



## Knowledge, Attitudes and Utilisation of the Female Condom among High School Female Students in Kumba, Cameroon

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### Authors' contributions

This work was carried out in collaboration between both authors. Author EET designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author LEB managed the literature searches and also reviewed the manuscript. Both authors read and approved the final manuscript.

### Article Information

DOI:10.9734/BJESBS/2015/13048

#### Editor(s):

(1) Chan Shen, Department of Biostatistics, University of Texas, USA.

#### Reviewers:

(1) Moses Temidayo Abiodun, Child Health, University of Benin, Nigeria.

(2) Rune Andersson, Institute of Biomedicine, The Sahlgrenska Academy, University of Gothenburg, Sweden.

Complete Peer review History: <http://www.sciencedomain.org/review-history.php?iid=693&id=21&aid=6351>

Original Research Article

Received 31<sup>st</sup> July 2014  
Accepted 20<sup>th</sup> August 2014  
Published 6<sup>th</sup> October 2014

### ABSTRACT

**Background:** Cameroon has the highest HIV/AIDS prevalence of 5.3% in the West and Central African Sub-region, with women being the most infected. The biological and socio-cultural vulnerability of women to HIV infection is not new. A proven effective female controlled prevention tool like the female condom is relatively new compared to the male condom in the prevention of HIV in Cameroon. Data related to its use and acceptability are rare. Relatively early onset of sexual activity amongst female students in Cameroon is a sad reality. The purpose of this study was to ascertain the knowledge, attitudes and use of the female condom amongst high school female students in the Kumba Urban area, Cameroon.

**Methods:** A descriptive design was adopted and carried out during the month of May 2014, on a representative sample of consenting high school female students, from a sample of high schools in Kumba. Pretested questionnaires in English language were self-administered to 398 students. Data

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were analysed with the Statistical Package for Social Sciences (SPSS) version 20.0 software.

**Results:** Most female high school students (67.3%) knew about female condoms and 75.6% of them knew that correct and consistent use of female condoms during sexual intercourse can prevent HIV transmission. However, lack of knowledge on how to correctly fit the female condom was seen in 68.1% of our sample. The main source of information with regards to female condoms was the mass media (64.6%). Perceived decrease in sexual satisfaction with its use was reported by 64.1% of the female students and only 38.7% of them felt that female condoms were readily available. The percentage of the sexually experienced female students who had ever used female condoms during sexual intercourse was also very low, 8.0%.

**Conclusion:** The findings of this study suggest that including female condoms within the supplies package of the essential drug program in Cameroon and advocacy targeting international donors could help address the availability and affordability barriers. More quantitative and qualitative studies targeting students in rural areas, out-of-school females and male counterparts with regards female condoms could be very informative in setting up a comprehensive health education and HIV prevention strategy.

*Keywords: Knowledge; attitudes; female condom; high school female students; Cameroon.*

## 1. INTRODUCTION

Sub-Saharan Africa (SSA) remains the region hardest hit by the HIV/AIDS pandemic than any other in the world, largely due to high risk behaviour and neglect of potential preventive measures. In 2010, about 68% of all people living with HIV/AIDS (PLWHA) resided in SSA, a region with only 12% of the global population. SSA also account for 70% of all new HIV infection [1]. Particularly distressing is the fact that nearly 3.3 million youth are living with HIV/AIDS in SSA, and 75% of these youth are girls [2]. In sub Saharan Africa young women within the age group of 15-24 years are 3-4 times more likely to be infected with HIV than men of the same age [3]. Physiology, gender roles, sexual norms, inequalities in accessing resources and power in decision-making based on socio-cultural background put women and girls at greater risk of infection than men and boys [4-6].

Cameroon has the highest HIV/AIDS prevalence rate in the west and central Africa sub region of 5.3%, with females being more affected than males, with a prevalence of 6.5 % [7]. The epidemic can potentially derail Cameroon's efforts to achieve the Millennium Development Goals (MDGs) by 2015. In Cameroon, 61% of PLWHA are women [8] and the prevalence among women of reproductive age is 6.8% [9]. These prevalence rates suggest that HIV prevention campaigns are not being translated into safer sexual behaviours. There is thus a high likelihood of encountering a sexual partner that is infected when levels of HIV prevalence are high. Heterosexual transmission of HIV/AIDS accounts

for about 90% of new infections in Cameroon [10]. Hence young people are at risk of getting the disease as soon as they initiate sexual activity.

Correct and consistent condom use whether male or female, has been acknowledged to be effective towards successful prevention of sexually transmissible infections (STIs), including HIV/AIDS [11-13]. Knowledge and use of the male condom is not uncommon. However with well over 50% of all young people living with HIV worldwide being women, [7] there is need for a female HIV prevention initiative (female condoms) to empower women to protect themselves from risk of HIV infection. Because use of the female condom can be initiated by women, the device provides a way for women to protect themselves from STIs, including HIV infection. When used correctly, the female condom is as effective as the male condom in reducing HIV transmission. In addition, it can be inserted hours before intercourse, and it is therefore less likely than the male condom to reduce sexual spontaneity [14].

The female condom has become widely used for HIV prevention in several developing countries with high HIV incidence [15-17]. Studies around the globe have found positive results from introducing the female condom to women of all ages, including decreased incidence of STIs and unwanted pregnancies, and increased protected sex [18,19].

Despite extensive research showing its effectiveness and acceptability with various populations at highest risk, the female condom remains unpopular and underutilized in most

communities [20].

There are many barriers to accessing and using the female condom, which include:

- i. Cost (approximately US \$0.70), about ten times the cost of male condoms [21,22], thus making it prohibitive for people at high risk who are also likely to be poor.
- ii. Lack of adequate awareness campaigns, necessary information and availability of stock [5].
- iii. Lack of extensive promotion and marketing [23,24].

In accordance with the National Strategic Plan for the fight against HIV/AIDS in Cameroon for the period 2006-2010 and with the support of a consortium of Netherlands Non-Governmental Organisations (NGOs) grouped under the label of Universal Access to Female Condom (UAFC), the Association Camerounaise pour le Marketing Social (ACMS) launched in January 2009 a three year project (2009-2011) to promote and distribute female condoms in five regions of Cameroon, including Centre, Littoral, Adamawa, Northwest and Southwest regions.

The project had as objectives:

- i. To help reduce the number of unwanted pregnancies and the number of HIV/AIDS infections.
- ii. Increase to at least 80% the percentage of women in urban and rural areas that report having used a condom on the last high-risk sexual intercourse.
- iii. Improve the accessibility and availability of female condoms.
- iv. Improve the perception of risk of contracting HIV among women.
- v. Improve the attitudes, practices and behaviours regarding HIV prevention through available communication and health education tools.
- vi. Fight against barriers that hinder the use of female condoms by women [25].

Accurate assessment of self-reports of sexual behaviours is vital to the evaluation of HIV prevention intervention. Data on knowledge, attitudes, and use of condoms in Cameroon is sparse and has largely focused on the male condom [7-9]. Despite the introduction of the female condom "*protective*" in Cameroon a long time ago, few studies have been conducted to assess the knowledge, attitudes regarding female condoms and their use [25]. It is against this

background that this study investigates the knowledge, perceptions, attitudes and use of the female condom among high school female students in Kumba Cameroon. The study focuses on high school female students because majority of them fall within the age group hardest hit by HIV/AIDS (15-24 years).

## 2. METHODS

### 2.1 Study Design

A descriptive cross-sectional design was adopted in this study, to assess the knowledge, perceptions, attitudes and use of female condoms among high school female students in Kumba, Southwest region of Cameroon. The study was conducted in May 2014 in Kumba, the economic capital of the Southwest region of Cameroon, which happens to be the third ranked region in HIV/AIDS prevalence.

### 2.2 Study Area

Kumba is the administrative headquarters of Meme division, and the economic capital of the Southwest region, thus making it one of Cameroon's wealthiest urban centres, which together with the availability of economic and social amenities, industries and political institutions, has resulted in a high population density. With a total land area of 188.4 Km<sup>2</sup>, the total population of Kumba, a mixture of Christians and Muslims, was estimated at 166 000 inhabitants (51.2% males and 48.8% females) [26], the majority of whom are farmers and traders [27]. Administratively, the city is divided into three local government areas.

### 2.3 Study Population

In this study, the accessible population included all the high school female students in Kumba, Cameroon, that portion of the target population to which the researcher had reasonable access [28]. The inclusion criteria were high school female students who were present and willing to participate in the study. Those who were not present on the day and time of data collection were excluded from the study.

### 2.4 Sampling Technique

A stratified, simple random sampling technique was used to select the sample for this study. Probability sampling was used because it

increased the likelihood that all the elements in the population would have an equal chance of being included in the sample [29]. The school attendance registers of the female students were used as the sampling frame to select a sample of 398 grade 10 to grade 12 (Form five to upper sixth) female students from three randomly selected high schools (one from each local government area) in Kumba, Cameroon. The students were stratified at the different levels of study, namely grade 10 (form 5), grade 11 (lower 6<sup>th</sup>) and grade 12 (upper 6<sup>th</sup>). After stratification, a proportional simple random sample was obtained by selecting students randomly from the sampling frame until the intended sample size was attained.

## 2.5 Sample Size

No data regarding awareness and knowledge about female condom use was available and thus the sample size was calculated using the following formula for single population [30], to arrive at a sample size of 398.

## 2.6 Data Collection

Data was collected by a self-administered anonymous questionnaire during a normal class period in May 2014. The questionnaire was pretested on a convenience sample of 20 high school female students who did not take part in the actual study, for clarity and to ascertain internal consistency. Respondents were given the self-administered questionnaires in English, which was their first language. The students were closely supervised by two trained female research assistants of the same age group as the respondents, while filling-in the questionnaires. The completed questionnaires were checked by the research assistants for errors and missing data before participants were allowed to go. Anonymously completed questionnaires were kept in a separate container from the signed informed consent forms in order to maintain anonymity.

## 2.7 Data Management and Analysis

Data were edited, cleaned, coded, entered and analysed using the Statistical Package for Social Sciences (SPSS) version 20 software program. Data were summarised by means of descriptive statistics including the frequency table.

## 2.8 Measures

### 2.8.1 Socio-demographic characteristics

Socio-demographic characteristics included: age which was self-reported in years, marital status, categorised into 'single' and 'others', religion categorised into two groups (Christians and Muslims), and fathers' and mothers' monthly incomes, categorised into two groups (more than 200 000XAF and 200 000XAF or less).

### 2.8.2 Knowledge on female condoms

Knowledge on female condoms was assessed with the following questions and items: Do you know about female condoms? And the response options were '1=yes' and '0=no'; HIV/AIDS can be prevented by correctly and consistently using female condoms during sexual intercourse, and I lack knowledge on how to correctly fit female condoms, with response options rated on a four-point Likert scale as '3=strongly agree', '2=agree', '1=disagree' and '0=strongly disagree'. 'Strongly agree' and 'agree' were coded as the index category, and the source providing knowledge about female condoms.

### 2.8.3 Attitudes towards female condoms

Attitudes towards female condoms were assessed based on the degree of agreement with the following statements: female condoms decrease sexual satisfaction, due to religious beliefs I feel guilty using a female condom, and distance to the nearest female condom access point is far, female condoms are readily available to me and female condoms are affordable to me. The response options were rated on a four-point Likert scale as '3=strongly agree', '2=agree', '1=disagree' and '0=strongly disagree'. 'Strongly agree' and 'agree' were coded as the index category.

### 2.8.4 Sexual behaviours and female condom use

Sexual behaviour included: sexual experience categorised into 1=yes and 0=no, number of sexual partners in the last one year, divided into two categories (one or less and more than one), number of concurrent sexual partners during the study period, divided into two categories (one or less and more than one), female condom use during first sexual intercourse categorised into two groups (1=yes, 0=no), female condom use during last sexual encounter categorised into 1=yes and 0=no, regularity of female condom

use during sexual intercourse divided into four categories (1=always, 2=most of the time, 3=seldom and 4=never), and motivation to use female condoms during sex. These questions were asked only to respondents who were sexually active). The coefficient alpha for the 3-item condom use scale was 0.80, while the alpha reliability for the 2-item scale for number of sexual partners was 0.88, which both indicate high internal consistencies of the items. Sexually active female students who have never used female condoms were asked about their reasons for not using female condoms.

### 3. RESULTS AND DISCUSSION

#### 3.1 Results

##### 3.1.1 Socio-demographic characteristics

All the 398 respondents in this study were females, and the majority, 98.2% were between the ages of 15 and 24 years, with 95.0% being single. Three hundred and eighty four (96.5%) were Christians. Majority of them, 60.5% indicated that their fathers' monthly incomes were less than 200 000XAF (US\$ 13.00 a day) and 75.6% indicated that their mothers' monthly incomes were less than 200 000XAF (US\$ 13.00 a day) (Table 1).

##### 3.1.2 Knowledge on the female condom

Table 2 explicates the knowledge on the female condom among female students in Kumba. Majority, 67.3% knew about female condoms and majority, 75.6% knew that correct and consistent

use of female condoms during sexual intercourse can prevent HIV transmission. However, majority, 68.1% lacked knowledge on how to correctly fit female condoms.

The respondents were asked to indicate the main sources providing them with knowledge on female condoms. The majority, 64.6% received information on female condoms from the mass media (Televisions, Radios, Magazines and newspapers), while few, 6.7% received such information from their parents and 13.0% received it from hospitals or clinics. There were no statistically significant associations between age of respondents and their knowledge on the female condom at the level 0.05 (results not shown).

##### 3.1.3 Attitudes towards female condoms

Table 3 explicates the attitudes towards female condoms among the respondents. Majority, 64.1% believed that female condoms decrease sexual satisfaction, and a slight majority, 52.0% believed that due to religious beliefs they would feel guilty using female condoms. A slight majority, 52.5% perceived that the distance to the nearest access point for female condoms is far; only few, 38.7% perceived that female condoms are readily available, and few, 24.6% perceived that female condoms are affordable. Therefore majority of the female students exhibited negative attitudes towards the female condom. There were no statistically significant associations between age of respondents and their attitudes towards the female condom at the level 0.05 (results not shown).

**Table 1. Socio-demographic characteristics of female students in Kumba, Cameroon**

Characteristics	Frequency	Percentage
<b>Age Group (n=398)</b>		
11-14	6	1.5
15-17	139	34.9
18-21	239	60.0
22-24	13	3.3
25-27	1	0.3
<b>Marital Status (n=398)</b>		
Single	378	95.0
Others	20	5.0
<b>Religious Affiliation (n=398)</b>		
Christian	384	96.5
Muslim	14	3.5
<b>Father's monthly income (n=398)</b>		
200 000XAF and above	157	39.5
Less than 200 000XAF	241	60.5
<b>Mother's monthly income (n=398)</b>		
200 000XAF and above	97	24.4
Less than 200 000XAF	301	75.6

**3.1.4 Sexual behaviours and female condom use**

With regard to sexual behaviours, the majority, 62.8% reported having experienced sexual intercourse, of whom 48.0% reported having had multiple sexual partners in the last one year before this study and 30.0% reported having multiple concurrent sexual partners at the time of this study (Table 4).

Only few sexually active female students in this study, 3.6% reported having used female condoms during their first sexual encounters and only 5.6% reported having used them during their most recent sexual encounters. Consistent use of female condoms among the sexually active female students was low, 1.2% and the percentage of the sexually experienced female students who had ever used female condoms

during sexual intercourse was also very low, 8.0% (Table 4). There were no statistically significant associations between respondents' knowledge on the female condom and their use of the female condom, at the level 0.05 (results not shown).

The sexually active female students who had ever used female condoms were asked what motivated them to use condoms during sexual intercourse. The majority, 85.0% mentioned the risk of HIV infection. In the same vein, sexually active female students who had never used female condoms were asked their reasons for not using female condoms during sexual intercourse, and up to 33.9% indicated that female condoms are not affordable, 20.9% indicated that female condoms make sex less enjoyable and 13.5% indicated that female condoms are not readily available (Table 4).

**Table 2. Knowledge on the female condom among female students in Kumba, Cameroon**

Knowledge	Frequency	Percentage
<b>Do you know about female condoms? (n=398)</b>		
Yes	268	67.3
No	130	32.7
<b>Correct and consistent use of female condoms during sexual intercourse can prevent HIV/AIDS transmission (n=398)</b>		
Agree	301	75.6
Disagree	97	24.4
<b>I lack knowledge on how to correctly fit female condoms (n=398)</b>		
Agree	271	68.1
Disagree	127	31.9
<b>Sources providing knowledge on female condom (n=268)</b>		
Parents	18	6.7
Peers	11	4.1
Teachers	31	11.6
Television or Radio	53	19.8
Magazines/news papers	120	44.8
Hospitals/Clinics	35	13.0

**Table 3. Attitudes towards the female condom among female students in Kumba, Cameroon**

Attitudes	Frequency	Percentage
<b>Female condoms decrease sexual satisfaction (n=398)</b>		
Yes	255	64.1
No	143	35.9
<b>Due to religious beliefs I feel guilty using female condoms (n=398)</b>		
Agree	207	52.0
Disagree	191	48.0
<b>Distance to the nearest female condom access point is far (n=398)</b>		
Agree	209	52.5
Disagree	189	47.5
<b>Female condoms are readily available to me (n=398)</b>		
Agree	154	38.7
Disagree	244	61.3
<b>Female condoms are affordable to me (n=398)</b>		
Agree	98	24.6
Disagree	300	75.4

**Table 4. Sexual behaviours and female condom use by high school female students in Kumba, Cameroon**

<b>Sexual behaviours and female condom use</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Ever had sexual intercourse with a male partner (n=398)</b>		
Yes	250	62.8
No	148	37.2
<b>Number of sexual partners in the past one year (n=250)</b>		
More than one	120	48.0
One or less	130	52.0
<b>Number of concurrent sexual partners at present (n=250)</b>		
More than one	75	30.0
One or less	175	70.0
<b>Condom use during first sexual encounter (n=250)</b>		
Yes	9	3.6
No	241	96.4
<b>Condom use during last sexual encounter (n=250)</b>		
Yes	14	5.6
No	236	94.4
<b>Ever used female condoms during sex (n=250)</b>		
Yes	20	8.0
No	230	92.0
<b>Regularity of condom use during sexual intercourse (n=250)</b>		
Always	3	1.2
Most of the time	9	3.6
Seldom	8	3.2
Never	230	92.0
<b>Motivation to use female condoms during sex (n=20)</b>		
Risk of HIV infection	17	85.0
Protection against pregnancy	1	5.0
Media publicity	1	5.0
Partner support for condom use	1	5.0
<b>Reasons for female condom non-use among sexually active female students who have never used female condoms (n=230)</b>		
Female condoms make sex less enjoyable	48	20.9
Female condoms cause itching	3	1.3
I trust my partner	23	10.0
Female condoms have poor reputation	16	6.9
Due to religious faith I feel guilty using female condoms	31	13.5
Female condoms are not readily available	31	13.5
Female condoms are not affordable	78	33.9

### 3.2 Discussion

The purpose of this study was to assess the knowledge, attitudes, and use of the female condom among high school female students in Kumba, Cameroon. Awareness of the female condom was high but most respondents lacked knowledge on how to correctly use it. Majority of the respondents believed that the female condom can be used to prevent HIV transmission.

However, majority of them had unfavourable attitudes and poor perceptions regarding the

female condom, and use of the female condom was very low.

High awareness levels with regards to the female condom amongst high school female students in Kumba corroborate a study done among undergraduate female students in University of Ibadan in Nigeria, which revealed that over 80% were aware of the female condom [31] and that done among university students in Dschang in the West region of Cameroon, which reported that 75.7% were aware of the existence and availability of the female condom [32]. Social

marketing is thought to increase awareness about the use of female condoms as indicated in some studies in Cameroon and elsewhere [33-35].

The major source of information on awareness and knowledge of the female condom for the female students in this study was the mass media (Television, Radio, Magazines and Newspapers) (see Table 2). Health workers who were expected to take a leading role on education and dissemination of the female condom were among the least of sources of information (13.0%) (see Table 2). Elsewhere, some females do not visit hospitals or clinics regularly [36]. This could explain low levels of information on the female condom from this source. Also, acceptability and marketing of the female condom by health care providers might be inadequate. This could be due to the following:

- i. The female condom might not be regularly supplied or included in regular commands of these health facilities
- ii. The female condom could be less lucrative when bought or sold in sale spots, where most folks would prefer to buy
- iii. Male counterparts could be reticent to adopt the female condom [36]

Mass media as the major source providing knowledge on the female condom in this study, was also underscored by reporters in Italy [37], in Nigeria [31] and Tanzania [38,39]. Televisions, radios, newspapers and magazines are available and easily accessible in most urban towns and homes in Cameroon, and they are influential in disseminating information on the female condom. All sources available to female students should provide them with clear and accurate information on all aspects relating to the female condom including information on its correct usage. Magazines, newspapers, television and radio programmes, all should be scrutinised for presenting factual information uncontaminated by sensationalism.

Mass media which is usually an uncontrolled source is an important tool for advocacy and awareness creation. However its effect on behavioural change is minimal because it is one way directional and as strategy, do not allow interaction through discussion - key component for behavioural change. People have to debate pro and cons, anticipate problems like inserting

the female condom and the like. Through discussion and interaction the female student helps to iron out areas that are not clear like inserting the female condom, benefits and possible side effect and how to deal with them. In this way, changing one's perceived behaviour in HIV and STIs prevention. For instilling an effective behavioural change for female students, mass media strategy is supposed to be followed by interpersonal communications that allow interaction.

Although the female condom awareness was high among the respondents in this study, few had got skills to use it, 31.9%. This finding is in agreement with reports by Pandya et al. [40] in their study on South Asian women, and Jackalas et al. [41] in their study in Botswana. Female condom users should be provided with general information regarding mechanics of use, protective functions and effectiveness [25,42]. Research findings also suggest that skills training can increase female condom use and protected sexual acts [43].

Majority of the respondents in this study had unfavourable attitudes towards the female condom. These results contradict those obtained in studies done in Zimbabwe [16], Nigeria [31], Rwanda [44] and Italy [37], where respondents manifested favourable attitudes towards the female condom. This could be the result of failure of the female condom social marketing programme in improving the attitudes of the youth in Kumba, regarding the female condom. The almost exclusive use of the social marketing strategy especially with regard to female condom use may be insufficient; Health promotion and education activities may also be inadequate or not adapted.

Majority of the respondents in this study mentioned that the female condom is neither readily available nor affordable, and majority of the sexually experienced female students who had never used the female condom mentioned sexual pleasure reduction, non-affordability and non-availability of the female condom as the main reasons for not using the female condom. These findings are in agreement with other studies, [45] which report sexual pleasure reduction as reason for non-use of the female condom, and [46], which report cost and non-availability as reasons for non-use of the female condom. However, the availability of the female condom, though limited compared to the male condom, can considerably increase on demand



[36]. The non-availability of the female condom in Kumba may be due to failure of the female condom social marketing programme in extensively promoting and marketing the female condom in Kumba. Increasing availability of free female condoms may increase use among sexually experienced female students thereby encouraging uptake and promotion by broader providers in the community such as pharmacies and other retailers.

Recent calls for increased availability of the female condom on a global level highlight the need to integrate female condom promotion and accessibility into general health systems, both in high- income and low-income settings [46,47]. Until a broad-based and comprehensive change in community access and support for the female condom takes place, including in community health clinics, private physicians' clinics and pharmacies, the most likely female condom users will be those reached by community outreach workers and those who seek services where free female condoms are made available to all clientele. Promotion and widespread use of the female condom is likely to further reduce heterosexually transmitted HIV significantly. The ethics of the epidemic demand that every effective HIV prevention option for women be made available and supported in the community, including female condom, so that it can be truly integrated into the prevention toolkit for women and men in widely varying personal, social, and partner relationship circumstances.

The use of the female condom by respondents in this study was low. This result corroborates other studies done in Ibadan, Nigeria [31], Zimbabwe [16], Rwanda [44] and Ethiopia [48]. The low use of the female condom among the sexually active female students in this study may be due to failure of the female condom social marketing programme in extensively promoting and marketing the female condom in Kumba.

Majority of the sexually active female students in this study who have used the female condom mentioned protection from HIV infection as their motivation to use it. The female condom provides the opportunity for women to actively protect themselves from HIV infection. It is a method they can choose and initiate. It enables them to be in a position where they learn about their reproductive health in general, which is an important building block in HIV prevention. When women can protect themselves from HIV

infection, they have an increased sense of self-worth. This could prove to be one of the most important elements in fighting the AIDS epidemic. Systematic integration of the female condom into HIV prevention and reproductive and sexual health programmes can increase knowledge and use of the female condom. Examples of programmes where integration is possible include: HIV/AIDS prevention education, family planning services, STI clinics, adolescent health services, social marketing programmes, workplace initiatives, and gender sensitization activities.

The sexually active female students in this study who have never used a female condom, mentioned unavailability and cost as their main reasons for not using it. The cost of the female condom is a major barrier to making it accessible to greater numbers of women. UNAIDS has negotiated a public sector price of US\$ 0.70 per condom for the female condom. As male condoms cost only US\$ 0.03 per unit, the current cost of the female condom is considerably higher. Governments must play a lead role in purchasing the female condom in bulk, having them available at affordable prices through subsidies, and generating awareness of their benefits. This will help make the female condom accessible and used by women, while eventually leading to lower prices. Donors should also be mobilised by countries to include the female condom within their funding priorities as a way of sustaining its supply.

#### 4. CONCLUSION

Awareness on the female condom was high but very few respondents had skills to use it appropriately. Attitudes towards female condom use were generally negative with reduction of sexual satisfaction as main concern. Very few sexually active secondary school students use female condoms in Kumba. Implication of health personnel in the vulgarization of female condom use is grossly insufficient. Including female condoms within the supplies package of the essential drug program in Cameroon and advocacy targeting international donors could help address the availability and affordability barriers. More quantitative and qualitative studies targeting students in rural areas, out of school females and male counterparts with regards female condoms could be very informative in setting up a comprehensive health education and HIV prevention strategy.

## 5. LIMITATIONS

Males were excluded from the study, though usually the key players in the deciding on whether or not to use a female condom or not, especially in an African setting. Secondly, the study was carried out mainly in a dominantly Christian setting. Results might be different in case the study was carried in a purely Muslim community.

Thirdly, female students might tend to give socially acceptable responses. Triangulation techniques (FGDs, Key informant interviews) would yield more holistic and realistic insights with regards to awareness and perceptions with regards to the female condom, considering the fact that sex still remains a taboo subject within most Cameroonian settings. Models like the Health Belief Model would be more informative under this setting, evaluating perceived risks and barriers, and decision making of the individual. Fourthly, Kumba is an urban setting; different results might be obtained in a rural setting. Other studies in rural settings could be of interest. Most respondents had negative attitudes towards the female condom regarding the prevention effectiveness against sexually transmitted infections including HIV. The use of the female condom was also very low, so was its perceived availability. Studies involving males would be needed to get a holistic view of potential barriers that could reduce female condom acceptability and use.

## CONSENT

Informed consent was obtained after the potential participants and their parents/guardians (for those below 18 years) were informed of the study's objectives. Only students who gave consent to participate, were included in the study. All the parents/guardians (for participants below 18 years) were given the opportunity to withhold or withdraw their children from the study at any time they felt like.

## ETHICAL APPROVAL

Approval for this study was obtained from the HIV/AIDS Prevention Research Network, Cameroon (HIVPREC). Permission to conduct the study was sought from the research and ethics committee of the faculty of philosophy, religious and social studies of the Cameroon

Christian University and the principals of the three participating high schools.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. UNAIDS. World AIDS day report: How to get zero-Faster, Smarter, Better. Geneva, Switzerland: UNAIDS; 2011.
2. UNAIDS. Report on the global AIDS epidemic: Executive summary. Geneva: UNAIDS. 2008.
3. UNAIDS. AIDS epidemic update, Geneva, Switzerland: UNAIDS; 2007.
4. UNAIDS. Global Report on the global HIV epidemic. Geneva, Switzerland: UNAIDS; 2013.
5. UNFPA. The Female Condom: Putting Women in Control. Available: <http://www.unfpa.org/hiv/female.htm>.
6. Lwes DA. HIV/sexually transmitted infection epidemiology, management and control in the IUSTI Africa region: Focus on sub-Saharan Africa. *Sex Transm Infect* Dec. 2011;87(2):ii10–ii13.
7. UNAIDS. Report on the global AIDS epidemic. Geneva, Switzerland: UNAIDS; 2010.
8. National AIDS Control Committee (NACC), Cameroon: National HIV/AIDS control strategic plan, 2006-2010. Ministry of Public Health, NACC central technical group, Cameroon; 2006.
9. Nussbaum L. National AIDS housing coalition. Housing for people living with HIV/AIDS, Cameroon; 2010.
10. Fonjong L. Fostering women's participation in development through Non-governmental efforts in Cameroon. *Geographical Journal of the Royal Geographical Society*. 2001;167(3):223-234.
11. Hearst N, Chen S. Condom promotion for AIDS prevention in the Developing World: Is it working? *Studies in Family Planning*. 2004;35(1):39-47.
12. WHO. Global strategy for the prevention and control of sexually transmitted infections: 2006-2015; 2007. Available: [http://whqlibdoc.who.int/publications/2007/97892415634775\\_eng.pdf](http://whqlibdoc.who.int/publications/2007/97892415634775_eng.pdf).
13. Holmes KK, Levine R, Weaver M. Effectiveness of condoms in preventing

- sexually transmitted infection. Bulletin of the World Health Organization. 2004;82:54-461.
14. Vijayakumar G, Mabude Z, Smit J, Bekinska M, Lurie M. A review of female-condom effectiveness: Patterns of use and impact on protected sex acts and STI incidence. *Int J STD AIDS*. 2006;17:652-9.
  15. Adeokun L, Mantell JE, Weiss E, Delano GE. Promoting dual protection in family planning clinics in Ibadan, Nigeria. *Int Family Planning Perspect*. 2002;28:87-95.
  16. Napierala S, Kang MS, Chipato T, Padian N, Van der Straten A. Female condom uptake and acceptability in Zimbabwe. *AIDS Educ Prev*. 2008;20:121-134.
  17. Wadhams N. Uganda to reintroduce female condoms. *Lancet*. 2009;374:190.
  18. Choi KH, Gregorich SE, Anderson K, Grinstead O, Gomez CA. Patterns and predictors of female condom use among ethnically diverse women attending family planning clinics. *Sex Transm Dis*. 2003;30(1):91-98.
  19. Thomsen SC, Ombidi W, Toroitich-Ruto C, Wong EL, Tucker HO, Homan R, Kingola N, Luchters S. Prospective study assessing the effects of introducing the female condom in a sex worker population in Mombasa, Kenya. *Sexually Transm Infect*. 2006;82(5):397-402.
  20. Mantell JE, Dworkin SL, Exner TM, Hoffman S, Smit JA, Susser I. The promises and limitations of female-initiated methods of HIV & STI protection. *SocSci Med*. 2006;63(8):1998-2009.
  21. UNFPA. Protecting the Health of Women and Girls. Available: <http://www.unfpa.org/hiv/women.htm>.
  22. WHO. Global Prevalence and Incidence of Selected Curable Sexually Transmitted Infections; 2001. Available: [http://whqlibdoc.who.int/hq/2001/WHO\\_HI\\_V\\_AIDS\\_2001.02.pdf](http://whqlibdoc.who.int/hq/2001/WHO_HI_V_AIDS_2001.02.pdf). (accessed).
  23. UNAIDS. Report on the global AIDS epidemic. Geneva, Switzerland: UNAIDS; 2012.
  24. Agbiboa D. Female condoms in sub-Saharan Africa: Unanswered calls for normalisation Consultancy Africa Intelligence; 2010. Available: <http://www.consultancyafrica.com/index.php?>
  25. NACC, UAFC, ACMS. Promoting the female condom in Cameroon through field interventions: case of the "Tir group". A best practice of ACMS within the framework of universal access to female condom project; 2011.
  26. Central Bureau of Recensement set studies of Population (BCREP). Book "Report Presentation, Cameroon; 2010.
  27. Kumba Urban Council (KUC). Kumba Urban Council Statistical Year Book, Buea. The National Printing Press; 2000.
  28. Burns N, Grove SK. The practice of nursing research: Conduct, critique and utilization; 5th edition. St Louis: ELSEVIER; 2005.
  29. Brink HI, Van der Walt C, Van Rensburg G. Fundamentals of research methodology for health care professionals; 2nd edition. Cape Town: Juta; 2006.
  30. Levy SL, Lemeshow S. Sampling of populations: Methods and applications. Third edition. New York: John Wiley & Sons; 1999.
  31. Okunlola MA, Morhason-Bello IO, Owonikoko KM, Adekunle AO. Female condom awareness, use and concerns among Nigerian female undergraduates. *Journal of Obstetrics and Gynaecology*. 2006;26(4):353-6.
  32. Sobze SM, Fokam J, Guetiya WR, Russo G, Onohiol JF, Djeunang DB, Nkamedjie PP, Zambou NF, Zefack Y, Galletta A, Arduini M, Franca E, Panà A, Colizzi V. Condom perception and prevention of HIV/AIDS infection in Cameroon: Appraisal of knowledge, attitudes and practices among level one students of the University of Dschang. *Ig Sanita Pubbl*. 2013;69(2):183-94.
  33. Agha S. The Impact of Mass Media Campaign on Personal Risk Perception, Perceived Self-efficacy and Other Behavioural Predictors. *AIDS Care*. 2003;15(6):749-62.
  34. Deniaud F. Current Status of the Female Condom in Africa. *Sante*. 1997;7(6):405-15.
  35. Plautz A, Meekers D. Evaluation of the reach and impact of the 100% Jeune youth social marketing program in Cameroon: Findings from three cross-sectional surveys. *Reproductive Health*. 2007;4:1.
  36. Peters A, Jansen W, Van Driel F. The female condom: The international denial of a strong potential. *Reproductive Health Matters*. 2010;18(35):119-28.
  37. Spizzichino L, Pedone G, Gattari P, Luzi AM, Gallo P, Valli R, Rezza G. The Female Condom: Knowledge, Attitude and

- Willingness to Use. The First Italian study. *Ann Ist Super Sanità*. 2007;43(4):419-24.
38. Mseeni M, Kayombo EJ. Knowledge, attitude and practice toward HIV/AIDS among the Moran population Living in Dar-es-Salaam. *East African Journal of Public Health*. 2009;6(2):119-123.
39. Mkene E, Edmund JK. Awareness, utilization and attitude towards voluntary counselling and HIV testing among school youths in same district. *Global Advanced Research Journal of Medicine and Medical Sciences*. 2013;2(10):2315-5159.
40. Pandya N, Siddiqi UA, Naqvi SAR. Prevalence and predictors of female condom use amongst South American Women. *The Health*. 2011;2(2):41-44.
41. Jackalas C, Kajiso E, Liwena V, Mangope M, Mookodi T, Seitiso P, Matshediso E, Muza C: Factors contributing to the low uptake of female condoms in Chobe district of Botswana; 2010.
42. Torres MI, Tuthill R, Lyon-Callo S, Hernandez CM, Epkind P. Focused female condom education and trial: Comparison of young African American and Puerto Rican women's assessment. *International Quarterly of Community Health Education*. 1999;18(1):49-68.
43. Choi KH, Hoff C, Gregorich SE, Grinstead O, Gomez C, Hussey W. The Efficacy of the Female Condom Skills Training in HIV Risk Reduction among Women: A Randomized Controlled Trial. *Am J Public Health*. 2008;98(10):1841-8.
44. Mbarushimana V, Ntaganira J. Knowledge and attitude to female condom use among undergraduates of Kigali Health Institute. *Rwanda J. Health Sci*. 2013;2(1):16-25.
45. Cecil H, Perry MJ, Seal DW, Pinkerton SD. The Female Condom: What We Have Learned Thus Far. *AIDS and Behaviour*. 1998;2(3):241-56.
46. Warren M, Philpott A. Expanding safer sex options: Introducing the female condom into national programmes. *Reprod Health Matters*. 2003;11(21):130-139.
47. Hoffman S, Smit JA, Adams-Skinner J, Exner T, Mandel J, Stein Z. Female condom promotion needed. *Lancet*. 2008;8:348.
48. Aragu D, Deribew A, Firdawek E, Temam G, Kondale M. Awareness, attitude and willingness to use female condoms among college students in Harar Town, Eastern Ethiopia. ARBA MINCH University Press; 2013.

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