



Knowledge, Attitude and Use of Female Condoms among Female Undergraduate Students in University of Dar-Es-Salaam

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Authors' contributions

This work was carried out in collaboration between both authors. Author RM designed the study and wrote the first draft of the manuscript. Author EJM managed the literature searches. The two authors analyzed the study findings and edited the work. Both authors read and approved the final manuscript.

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ABSTRACT

Background: Women are vulnerable to HIV infections because of their biological make up and present means used for HIV and STIs prevention. At first was male condom of which women had no control as a strategy of HIV and AIDS prevention as well as prevention of unwanted pregnancy. This led to development and use of female condom of which women will have a full control for prevention.

Objective: To determine knowledge, attitude and use of female condom among female undergraduate students at the University of Dar-es- Salaam, Tanzania.

Methods: A descriptive cross sectional study was carried among female undergraduate students in Dar-es- Salaam University in 2009 to explore knowledge, attitude and use of female condom by using structured questionnaire.

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Results: A total of 384 female students aged 21-25 years old were interviewed. The findings showed 96.6% students had heard female condom. Of these 73% (371) heard from mass media and 15.4% from health workers. Out of 371 students who had heard of female condom, 4.31% admitted to have used at least ones, 38.3% were abstaining from sex and 12% did not like it. Of those who have ever used female condom, 26.7% preferred female condom as a means of HIV and STIs prevention. Those who had heard female condom 46% had positive attitude towards use of female condom when compared to male condom as means of HIV and STIs prevention as well as prevention against unwanted pregnancy.

Conclusion: Even though many students were aware of female condom, few have ever used as a method of HIV and STIs intervention and as well as prevention of unwanted pregnancy; and more than a half (54%) of the respondents had negative attitude as a method of HIV prevention which was on their own control. Mass media as a strategy for intervention is a one way communication and needs to be supplemented by other approaches that allow interpersonal communication and interaction that will lead to behavioral change.

Keywords: Tanzania; female condom; knowledge; attitude; STIs; HIV; AIDS.

1. INTRODUCTION

UNAIDS [1] report on epidemics of HIV/AIDS shows that 40 million people worldwide are living with HIV and AIDS (PLWHA) and 50% of these are women. Further, UNAIDS [1] points 60% of women living with HIV and AIDS are from sub-Saharan Africa. In addition, many women in sub-Saharan Africa are infected with sexually transmitted infections (STIs) as well; giving a wide chance of being infected with HIV [2-5]. The problem of STIs seems to be a worldwide problem and an acute one. UNAIDS [1] and WHO [5] reports estimate that 340 million people both men and women of reproductive age (15-49 years of age) worldwide are suffering from gonorrhoea, chlamydia and trichomoniasis. In sub-Saharan Africa, on the other hand, in 2001 a total of 211,291 episodes were reported; and of these 90,058 were genital discharge syndromes, 46,365 genital warts disease, 43,855 pelvic inflammatory diseases and other symptoms 31,013. The most affected age group was of 15-24 years (mostly were young girls) [2,4-6]. This huge number of people living with STIs partly explains the highest prevalence of HIV in sub-Saharan Africa. The highest rate of new cases of HIV infection per 1000 people is found in sub-Saharan Africa when compared to other continents [1,3]. In Tanzania specific, out of the 15,000 people of age 15-49 who tested for HIV, 5.7% were HIV positive; and women were more likely to be infected than men (6.6% versus 4.6% respectively) [4,7].

The governments, non government organizations and HIV and AIDS activists have been involved in interventions of HIV, AIDs and STIs aiming at reducing new HIV infections with more emphasis

to women. Most of the interventions were done through mass media, public meetings accompanied with comedy, drama and poetic drama, provision of protective gears at affordable price, introduction voluntary counselling and testing, and initiating income generating activities to prevent young girls to involve in sexual activities [4,9-13]. However it is being acknowledged that many women have insufficient information about sexuality and reproductive health problem and do not understand the risks associated with their own or their partners' sexual behaviours [1,2,5,6,8,13, 14]. Many of those who recognize their vulnerability are powerless to protect themselves [1,2,5,6,13-15]. Biology, gender roles, sexual norms, inequalities in accessing resources and power in decision-making based in socio-cultural background put women and girls at greater risk of infection than men and boys [1,6,13,14]. The arguments presented suggest that the interventions done left some gaps that might be a result of hit and run kind of interventions to meet the dead line set, a common problem to many intervention studies. In addition, it might be a result of not having proper cultural accepted gargets for HIV and STIs protections especially for women. It becomes difficult for most of women in developing countries like Tanzania to request men to put on condom when having sex. The available male condom against HIV and STIs infections in pharmacy, normal shops, health facilities, bars and guest houses are favouring men; and are within men's control. Thus there is a need to have alternative gargets that are socio-cultural accepted and favour women. These gargets should be within the women self control against HIV and STIs infections. The gargets should go hand in hand

with women empowerment socially and psychologically as well as financially support [15,16].

In 1980s scientists came up with a female condom innovatively designed to make a woman to have a full control of HIV and STIs infections as a response to male condom [15,17]. The female condom (also known as femidom) is a tool of empowering woman for protecting against HIV and STIs as well as unwanted pregnancy [6,14,17]. The garget allows woman to choose a barrier method of protection against both STIs and HIV transmission included unwanted pregnancy [6,14,17]. The female condom is a thin sheath or pouch worn by a woman during sex. It entirely lines the vagina, the cervix and external genitalia and is extremely effective in preventing STIs including HIV and unwanted pregnancy. It has a unique ability of putting greater control over HIV and STIs infections in a woman's hands [6,14,15,18].

The female condom was introduced in Europe in 1992 and more than a decade it has been marketed in Africa [16]. In Tanzania, on the other hand, was introduced in 1998 [19,20]. This female condom is sold under many brand names like reality, femidom, dominique, my femy, protectiv and care [6,14,17]. Despite these considerable benefits of female condom, a number of barriers remain to broader acceptance and use of female condom. Some of the barriers include current cost of a female condom (approximately \$0.70) is at least ten times that of most male condom [5,6,14,21]. In addition, female condom has not been extensively marketed in mass media when compared to male condom [1,8,15]. It is not known why the female condom is not extensively marketed by mass media as male condom. The other question that comes into mind is who is supposed to send the adverts of product to mass media and pay for service? Is it the man? Thus, adequate awareness, availability, and necessary information about female condom is still lacking in most developing countries and communities, and hence severely limiting its potential use of female condom as HIV and STIs and unwanted pregnancy prevention garget [14,17,19]. This partly explains the present burden of HIV/AIDS and STIs together with unwanted pregnancies in sub Saharan Africa which is extremely high [1,4,5,15]. The burden of HIV infection is more pronounced in women as shown in Tanzania, HIV/AIDS prevalence among females is 7.7% compared to 6.4 among men [4,7,8]. The

population at high risk of HIV/AIDS, STIs and unwanted pregnancies in sub Saharan Africa lies between the age group of 15-24 years, mostly being young women and female students that are within this age group. Hence there is a need to explore among the female youths on awareness, knowledge and attitude towards female condom which is within female control, its source of information and utilization of the garget.

1.1 Conceptual Framework

In order to explore the knowledge, attitude and utilization of female condom, this study used Hovland's theory of persuasion (Crano et al. [22]). According to Hovland's theory [22], people change their opinion as a result of receiving new information that is inconsistent with their established beliefs. If the information is convincing, the people receiving it are expected to modify their beliefs. But not all new information produces opinion change. Hovland [22] further argues that there are four general classes of factors that may be present in persuasion settings and these are (1) The characteristics of the sources of the message (2) Variations in the setting in which the communication is presented;(3) Specific form and content of the message (iv) The components of the target's personal structure that include competence needs, motives, experience, habits, etc. Hovland [20] argues that for a change of an opinion to take place there are two main assumptions

- i. The information presented induces the person to question his/her established or existing beliefs
- ii. The information provided an answer to question raised (in our case prevention of HIV/AIDs and STIs among the young girls as well as prevention of unwanted pregnancies).

Despite the introduction of female condom in sub-Sahara Africa almost more than a decade very few studies in Tanzania have been done to assess knowledge, attitude and utilization of female condom. This study focused on female undergraduate students in a higher learning institution in order explores knowledge, attitude and utilization of female condom. The study targets on female undergraduate students because these are one of the risk groups, elites and exposed to a wide range of information from different sources, mothers and possible policy

makers of tomorrow. The following questions were being asked as a way of assessing knowledge, attitude and utilization of female condoms

- i. Are female undergraduate students aware and have knowledge on female condom?
- ii. What are the sources of information with regard to female condom and its utilization?
- iii. Do most undergraduate students use female condom for HIV, STIs and unwanted pregnancies?
- iv. What is the general attitude towards use of female condom?

2. RESEARCH METHODOLOGY

2.1 Study Design

Descriptive cross sectional study was designed for female undergraduate students in University of Dar es Salaam to assess awareness and knowledge, attitude and utilization of female condom.

2.2 Study Area

The study was carried in the University of Dar es salaam, Kinondoni Municipal in Dar es salaam City, Tanzania. The University of Dar-es-salaam was purposely sampled because it is the oldest University in the country and the mother of all Universities in Tanzania. The University of Dar es salaam is situated on the western side of the City of Dar- es -salaam, 13 kilometers from the city centre. It occupies 1,625 acres, with a total population of 17,098 students and of these 37% were females students.

2.3 Study Population

Study population was female undergraduate students in the University of Dar es salaam. The inclusion criteria were undergraduate female students who were present and willing to participate in the study. The exclusion criteria, on the other hand, were undergraduate female students who were not willing to participate in the study. The study was carried from July to August 2009.

2.4 Sample Size

There was no data of population who were aware or having knowledge and used female condom;

and thus an estimation using Yamane [23] formula was done to get the minimum sample size.

$$N = Z^2 P (1 - P)/E^2$$

Where;

N = Sample size

Z = Standard normal deviation of 1.96 corresponding to 95% confidence interval.

P = Is the prevalence of female condom use will be taken as 0.5%

E = Standard error, which is 5%

$$N = 1.96^2 \times 0.5 (1 - 0.5)/0.05^2 = 384$$

Thus the minimum sample size required for this study was 384

2.5 Sampling Technique

A cluster sampling method was used to get minimum sample size of the study. The students were divided into two clusters; one cluster comprising students staying on campus hostels, and another cluster comprising students staying off campus. The sample of the study population was selected systematically from each cluster; whereby the list of students from hostels was obtained from the wardens and a list of off campus students was obtained from the class representatives. Every 5th student from each cluster was chosen for study until the intended number was reached.

2.6 Data Collection

A questionnaire was developed and translated to Kiswahili language for better understanding of the study population. This questionnaire was piloted to female undergraduate students of Muhimbili University as a way of testing consistent reliability and face/content validity on assessing knowledge and attitude of female students on female condom. The results of the pilot study were discussed by researchers, and amendment of the questionnaire was done where it was not clear. The refined tool of data collection was self administered to female undergraduate students without disclosing their names. The students were closely supervised by the researchers while filling-in the questionnaires. The filled in questionnaires were rechecked if were properly filled before leaving the study area.

2.7 Data Management and Analysis

Data from individual questionnaire were coded, entered in the computer and were cleaned for checking any possible errors before analyzing. The cleaned data were analyzed using Epi Info version 6 of 2002 computer software for calculating frequency, percentage and X test of the study sample. The knowledge was determined by arbitrarily classified scores regarding the number of correct responses on questions relating to general knowledge on condom from the questionnaire. A score of 0 was assigned for a wrong response and a score of 1 was assigned for a correct response. Respondents who scored less than two were classified as low knowledge, 2-3 fair; and above 4, as high knowledge on female condom. Attitude, on the other hand, preferences of female condom to other protective gadgets, utilization of female condom and female condom as one of woman empowerment tools for woman variables were chosen to measure attitude towards female condom. Likert scale developed by Likert [24] was used to analyze these variables. The analyzed data were reviewed several times and then were summarized and results are presented below.

3. RESULTS AND DISCUSSION

3.1 Results

3.1.1 The socioeconomic and demographic characteristic of the respondents

A total of 384 respondents coming from different ethnic groups of Tanzania and with different cultural background in the University of Dar-es-Salaam were sampled for the study. The respondents were from first to fourth year in all courses of undergraduates. The age of respondents ranged from 19 years to 40 years. Most of respondents (92%) were single, few (5.5%) married and very few (1.8%) cohabiting. Further the findings showed that 87.2% and 12.8% were Christians and Muslim respectively.

3.1.2 Awareness and knowledge on female condom

Exploring the awareness and knowledge of female condom, the findings showed that 371 (96.6%) of the participants had had heard about female condoms. During data collection, it was observed that majority of the students had never seen the female condom, and had a hard time

trying to figure out how it looked like, and how it was used. One of the researchers went to the nearby center, Mwenge, and the largest mall in town pharmacies to get few samples for those who wanted to see them. Surprisingly, there was no female condom found in those pharmacies. One of the pharmacists said female condom was not sold because people did not buy, or even ask for it. A friend of researchers visiting Tanzania from USA gave researchers few female condoms for demonstration. The researchers showed to the students who had not seen the female condom at least see how it looked like.

On the knowledge, on the other hand, three variables were used to measure the participants' knowledge on female condom. These were description of female condom; description of how it could be used effectively, the role of female condom on prevention HIV and STIs infection as well as on unwanted pregnancy. All the variables had a total score of 5 points. Anyone who scored less than 2 was assessed to have low knowledge, 2-4 fair knowledge and 4-5 high knowledge on female condom. The analysis of the findings showed more than half of the respondents (58.86%) had low and few (18.75%) had high knowledge on female condom (see Table 1).

3.1.3 Source of information on female condoms

The study wanted to establish the source of information on female condom from the respondents. Since these University students were likely to have been exposed to various sources of information; multiple responses were allowed. The analysis of the findings showed most of respondents heard the information from mass media (see Table 2) and very few to health workers (7.46%) and from male friends (2.23%).

3.1.4 Utilization of female condom as garget to prevent HIV, STIs and unwanted pregnancies

Researchers were interested to learn from the respondents who had heard and also had knowledge on female condom if had ever used it in their life time during sex. It was expected a good number of respondents had used female condom at least those who were married and cohabiting. The analysis of the findings showed out of 371 only 4.3% had ever used the female condom as prevention against HIV, STIs and unwanted pregnancy.

3.1.5 Reasons for not using female condoms among those who have heard about the female condom

The researchers wanted to know the underlying factors that hindered the respondents from using female condom for HIV, STIs prevention and unwanted pregnancy. The analysis of the findings showed the underlying reasons for low use of female condom were; the female condom was difficult to use (30.6%), were abstaining (38.8%), it was against their faith (17.25) and did not know where to get female condom (2.4%) (see Table 3). Researchers also wanted to know from the participants given two types of male condom and female condom which one would they prefer. The findings showed only 16 of the total respondents responded to that question. It was learnt that 4 (25%) out of 16 respondents preferred female condom and the rest male condom.

3.1.6 Attitude towards female condoms

The researchers wanted to evaluate attitude towards female condom among those participants who were aware and some had as well knowledge of female condom as a gadget for prevention against HIV and STIs infection and as well as prevention of unwanted pregnancy by

use of Likert scale. The analysis of the findings revealed that 46% had positive attitudes towards use of female condom. The researchers also wanted to assess if there was an association between knowledge and attitude on female condom. The fair and high knowledge was grouped together and be regarded as high knowledge on female condom. The analysis of the findings showed majority of the respondents who had high knowledge of female condom had a positive attitude towards female condom. On the other hand, majority of those who had low knowledge female condom had negative attitude towards female condom (see Table 4).

3.2 Discussion

The collected findings on awareness, knowledge, utilization and attitude towards female condom has been analyzed and presented. The present study findings showed 96.6% had heard about female condom, but only 18.75% respondents were classified to have high and 58.8% had low knowledge of female condom. High percentage of awareness of female condom among University students is also shown by Okunola et al. [25] study in Ibadan University who found 80% had knowledge of female condom. The major source of information on awareness and knowledge of female condom in this study

Table 1. Students’ knowledge on female condoms

Sn	Scores	Number of respondents	Percentage (%)	Classification on knowledge on female condom
1	4-5	72	18.75	High knowledge
2	2-3	86	22.39	Fair knowledge
3	Less than 2	226	58.86	Low knowledge

Table 2. Sources of information on female condoms

Source of information	Number of responses N=764	Percentage
Radio	271	35.47%
Television	173	22.64%
Magazines/news papers	157	20.55%
Female friends	89	11.65%
Health worker	57	7.46%
Male friends	17	2.23%

Table 3. Reasons for not using female condoms in percentage

Reasons for not using female condom	Number of respondents N= 371	Percentage
Hard to use	111	29.92%
Abstaining	140	37.74%
Against my faith	64	17.25%
Don't know where to get them	9	2.42%
Don't like them	47	12.67%

were from mass media (radio, magazine and newspaper and television) (73%) (see Table 2). Health workers who were expected to take a leading role on education and dissemination of female condom were among the least of sources of information (7.46) (see Table 2). Mass media as one of the major sources of information is also shown by Akunola et al. [25] study done in Ibadan University in Nigeria on female undergraduate students where they found 39.9% heard female condom from the radio advertisement and 34.4% from health worker. Observations from the present study were also underscored by Spizzichino et al. [26] in their study done in Italy in 2001 where they found 71.4% women had heard the device from mass media (magazines or newspapers and television) and few from friends (22.2%). Spizzichino et al. [26] at also noted that female condom was regarded as a method of preventing unwanted pregnancies (87.0%) and protection against STIs infection. The variation on sources of information on female condom from health workers in the present study and those reviewed might be even health workers in Tanzania have low knowledge on female condom or Tanzania students rare visit health centers where they could get information on female condom and other related health issues. Mass media as source of information on health issues has also been reported by TDHs [8], Mbonile et al. [27], Mseeni et al. [28], Mkene et al. [29], Agha et al. [30] in Tanzania.

Table 4. Association between knowledge and attitude on female condom

Knowledge	Attitude		Total
	Positive	Negative	
High	107(67.7%)	51(32.3%)	158
Poor	70 (31%)	156(69%)	226
Total	177	207	384

- Odds ratio 4.71
- Chi square 49.55
- P value 0.00000

The present study and those reviewed suggest that mass media is an important tool for advocacy and awareness creation. However its effect on behavioral change is minimum because it is one way directional and as strategy do not allow interaction through discussion – a key component in Hovland theory [22] for behavioral change. People have to debate pro and cons, anticipated problems like inserting female condom and the like. Though discussion and interaction clients helps to iron out areas that are

not clear like inserting the female condom, benefits and possible side effects and how to deal with them; and in this way changing one's perceived behavior as argued by Hovland [22]. For instilling an effective behavioral change for the targeted population mass media strategy is supposed to be followed by interpersonal communications that allow interaction.

On utilization female condom, the present findings have shown only 4.3% respondents had ever used the female condom at least ones. Low use of female condom is also noted by Foundation for Study and Research on Women (FEIM) [17] carried in Argentina where they found 8.8% had ever used the device. Again Akunola et al. [25] study in Ibadan University, Nigeria found 11.3% respondents had ever used the female condom and (40%) of these used female condom to prevent both unwanted pregnancy and sexually transmitted infections including HIV and AIDS. According to Hovland [22], low use of female condom shown this in study and those reviewed, suggest two things; the information presented did not induce respondents to use the condom - that is the device was not well known to the respondents especially inserting in the vagina for the potentially respondents and limited availability as seen in Tanzania. This argument is also underscored by Agbiboa [15] who argues female condom is not known to many women in sub Sahara Africa. Secondly the information provided did not answer questions raised by respondents on the use of the garget for prevention of HIV/AIDS and STIs infections as compared to previous methods; like the sexual partners may not like it because of the noises when on sexual activities and also culturally unaccepted. As a cultural norm, in many developing nations the male gender determines everything about how and what to use during imminent sexual encounter. To avoid man supremacy women has to be empowered politically, socially and psychologically as well as financially so that they can have a say and role in decision making on how and what to use as protective gargets when having sex and other activities.

Among the studies reviewed, in areas where information on female condom induced respondents and provided answers to questions raised on prevention of HIV, STIs infections and unwanted pregnancy as shown by Hovland [22], there was relative fair acceptance of female condoms and were using it. For example Kagera Region study, Tanzania, female condom was

accepted by 39% and was used by 30% of potentially users [31]. Vibeke et al. [31] study noted that women who had experienced an unsafe abortion, had attended secondary school or earned an income were more likely to accept the female condom. The women were generally satisfied with the method, and the majority intended to use it again [31]. Also a study done in Uganda has shown positive attitude towards the use of female condom [20]. The results showed almost all women liked the female condom fairly well [20]. Further more than 90% of the prostitutes and rural women reported that their steady partners also liked it [20].

Besides the benefits of female condom, there are some barriers as well. In this study for example, the device was difficult to use (30.6%) and some did not know where to get female condom (12.4%). Choi et al. [32] in study done in USA 1996-1997 found barriers for not using female condom included; mechanical, psychosexual, interpersonal, and situational. In Uganda study even though many women had positive attitude towards use of female condom it was learnt that main obstacle to use female condom was the cost [20]. Other problems included inner ring being uncomfortable during intercourse, outer ring pushed into vagina and too much lubrication for a culture that prefers a relatively dry vagina [20]. Similar problems have been reported by Agbiboa [15].

Promoting use of female condom with the aim of ensuring females controlled safe sex method; the listed problems need to be ironed out [15]. Mass media as a tool of awareness creation should be followed by interpersonal communication and interaction between potential users and health workers [22,31]. Further availability and accessibility of female condom, marketing adverts should be on place for anyone who wants to use it. In addition training how to insert the female condom, the benefit of female condom to women like highly efficacious in preventing pregnancy should be well elaborated. Above all, HIV transmission and other viral infections such as herpes and hepatitis should be well detailed in a simple language for everybody to understand. The impact of these educational activities is likely to increase rate of acceptance in utilization of female condoms [15,32]. It is being noted out of 40 million living with HIV and AIDS, 50% are women and 60% are living in sub-Saharan Africa [1]. The cost of female condom should be greatly subsidized to almost zero cost, and should be available in health

facilities and pharmacies as is male condom. The female condom should not be marginalized but should be promoted and popularized through adverts on its benefits for women and the general population as is male condom [32]. Education on knowing the device and how to insert it correctly without causing discomfort would make more women to have positive attitude towards female condom and using it as a protective gargets that is in women's control as opposed to male condom of which women had no control. This can be done by initiating peer group training on how to insert the female condoms, gradually problem of inserting condom would fade out and stigma related to use female condom would be reduced. Men are key players in this aspect; and thus should also be involved on learning the important aspects of female condom and how the female condom is inserted in the vagina. The goal is to have safe sex with health population; and this in turn helping to meet the 3rd, 4th 5th and 6th Millennium development goals.

4. CONCLUSION

To sum up from the present study and those reviewed suggest there is fair attitude towards female condom considering the fact that it is not well marketed by mass media as male condoms and somehow being marginalized. As shown in this study 46% had positive attitude towards female condoms, and thought female condom could increase a woman's ability to safe sex. Similar trend was shown in other studies reviewed. More advocacies are needed using appropriate channels, appropriate advocacy skills and availability of device at the right time when one wants to use it as is in male condom. The present study has shown there was an association between knowledge and attitude. Majority of those with high knowledge had a positive attitude towards female condom and vice versa. Thus the study recommends the following:

- More efforts on awareness creation and knowledge provision by using appropriated strategies that are likely to bring behavioral change on the use of female condom among potential women.
- Female condom should be accessible to everyone who wants to use it at affordable price or zero price
- More studies should be done on female condom in Tanzania and in sub-Saharan Africa to identify other possible bottlenecks on using female condom.

CONSENT AND ETHICAL APPROVAL

Permission to conduct the study was obtained from the School of Medicine of Muhimbili University and from the University of Dar es salaam Authority. To the respondents on the other hand, the purpose and aim of the study were explained to all potential respondents. Only those who were willing to participate in the study were subject to be sampled for the study. Due to the sensitive nature of the research information, no names of respondents were required to enhance compliance.

COMPETING INTEREST

Authors have declared that no competing interests exist.

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