and use of female condoms). The questionnaires were self-administered and the students' course representatives coordinated the data collection. All the data generated were entered in a personal computer and analyzed using the Epi-Info version 6.04d statistical software package.

Ethical clearance to conduct the study was obtained from the Ethics Committee of the University of Port Harcourt Teaching Hospital. Written informed consent was obtained from respondents after full assurances that participation was voluntary and that refusal to participate or withdrawal at any stage of the study would not attract any sanctions.

## Results

Out of the 900 distributed, a total of 810 questionnaires were returned completed, giving a response rate of 90%. The respondents consisted of 427 (52.7%) females and 383 (47.3%) males; male to female ratio was 1:1.1. The mean age of the female respondents was 21.8 years and that of males was 22.4 years. Majority of the students (768, 94.8%) were

single and of Christian faith by demographic affiliation and not necessarily by practice. Alcohol consumption and cigarette smoking were low. Only a few students (68, 8.4%) drank alcohol or smoked cigarettes on a regular basis, and majority of them (61, 62.2%) were male students (Table 1).

Most of the students (589, 72.7%) were sexually active. The median age of sexual debut among female students was 17 years, while that of male students was 18 years. Majority (352, 59.7%) reported having just one sexual partner, but as many as 237 (40.3%) reported having multiple partners. Overall, the mean number of lifetime sexual partners was  $2.9 \pm 0.1$ ;  $3.2 \pm 0.1$  for males and  $2.6 \pm 0.05$  for females. The mean number of sexual partners in the past 6 months, signifying current practice was  $2.2 \pm 0.1$  overall;  $2.7 \pm 0.1$  for males and  $2.1 \pm 0.05$  for females.

A total of 490 of the 589 sexually active students (83.2%), reported ever using any condoms during sexual intercourse. They were made up of 388 (79.2%) who reported consistent use, and 102 (20.8%) who reported occasional use. A total of 99 (16.8%) of the sexually active

students did not use condoms at all. Male students were more consistent in condom use than female students: 225 (58.0) vs. 163 (42.0) ( $\chi^2=12.12$ ,  $p=0.001$ ).

With respect to HIV screening, 384 (65.2%) students had ever been screened, mostly at admission into the university. The screening was based on the “opt-out” screening method approved by the university’s HIV and AIDS policy. However, only 84 (14.3%) of the students reported annual repeat of their HIV screening recommended by the policy, while 98 (16.6%) had never been screened at all. These included 56 (57.1%) male students and 42 (42.9%) female students ( $\chi^2=1.96$ ,  $p=0.162$ ) (Table 2).

Most of the students (723, 89.3%) already heard about female condoms as a protective device against STIs and unwanted pregnancies; however, only 364 (50.3%) had actually seen one, while only 64 (8.9%) had eventually used them. More female than male students had actually seen or used any: 296 (81.3) vs. 68 (18.7) ( $\chi^2=101.78$ ,  $p=0.000$ ). The major sources of information about the condoms were the health care providers, friends, peers, and the mass media (Table 3).

The main reasons for using the condoms varied significantly among the students. While most male students (13, 31.7%) cited prevention of STIs, including HIV as reason for using the condoms, majority of the females (46, 86.8%) used it because they wanted to prevent unwanted pregnancies. A second reason for using female condoms among the female students was because these offered independence as well as a sense of self-empowerment. Those who did not use the condoms offered varied reasons: for male students, it was low perception of HIV or STI risk, while for female students, it was objection by their male partners and concerns about the length and aesthetical appearance of the condoms. In addition, for both male and female students, the unavailability and high cost of the product, as well as difficulty of insertion, were sources of concern. However, more than half of the students expressed optimism about female condoms; 389 (53.8%) said they would use them if offered, while 502 (69.4%) would recommend them to friends and peers (Table 4).

**Table 1** Demographic and social profile of respondents.

Variable	Male (%)	Female (%)	Total (%)
Age			
15–24	249 (47.7)	273 (52.3)	522 (64.4)
25–34	133 (47.2)	149 (52.8)	282 (34.8)
35–44	1 (16.7)	5 (83.3)	6 (0.7)
Sex	383 (47.3)	427 (52.7)	810 (100)
Marital status			
Single	361 (47.0)	407 (53.0)	768 (94.8)
Married	16 (44.4)	20 (55.6)	36 (4.4)
Separated	3 (100)	–	3 (0.4)
Divorced	3 (100)	–	3 (0.4)
Class level			
100	77 (56.2)	60 (43.8)	137 (16.9)
200	63 (45.0)	77 (55.0)	140 (17.3)
300	57 (43.5)	74 (56.5)	131 (16.2)
400	59 (43.4)	77 (56.6)	136 (16.8)
500	63 (47.0)	71 (53.0)	134 (16.5)
600	64 (48.5)	68 (51.5)	132 (16.3)
Religion			
Christianity	363 (46.5)	417 (53.5)	780 (96.3)
Moslem	11 (61.1)	7 (38.9)	18 (2.2)
Traditional worshippers	9 (75.0)	3 (25.0)	12 (1.5)
History of alcohol use			
Do not use alcohol	221 (38.2)	357 (61.8)	578 (71.4)
Occasional use to socialize	101 (75.4)	33 (24.6)	134 (16.5)
Regular use	61 (62.2)	37 (37.8)	98 (12.1)
Cigarette smoking			
Do not smoke	223 (37.1)	378 (62.9)	601 (74.2)
Smoke occasionally	109 (77.3)	32 (22.7)	141 (17.4)
Smoke regularly	51 (75.0)	17 (25.0)	68 (8.4)

## Discussion

Most of the students in the study were young, single, and sexually active. Youths with such demographic attributes are known to engage in high-risk sexual behaviors (7, 8). This probably explains why they are at the center of the HIV epidemic. In spite of the near universal knowledge

**Table 2** Sexual history of respondents.

Variable	Male (%)	Female (%)	Total (%)	$\chi^2$ p-Value
Ever had sex				
Yes	281 (47.7)	308 (52.3)	589 (72.7)	1.24; 0.226
No	102 (46.2)	119 (53.8)	221 (27.3)	1.30; 0.253
Mean age at sexual debut	18.6 years	17.8 years	17.2 years	–
Median age at sexual debut	18 years	17 years	17 years	–
Current no. of sexual partners (n=589)				
One	141 (40.1)	211 (59.9)	352 (59.7)	12.60; 0.000
More than one	140 (59.1)	97 (40.9)	237 (40.3)	7.48; 0.006
Mean no. of lifetime sexual partners	3.2±0.1	2.6±0.05	2.9±0.1	–
Had sex in the past six months (n=589)	203 (53.1)	179 (46.9)	382 (64.9)	1.50; 0.221
Mean no. of sexual partners in the past six months	2.7±0.1	2.1±0.05	2.2±0.1	–
Condom of use (Any condom) (n=589)				
Do not use	48 (48.5)	51 (51.5)	99 (16.8)	0.09; 0.761
Usage of condoms	274 (55.9)	216 (44.1)	490 (83.2)	6.79; 0.009
Circumstances of usage (n=490)				
Occasional use	67 (65.7)	35 (34.3)	102 (20.8)	9.15; 0.002
Consistent use	225 (58.0)	163 (42.0)	388 (79.2)	12.12; 0.001
HIV testing status (n=589)				
Not tested	56 (57.1)	42 (42.9)	98 (16.6)	1.96; 0.162
Underwent test at admission	181 (47.1)	203 (52.9)	384 (65.2)	1.26; 0.261
Repeats test yearly	34 (40.5)	50 (59.5)	84 (14.3)	2.87; 0.899
Screened when ill	10 (43.5)	13 (56.5)	23 (3.9)	0.06; 0.812

about HIV and its mode of transmission among university students, a third of the students in this study engaged in multiple and unprotected sexual practices. Similarly, only a few had ever repeated their HIV test after the initial screening done at admission into the university. Some others felt that they had low risk of infection with HIV, because they perceived themselves as being in monogamous relationships even though they did not know the HIV status of their partners. Such dispositions significantly put students and their sexual partners at increased

risk of contracting HIV, thus perpetuating the cycle of the infection among young people.

Similar studies on young peoples' sexual and reproductive health have consistently demonstrated related patterns of risk behavior despite the availability of cost-effective interventions like the use of condoms (12–15). The general permissive attitude regarding premarital sex in the Nigerian society, especially among young people (including students of tertiary institutions), along with the liberal nature of campus life might explain this

**Table 3** Awareness, acceptability, and use of female condoms.

Variable	Male (%)	Female (%)	Total (%)	$\chi^2$ p-Value
Awareness (Heard of female condoms) (n=810)				
Yes	330 (45.6)	393 (54.4)	723 (89.3)	5.81; 0.016
No	53 (60.9)	34 (39.1)	87 (10.7)	4.07; 0.044
Seen female condoms (n=723)				
Yes	68 (18.7)	296 (81.3)	364 (50.3)	101.78; 0.00
No	255 (77.3)	75 (22.7)	330 (45.6)	75.76; 0.000
Can't remember	7 (24.1)	22 (75.9)	29 (4.1)	3.63; 0.057
Sources of awareness (n=723)				
Friends/peers	74 (31.6)	160 (68.4)	234 (32.4)	28.34; 0.000
Health workers	121 (43.7)	156 (56.3)	277 (38.3)	4.33; 0.037
Mass media	130 (67.0)	64 (33.0)	194 (26.8)	20.22; 0.000
Relations	5 (27.8)	13 (72.2)	18 (2.5)	1.83; 0.176
Use of female condoms (n=723)				
Yes	18 (28.1)	46 (71.9)	64 (8.9)	10.37; 0.001
No	312 (47.3)	347 (52.7)	659 (91.1)	1.85; 0.174

**Table 4** Factors affecting acceptability and condom use.

Variable	Male (%)	Female (%)	Total (%)	$\chi^2$ p-Value
Reasons for using female condoms (n=64) (multiple responses)				
Prevents STIs/HIV	13 (31.7)	28 (68.3)	41 (64.1)	4.96; 0.026
Prevents unwanted pregnancies	7 (13.2)	46 (86.8)	53 (82.8)	5.72; 0.017
Offers privacy/independence	4 (17.4)	19 (82.6)	23 (35.9)	3.33; 0.068
Sense of empowerment	–	19 (100.0)	19 (29.7)	–
Reasons for not using female condoms (n=659) (multiple responses)				
Not easily available	172 (35.0)	320 (65.0)	492 (74.7)	40.91; 0.000
Expensive	150 (33.0)	305 (67.0)	455 (69.0)	45.90; 0.000
Difficult to insert	123 (31.9)	262 (68.1)	385 (58.4)	44.68; 0.000
Doubts its efficacy	61 (24.2)	191 (75.8)	252 (38.2)	52.55; 0.000
Partners objection	23 (22.5)	79 (77.5)	102 (15.5)	24.01; 0.000
Aesthetically unpleasant	44 (22.9)	148 (77.1)	192 (29.1)	43.72; 0.000
Low perception of STI/HIV risk	130 (37.8)	214 (62.2)	344 (52.5)	19.42; 0.000
Acceptability (If offered, will you use the condoms?) (n=723)				
Yes	211 (54.2)	178 (45.8)	389 (53.8)	2.45; 0.000
No	119 (35.6)	215 (64.4)	334 (46.2)	25.73; 0.000
Acceptability (Will you recommend it to friends/peers?) (n=723)				
Yes	218 (43.4)	284 (56.6)	502 (69.4)	8.49; 0.004
No	112 (50.7)	109 (49.3)	221 (30.6)	0.04; 0.841

behavior (16). Upon admission into the universities, students acquire independence from parental control and college restrictions and become responsible for their own actions or inactions. If not properly managed, their new-found autonomy might lead them to negative social vices, including unsafe sexual practices with severe implications for STIs and HIV infection.

This study also showed discordance between awareness and the preventive practice of the use of female condoms. Most of the respondents had heard about the female condom and its benefits in protecting individuals against STIs and unwanted pregnancies. However, only a few had ever used them. The high level of awareness about the condoms did not translate to positive attitude towards their use. The findings support the fact that correct knowledge on health issues may not always translate into appropriate preventive health actions. This adds to the evidence from similar studies demonstrating that correct knowledge about STIs or HIV may not always translate into taking the appropriate protective actions such as the consistent use of condoms (24, 25).

The use of condoms by sexually active youths who engage in risky sexual behaviors remain the most effective strategy in preventing STIs and unwanted pregnancies (12–15). This is particularly relevant for students who are known to engage in high risk, opportunistic sexual intercourse with people whose sexual history or HIV status are unknown to them (16–18).

Although the use of conventional male condoms among students in Nigeria has been reported to be low for

reasons that included decrease in sexual pleasure, inability to negotiate their use and the fear of being accused of infidelity, among others, female condom represents a potential alternative for safer sexual practices (17). It has additional advantages because it can be initiated by the ladies and worn at least 8 h before a sexual encounter. Therefore, they could help respond to the common and significant problem of some young men who dislike or refuse to wear male condoms (26). The fact that it is the women that put them on remains an encouraging factor because hitherto, the women have been entirely reliant on the willingness of men to wear condoms in order to protect both partners from HIV or other STIs. Female condoms are equally relevant because of the high prevalence of non-consensual sexual encounters and coercion reported among youths in tertiary institutions in Nigeria, with severe implications for STIs, including HIV infection and unwanted pregnancies (27–29). Unfortunately, the use of this valuable tool (FC) was significantly low among our respondents.

However, the study highlights significant challenges related to female condom availability, affordability, and ease of insertion. These could be responsible for its unpopularity among university students. Some studies have also documented similar challenges, even in developed countries (30, 31). Despite these challenges, however, there were indications of considerable prospects for acceptability and use of female condoms among the students interviewed, as over two-thirds expressed optimism and willingness to try out the condoms if offered or made

easily available. This position corroborates the findings of a similar study conducted among female undergraduates in another university in Nigeria (21).

## Study limitations

This study was limited first, by the fact that it was based on self reports and, thus, subject to elements of response bias due to the sensitive nature of discussions around sex. Second, there were potentials for recall bias since respondents were expected to provide information on behaviors committed in the past. Nevertheless, the findings have several implications and benefits for the design and implementation of HIV prevention interventions on university campuses.

## References

1. United Nations Programme on AIDS (UNAIDS). Facts Sheets 2007. URL: [http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2012/201207\\_FactSheet\\_Global\\_en.pdf](http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2012/201207_FactSheet_Global_en.pdf).
2. World Health Organization (WHO). Global AIDS Summary Report 2008. URL: [http://www.who.int/hiv/data/2008\\_global\\_summary\\_AIDS\\_ep.png](http://www.who.int/hiv/data/2008_global_summary_AIDS_ep.png).
3. National Agency for the Control of HIV & AIDS (NACA). Global AIDS Response: Nigeria Country Report 2012. Abuja, Nigeria: NACA.
4. Cummins JE, Dezzutti CS. Sexual HIV-1 transmission and mucosal defense mechanisms. *AIDS Rev* 2000;2:144–54.
5. Quinn TC, Overbaugh J. HIV & AIDS in women: an expanding epidemic. *Science* 2005;308:1582–83.
6. Pettifor AE, Measham DM, Rees HV, Padian NS. Sexual power and HIV risk, South Africa. *Emerg Infect Dis* 2004;10:1996–2004.
7. Onayade AA, Abiona TC, Uguala C, Alozie G, Adetuyi O. Determinants of consistent condom use among adolescents and young adults attending a tertiary educational institution in Ile-Ife, Nigeria. *Niger Postgrad Med J* 2008;15:185–91.
8. Yan H, Chen W, Wu H, Bi Y, Zhang M, et al. Multiple sex partner behavior in female undergraduate students in China: a multi-campus survey. *BMC Public Health* 2009;9:305–16.
9. Regassa N, Kedir S. Attitudes and practices on HIV preventions among students of higher education institutions in Ethiopia: the case of Addis Ababa University. *East Afr J Public Health* 2011;8:141–54.
10. Othero DM, Aduma P, Opil CO. Knowledge, attitudes and sexual practices of university students for advancing peer HIV education. *East Afr Med J* 2009;86:11–5.
11. World Health Organization (WHO). Position statement: condoms and HIV prevention. URL: [http://www.who.int/hiv/pub/condoms/20090318\\_position\\_condoms.pdf](http://www.who.int/hiv/pub/condoms/20090318_position_condoms.pdf).
12. Weller S, Davis K. Condom effectiveness in reducing heterosexual HIV transmission. *Cochrane Database Systemic Review* 2002, 1:CD003255. URL: <http://www.ncbi.nlm.nih.gov/pubmed?term=Weller%2C%20S.%2C%20Davis%2C%20K.%2C%202002.%20Condom%20effectiveness%20in%20reducing%20heterosexual%20HIV%20transmission.%20Cochrane%20Database%20Systemic%20Review%2C%201%3ACD003255>.
13. Pinkerton SD, Abramson PR. Effectiveness of condoms in preventing HIV transmission. *Soc Sci Med* 1997;44:1303–12.
14. Davis KR, Weller SC. The effectiveness of condoms in reducing heterosexual transmission of HIV. *Fam Plann Perspect* 1999;31:272–79.
15. Weller SC. A meta-analysis of condom effectiveness in reducing sexually transmitted HIV. *Soc Sci Med* 1993;369:1635–44.
16. Ejembi CL, Otu A. Sexual behavior, contraceptive practice and reproductive health outcomes among Nigerian University students. *J Comm Med Pri Health Care* 2004;16:8–16.
17. Kabir M, Iliyasu Z, Abubakar IS, Kabir AS. Sexual behavior among students in tertiary institutions in Kano, northern Nigeria. *J Comm Med Pri Health Care* 2004;16:17–22.
18. Okonkwo PI, Fatusi AO, Ilika AL. Perceptions of peers' behavior regarding sexual decision making among female undergraduates in Anambra State, Nigeria. *Afr Health Sci* 2005;5:107–13.
19. Deniaud F. Current status of the female condom in Africa. *Sante* 1997;7:405–15.
20. De Zoysa I, Sweat MD, Denison JA. Faithful but fearful: reducing HIV transmission in stable relationships. *AIDS* 1996;10(SA):S197–S203.
21. Okunlola MA, Morhason-Bello IO, Oworikoko KM, Adekunle AO. Female condom awareness, use and concerns among Nigerian female undergraduates. *J Obstet Gynecol* 2006;26:353–56.
22. Araoye MO, Fakeye OO. Sexuality and contraception among Nigerian adolescents and youths. *Afr J Reprod Health* 1998;2:142–50.
23. Campbell MJ, Machin D. *Medical statistic: a common sense approach*, London: John Wiley and Sons Ltd., 1996.

## Conclusion

The study brings to fore the significant challenges of unavailability, high cost, and difficulty with insertion of female condoms among university students in Nigeria, despite the appreciable level of awareness and optimism about the commodity. We advocate that access to female condoms should be expanded, specifically targeting vulnerable youths in tertiary institutions, through the United Nations Population Fund (UNFPA) initiative (26). Such goals can also be achieved using social marketing strategies, appropriate publicity, youth-friendly channels, and peer education.

Received April 19, 2013; accepted August 1, 2013

24. Adhikari R, Tamang J. Premarital Sexual behavior among male college students of Kathmandu, Nepal. *BMC Public Health* 2009;9:241. URL: <http://www.biomedcentral.com/1471-2458/9/241>.
25. Adefuye AS, Abiona TC, Balogun JA, Lukobo-Durrell M. HIV sexual risk behaviors and perception of risk among college students: implications for planning interventions. *BMC Public Health* 2009;9:281. URL: <http://www.biomedcentral.com/1471-2458/9/281>.
26. United Nations Population Fund (UNFPA). A right to choose: expanding access to the female condoms in Nigeria. URL: <http://www.unfpa.org/public/globalpid135>.
27. Ajuwon AJ. Attitudes, norms and experiences of sexual coercion among young people in Ibadan, Nigeria. In: Jejeebhoy JS, Shah I, Thapa S, editors. *Sex without consent: young people in developing countries*. London: Zed Books, 2005: 96–104.
28. Ajuwon AJ, Olaleye A, Faromoku B, Ladipo O. Sexual behaviour and experience of coercion among secondary school students in three states in north-eastern, Nigeria. *BMC Public Health* 2006;6:310. URL: <http://www.biomedcentral.com/1471-2458/6/310>.
29. Olaleye OS, Ajuwon AJ. Experience of non-consensual sex among students in a tertiary institution in Ibadan, Nigeria. *Sierra Leone J Biomed Res* 2011;3:175–83.
30. Haignere CS, Gold R, Maskovsky J, Ambrosini J, Rogers CL, Gollub E. High-risk adolescents and female condoms: knowledge, attitudes, and use patterns. *J Adolesc Health* 2000;26:392–8.
31. Mantell JE, West BS, Sue K, Hoffman S, Exner TM, et al. Health care providers: a missing link in understanding acceptability of the female condom. *AIDS Edu Prev* 2011;23: 65–77.