



Prevalence and Factors Associated with Use of the Female Condom among Undergraduates in a University in Enugu, South East Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author LCI designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors HUE and SM managed the literature searches, analyses of the study performed the spectroscopy analysis while authors CAI and TCO carried out the statistical analysis. All authors read and approved the final manuscript.

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ABSTRACT

Background: The female condom remains the only female-initiated means of preventing both pregnancy and sexually transmitted infections, including HIV. Unfortunately uptake in the West and in some developing countries has been low thus precluding the realization of the dual benefits of this device.

Aim: The aim of the study was to determine the prevalence of the use of the female condom and factors associated with its use among female students in a tertiary institution of learning in Enugu, Nigeria.

Methods: This was a questionnaire based non comparative study. Sampling was by multi-stage technique. Data was collected using a semi-structured self administered questionnaire. Data was analyzed using SSPS statistical software version 17.0 for windows [Chicago IL, USA]. Bivariate

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analysis was done to determine the association of socio-demographic variables with awareness and use of female condoms using Pearson Chi-square test. P-value <0.05 was considered significant.

Results: A total of 313 female undergraduates were studied. Their mean age was 23.9 years \pm 4.1 SD. About 76.7% had knowledge of female condoms. Fifty (15.9%) used the female condom since admission to tertiary institution principally to prevent unwanted pregnancy and sexually transmitted infections. Among those that used the female condom the potential dropout rate was 58%, mainly because it was costly and not readily available. The feature of female initiation and control of the device was the principal reason or intention to continue to use the female condom. The socio-demographic characteristics that were significantly associated with the use of the female condom included marital status ($\chi^2=7.79$, $p=0.01$), religion ($\chi^2=5.67$, $p=0.02$), course of study ($\chi^2=14.26$, $p=0.00$) and previous sexual exposure prior to university admission ($\chi^2=3.48$, $p=0.00$).

Conclusion: There was a low use rate for the female condom despite a high level of awareness and this could be due to non-availability and cost. It is recommended that donor agencies, governmental and non-governmental organizations pool their efforts together to make female condoms more available and affordable.

Keywords: Female; condom; awareness; use; undergraduates.

1. INTRODUCTION

The female condom is a female controlled barrier contraceptive device which is unique in being the only female initiated intervention for prevention of sexually transmitted infections [1]. This unique quality is very relevant in sub Saharan Africa where sub-ordinate gender roles ensure that women are often not able to demand protective measures during sex or refuse unsafe sex [2]. Partly as a consequence of this, the tide of HIV infection in Sub Saharan Africa is heavily weighed against young women and in Nigeria women account for 60% of people newly infected with HIV [3].

In Enugu South East Nigeria, the level of sexual activity among undergraduate students in universities is high [4] and abortion laws in Nigeria are restrictive. There is also high prevalence of complicated illegally induced abortions involving sexually active females many times resulting in maternal death [5,6]. In the climate of restrictive abortion laws, efforts to reverse trends of high HIV infection, mortality and morbidity rates due to unsafe abortion among women, should include increasing access and uptake of contraception, liberalization of abortion laws and educating women regarding their reproductive health [7,8]. The potential therefore exists for the female condom to be a significant measure employed by sexually active females in Nigeria to prevent sexually transmitted infections, unwanted pregnancy and to facilitate the exercise of their sexual and reproductive rights.

According to UNAIDS, only 4.9% of married women worldwide use condoms including only 1.3% in sub-Saharan Africa [9]. In South Africa, though knowledge of the female condom among sexually active females over the age of 15 years was relatively high at 77.75%, use was low at 7.16% [10]. Similarly, in Cameroon the percentage of sexually experienced female students who had ever used female condoms during sexual intercourse was very low (8%), despite high levels of knowledge (67.3%) [11].

In Nigeria very few studies exist on the female condom. A study done in South West Nigeria in 2004 among female undergraduates showed that 81.3% were aware but only 11.3% used female condoms [12]. A decade after this study, it is not known if the use of the female condom has increased in the light of the emergence of newer more user-friendly varieties of the device and an expected increased awareness of reproductive issues by women. It is against this background that this study set out to explore the current use of the female condom and to determine the factors associated with the use of the device among female undergraduate students in a University in South East Nigeria.

2. METHODS

This was a questionnaire based cross-sectional non comparative study which took place between 24th November 2014 and December 15th 2014.

2.1 Study Setting

The study was conducted at the University of Nigeria Enugu Campus. The Campus is located

at Ogui New layout in the heart of the capital city of Enugu State with a lot of commercial as well as social activities in and around the campus premises. The housing policy of the University aims at accommodating all female undergraduates. Students are allowed free social interaction both within and outside the university campus and are therefore tremendously influenced by social lifestyles within the city. A total of 2515 female undergraduates were accommodated in the five female hostels.

2.2 Ethical Clearance

Ethical clearance was obtained from the Ethics Committee of the University of Nigeria, Enugu Campus. Informed written consent was obtained from each undergraduate after explaining the objectives of the study.

2.3 Sampling Technique

Sampling was by multi-stage technique. The first stage involved a simple random sample of 4 hostels from the list of all the female hostels on the campus using a table of random numbers. The second stage involved systematic random sampling test using the list of rooms in each hostel as a sampling frame. A room number was chosen randomly using a table of random numbers. Subsequently every third room in increasing room numbers from the random start was selected and the female students in each room were administered with questionnaires after obtaining their consent.

2.4 Sample Size

The minimum sample size was determined based on the main outcome variables-the prevalence of awareness of female condoms. Assuming a confidence level of 95%, alpha error of 5%, population prevalence of awareness of about 81% based on a previous study in Nigeria [12], the sample size n is given by $(Z_{\alpha/2})^2 P(1-P)/d^2$ where Z = z score for 95% confidence level, P =assumed population prevalence and d = α error. With $z=1.96$, $p=0.8$, $d=0.05$, the minimum sample size required for the study is 236.

Data collection was by means of a pre-tested semi-structured self-administered questionnaire. Appropriate corrections were made after analysing the pre-test results before actual data collection. Data collection lasted for 3 weeks

spanning from 24th November 2014 to 15th December 2014.

2.5 Data Analysis

Data analysis was done using SPSS statistical software version 17.0 for windows (Chicago IL, USA). Descriptive univariate statistics were used to express prevalence of socio-demographic variables, awareness and use of the female condom. Bivariate analysis was done to determine the association of socio-demographic variables with awareness and use of female condoms using Pearson Chi-square (and Fischer exact test where appropriate). P-value <0.05 was considered significant.

3. RESULTS

Of the 350 questionnaires distributed, 313 were returned for analysis giving a response rate of 89.4%. The mean age was 23.9 years \pm 4.1 SD.

Table 1 shows the distribution of the socio-demographic characteristics of the respondents. More than half of the respondents 184(58.8%) had had sexual intercourse at the time of the interview. Of these, 16(8.7%) had had sex with more than 20 different sex partners and 13 (7.1%) had up to 5 current sex partners at the time of the interview. Twenty five (13.6%) of the sexually exposed had intercourse within one week preceding the interview. About 107(34.2%) of the respondents had been pregnant since they became undergraduates and 63(58.7%) of those pregnancies were unplanned giving an overall crude unplanned pregnancy rate for the sample as 20%.

Forty six (14.7%) had had sexually transmitted infections. Two hundred and six (65.7%) depended on male condoms for prevention of unwanted pregnancy and sexually transmitted infections 19(62.0%).

3.1 Knowledge of Female Condoms

Of the respondents 240(76.7%) had knowledge of female condoms with most acquiring information about the device from their friends 137(43.8%). One hundred and twenty six (40.4%), 73(23.3%) and 23(7.5%) heard about the female condom from the media, health workers and sex partners respectively.

Table 1. Socio-demographic characteristic of undergraduate female students interviewed on the use of the female condoms in Enugu, South East Nigeria

Socio-demographic characteristics	Frequency	(%)	Response rate for question
Age (years) n=287			
11-20	60	(20.9)	91.7%
21-30	215	(74.9)	
31-40	10	(3.5)	
41-50	2	(0.7)	
Marital status n=311			
Married	36	(11.6)	99.4%
Not married	275	(88.4)	
Religion n=312			
Christianity	290	(93.0)	99.7%
Islam	10	(3.2)	
Traditional religion	6	(1.9)	
Others	6	(1.9)	
Christian Denomination n= 303			
Catholic	127	(41.9)	92.3%
Anglican	66	(21.8)	
Pentecostal	86	(28.4)	
Others	24	(7.9)	
Tribe n=292			
Igbo	246	(84.2)	94.9%
Yoruba	26	(8.9)	
Hausa	4	(1.4)	
Others	16	(5.5)	
Course of study n=308			
Health Science related	173	(56.2)	98.4%
Non-health science related	135	(43.8)	
Level of study n=312			
First year	8	(2.6)	99.7%
Second Year	54	(17.3)	
Third year	69	(22.1)	
Fourth year and above	181	(58.0)	

3.2 Use of Female Condoms

Fifty (15.9%) of the respondents had used female condoms at the time of the interview. Of those that had used female condoms, 6(12%) used it to prevent pregnancy only, 10(20%) used it to prevent sexually transmitted infections only while 19(38%) used it to prevent both unwanted pregnancy and sexually transmitted infections including HIV/AIDS. About 14(28%) used female condoms just to try it. The sex partners of majority of the female condom users, 27(54%) approved of it. Twelve (24%), 4(8.5%) and 11(22%) strongly, moderately and weakly approved of female condom-use respectively. On the other hand 7(14%), 1(2%) and 11(22%) of sex partners of the female condom users strongly, moderately and weakly disapproved of female condoms use respectively.

Decreased sexual satisfaction 15(30%) and pain during sexual intercourse 15(30%) were the two main problems encountered by the female condom users.

Others experienced difficulty in inserting female condoms into the vagina 14(28%), noise during sexual intercourse, 6(12%) and failure leading to pregnancy 1(2%).

3.3 Continuation of Use of Female Condoms

Eighteen (36%) the female condom users wanted to continue using the device. Majority of those that wanted to do so was because it was initiated and controlled by females 21(42%). Other reasons were that it had no side effects 18(36%), it was effective 15(30%) and that it can

be inserted into the vagina some hours before sex 3(6%).

3.4 Discontinuation of Use of Female Condoms

Of the condom users, 29(58%) wanted to discontinue. Among these, 15(30%) wanted to stop using the device because it was not readily available. Other reasons were that it was bulky 9(18%), it made them feel that they were promiscuous 9(18%), it was costly 7(14%) and that it was messy 7(14%).

Table 2 shows the result of bivariate analysis to determine the association of socio-demographic variables with awareness of the female condom. Age group, marital status, religion, tribe, course of study and year of study were not significantly associated with awareness of the female condom ($p>0.05$ for all variables). However, previous sexual exposure was significantly associated

with awareness of female condoms ($\chi^2=11.48$; $P=0.00$).

Table 3 shows the results of bivariate analysis to determine the association of socio-demographic characteristics with the use of female condoms. Age, Christian denomination, tribe and year of study were not significantly associated with the use of the female condom. Conversely, marital status, religion, course of study and previous sexual exposure were significantly associated with the use of the female condom.

4. DISCUSSION

Despite the high level of awareness of the female condom among the respondents in this study, the use rate of the device, 15.9% was rather low especially when compared to report from studies in other countries like Zimbabwe, Cote d'Ivoire and Thailand where the use rate is put between 37% and 98% [13-15].

Table 2. Showing the results of bivariate analysis to determine the association of socio-demographic characteristics of undergraduate female students in Enugu with awareness of the female condom

Characteristics	Awareness of female condom		Chi-square	p-value
	Yes	No		
Age (years)				
11-20	46	12	0.22	0.70
21-20	165	34		
31-40	9	1		
41-50	2	0		
Marital status				
Married	32	20	2.72	0.10
Not married	205	48		
Religion				
Christians	224	46	1.05	0.35
Non-Christians	14	5		
Christian Denomination				
Roman Catholics	98	20	0.01	0.91
Non-Catholics	123	26		
Course of study				
Health Science related	136	22	2.99	0.08
Non-health science related	101	28		
Year of study				
First and second years	42	12	1.15	0.28
Third and fourth years	198	38		
Tribe				
Igbo	190	39	0.06	0.81
Non-Igbo	38	7		
Previous sexual exposure				
Sexually exposed	162	20	11.48	0.00*
Not sexually exposed	78	28		

*significant

Table 3. Showing the results of bivariate analysis to determine the association of socio-demographic characteristics of undergraduate female students in Enugu with use of the female condom

Characteristics	Awareness of female condom		Chi-square	p-value
	Yes	No		
Age (years)				
11-20	5	48	0.98	0.24
21-20	38	153		
31-40	2	8		
41-50	2	0		
Marital status				
Married	12	24	7.79	0.01*
Not married	35	205		
Religion				
Christians	40	217	5.67	0.02*
Non-Christians	7	12		
Christian Denomination				
Catholics	18	95	0.01	0.91
Non-Catholics	21	120		
Course of study				
Health Science related	14	136	14.26	0.00*
Non-health science related	33	91		
Year of study				
First and second years	5	47	2.46	0.12
Third and fourth years	42	183		
Tribe				
Igbo	34	185	2.32	0.13
Non-Igbo	11	33		
Previous sexual exposure				
Sexually exposed	47	131	3.48	0.00*
Not sexually exposed	0	99		

*significant

In these countries however, its use was more among commercial sex workers. On the other hand, the use rate is slightly higher than that reported from a similar study done in southwest Nigeria, 11.3% [12]. The low use rate in the face of a high level of awareness may be related to non-availability, inaccessibility and high cost.

The high level of awareness of the female condom, 76.7% is nevertheless very encouraging for efforts at promoting the use of the device. This is because programmes for encouraging the use of the female condom among this population need now to focus more on problems militating against its use such as unavailability, inaccessibility and high cost. Although the study did not assess the availability and cost of the female condom, it is likely from the reasons given by respondents for not using the device that unavailability and high cost significantly militate against wider use of the device.

The study also shows appropriate perception of the unique advantages of the female condom.

Similar to the report from the study done in South West Nigeria [12], prevention of unwanted pregnancy, 65.7% and sexually transmitted infections including HIV/AIDS 62% were the commonest reasons for use of female condoms. Furthermore, a majority of the respondents, 41.2%, that wanted to continue using female condoms revealed that their reason was because it is initiated and controlled by females. The implications of the correct perception noted in this study are multi-fold. Firstly, if female condoms are properly promoted and made available at an affordable price, it may be particularly useful in empowering women to avoid unprotected sexual intercourse and this could reduce the incidence of unwanted pregnancies and sexually transmitted infections among sexually active females of school age.

Secondly, it can become very useful for these women to take control of their sexual activities thereby facilitating the exercise of their sexual rights.

Appreciating the feature of female control is very pertinent in our society where males tend to take decisions for women regarding their sexual and reproductive practices [16].

Attitude of men towards the female condoms, obtained indirectly from women's reports [17] or directly from men [18] are generally positive.

A majority of the sex partners, 54% of the female condom users approved of it although in different degrees unlike a previous report from Nigeria that showed marginal partner approval [12]. However in a study done in South Africa sex partners even assisted in inserting the condom into the vagina [19]. High partner approval is a good development since it suggests that male dominance may not be an impediment to the practice of use of the female condom by women. Hoffman et al. [20] also observed that men's positive attitudes and willingness to use the method may even enhance its acceptability to women.

As in previous studies, problems militating against the use of the female condom in this population include those preventing its use and those encountered during its use. The main reasons why the respondents in this study failed to use the female condom despite their knowledge and correct perception of the device were its high cost, 14.8% compared to other methods of contraception and the unavailability and inaccessibility of the device, 30%. The problem of unavailability and high cost of the female condom have been documented in previous studies and are not peculiar to our environment as the amount of female condoms available globally has been noted to be less than 0.5% that for male condoms [10,21,22].

The most outstanding problems encountered by female condoms users were decreased sexual satisfaction, pain during intercourse, difficulty with insertion and failure to prevent pregnancy. These have been reported in previous studies [23-26]. In this study, 2.1% of the female condom users got pregnant despite use of female condoms. This is slightly less than that reported from south western Nigeria, 2.8% [12].

However, considering the fact that abortion law in Nigeria is restrictive, any unwanted pregnancy is a potential case for illegal abortion, perhaps in unsafe conditions.

The significant association of marital status, religion and course of study and previous sexual exposure with use of the female condom on bivariate analysis suggest some influence of socio-demographic variables on the use of the device.

However, the direction of this influence was not addressed by this study and further studies are needed to explore the possible influence of socio-demographic characteristics on the use of female condoms in this population.

This study was based on a selected population of females and this precludes the generalization of the results.

5. CONCLUSION

In conclusion, though the level of knowledge was high, 76.7%, the use rate was low, 15.9% in the population studied. The very low use rate of the device suggests that the potentials of the female condom for preventing STIs and unwanted pregnancy and its advantage of female initiation and control have remained largely untapped. It is recommended that donor agencies, governmental and nongovernmental organizations pool their efforts together to make female condoms more available and affordable. Additionally, a drive to create more awareness in the target population will also help.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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