

**KNOWLEDGE, PERCEPTIONS AND ATTITUDES TOWARDS THE UTILIZATION OF FEMALE CONDOMS BY FEMALE SEX WORKERS IN CALABAR MUNICIPALITY, CROSS RIVER STATE, NIGERIA****\*Bassey, Philip Etabee and Nnabuike Onyishi**

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**Abstract**

**Background:** Consistent and appropriate use of female condom is the most effective way of preventing HIV/AIDS transmission and unplanned pregnancies. Studies suggest that women are more likely to get infected with Sexually Transmitted Diseases (STDs) than men and they bear the brunt of the consequences associated with unplanned pregnancies and STDs, however there are existing gaps in the knowledge and use of female condoms by female sex workers in Nigeria, hence the need to explore this intervention. **Method:** A descriptive survey design was employed using a pretested and validated semi-structured questionnaire to assess the knowledge and use of female condoms by 205 purposively selected female sex workers. Data was analyzed using SPSS and results were presented as frequencies and percentages. **Results:** Majority, 125 (60.9%) of the respondents were single, and 57 (27.8%) of them were between 21-29 years. 145 (70.8%) of them attended secondary school, and 115 (56.1%) of them had heard of the female condom. Of these 115 subjects, 57 (49.6%) of them stated that the female condom was a barrier contraceptive method, however, only 11 (9.5%) of them were of the opinion that the female condom can prevent the transmission of sexually transmitted infections. **Conclusion:** The introduction of the female condom, the use of which is largely controlled by the female was to empower women to have dual protection from sexually transmitted infections and unintended pregnancies. Its utilization however is dependent on knowledge. Therefore, considering the fact that sex workers are critical in the global fight to eliminate HIV/AIDS, efforts at promoting the acceptability and accessibility of the female condom among female sex workers through targeted education and social marketing interventions should be up-scaled.

**Keywords:** Female condoms, Female sex workers, HIV elimination, Condom access

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**INTRODUCTION**

Worldwide, HIV prevalence has been found to be higher among sex workers than the general population. (WHO, 2011); and studies (Kharsany and Karim, 2016; Nsanzimana *et al.*, 2020) have shown that the risk of being HIV positive was comparatively greater for women who sell sex either as brothel-based female sex workers (FSWs), street-based FSW or other forms of sex work. Moreover, highly mobile female sex workers were more likely to report one or more recent experiences of HIV risk factors such as sexual or physical violence, money-induced unprotected sex, anal sex with clients or a reported symptom of at least one sexually transmitted infection (Kumar, 2014). The role of commercial sex workers in the global fight to eliminate HIV/AIDS cannot therefore be overemphasized. The female condom has emerged both as an acceptable complementary and alternative barrier method to the male condom (Hoffman *et al.*, 2004), and its appropriate and consistent use can be an effective way of preventing HIV/AIDS transmission and unwanted pregnancies among women (Trussell, 1998). The female condom can also be considered to be a cost-effective device that is convenient and has the potential to protect both the lives and rights of women (Marseille *et al.*, 2001). The female condoms provide the same benefits as male condoms, with the added advantage that it allows women to take more active and independent responsibility for preventing STIs and unintended pregnancy. Women who use the female condom therefore do not have to rely on their male partners to provide or wear their own condoms; moreover, male genital erection is not required for its use (Koster and Bruinderink, 2012).

Studies suggest that women are more likely to get infected with sexually transmitted diseases (STDs) than men (UNAIDS, 2017, McClelland *et al.*, 2018) and they equally have to deal with the consequences of unplanned pregnancies, and STDs. The use of the female condom can therefore be seen as a means of protecting women against sexually transmitted infections (STIs) and unintended pregnancies (UNAIDS, 2017). Globally, women are disproportionately affected by the HIV epidemic, with more than half of the 40 million living with HIV being women, particularly adolescent and young women. This is more so because of vulnerabilities created by the unequal socio-cultural, and economic status of women (UNAIDS, 2019). The situation is even more aggravated in sub-Saharan Africa (SSA) where women account for approximately 60% of the HIV and AIDs population in the region. Moreover, in the SSA region, adolescent girls and young women also bear the brunt of this disproportionately high rates of HIV, with women aged 15–24 years bearing 26% of the burden of new HIV infections among adults in the region (UNAIDS, 2017). This is worrisome and emphasizes the urgent need for women to effectively protect themselves against sexually transmitted infections (STIs) and HIV. Key factors responsible for the high susceptibility and vulnerability of women to the risk of STDs compared to males are biological, socio-cultural and economic. Biologically, the vagina of the female has a large mucosal surface area (McClelland *et al.*, 2018) which increases the predisposition to infection during heterosexual intercourse with an infected partner. Social and cultural barriers that debase women, to a large extent drive some women into sex work out of frustration and the feeling of rejection. (McMahon *et al.*, 2011, Pellowski *et al.*, 2013). Financial deprivation is also a major driving force that pushes some women to sell sex (LehMiller, 2018); while those who lack the power for sound decision or lack condom

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negotiation skills to engage in high risk sexual behaviors for more money for their economic to survival. (Zhang *et al.*, 2014, Asadi-Ali *et al.*, 2018). The single-use, male latex condom came into use in 1922 (Cichocki, 2020). The use of male condoms involves men putting on the condom themselves or allowing their sexual partners to put it on them. Male condoms are to a large extent male determined and the female has no absolute control over its use, while the female condom on the other hand is “female-centric”, being to a large extent directly under the control of the female. The female condom provides a good alternative to male condoms, and puts the initiative for protection in the hands of the women. The female in this case has absolute control in deciding how best to protect herself from STIs or even unintended pregnancies. The female sex workers can square up to their male clients on safe sex negotiations, because they are using a device that is solely under their control. Despite the critical need for women to protect themselves from HIV and other STIs, barriers in term of the supply and the demand of the female condoms stunt their inherent benefits (Trussell, 2011). Female condoms had been introduced in 40 HIV-epidemic countries since the early 21<sup>st</sup> Century; however, their supply and utilization has remained sadly insufficient (UNFPA, 2006). In 2008, only 18.2 million female condoms were supplied by donor countries compared to 2.4 billion male condoms in Sub-Sahara Africa, female condoms have only been available at a rate of one for every 300 women per year (ESHRE, 2014). Although, research and policy efforts have been made to project the female condom globally, only a handful of African countries such as South Africa (Guerra, 2014); Zimbabwe (Gwarisa, 2017) and Kenya (Davies, 2016), have well established and well documented female condom programs. In Nigeria, the Federal Ministry of Health (FMOH), the National Agency for Control of Aids (NACA), and the Society for Family Health (SFH); have articulated various female condom programs, to create awareness of the female condom and promote its use. In particular, the Society for family Health in Nigeria initiated a female condoms programmes that was primarily targeted at making affordable female condoms available to women aged 15-49 years (SFH, 2008).

### Statement of the Problem

Condoms are a critical component in a comprehensive and sustainable approach to the prevention of HIV and other sexually transmitted infections (STIs) and have been found to be effective for preventing unintended pregnancies. Although the female condom has been in existence since the 1980's the level of its awareness and usage globally is still low, particularly in low and middle income countries (LMICs). Worldwide, more than 1 million STIs are acquired every day (Newman *et al.*, 2012), with sex workers being more at risk of acquiring HIV and other STIs. Moreover, considering the fact that sex workers are key to the global HIV elimination agenda, every initiative that guarantees access to female condoms and its utilization especially by female sex workers should be vigorously pursued.

### Study objectives were

1. To determine the knowledge of female condoms by female sex workers' in Calabar Municipality.
2. To determine the sources of information about the female condom
3. To assess their knowledge about the functions of the female condom

4. To determine the attitude of female sex workers toward female condom use in Calabar Municipality.

Based on the study objectives, the following research questions were formulated:

### Research Question

1. What is the knowledge level of female sex workers in Calabar municipality about female condoms?
2. What are the available sources of information about female condoms for female sex workers?
3. What are the perceptions of female sex workers in Calabar municipality about female condoms?
4. What are the attitudes of female sex workers in Calabar Municipality toward the use of female condoms?

## METHODOLOGY

### Study setting and participants

The study area was Calabar Municipal Local Government Area of Cross River State, located in the South-South geopolitical zone of Nigeria. The study involved brothel-based female commercial sex workers in Calabar municipality.

### Study design /scope of the design

This study utilized a descriptive survey design to obtain information about the respondents' knowledge about the female condom, their perception of its utility functions, and their attitude towards its use.

### Sample size determination

The sample size was calculated using the Lutz (1982) formula as follows:

$$n = \frac{Z^2 pq}{d^2}$$

Where

n = required sample size

Z = confidence interval of 90% (Standard value of Z = 1.645)

P = Knowledge of female condoms, 29% = 0.29 (NPC, 2013)

q = Proportion of lack of knowledge (1-p = 0.71)

d = Precision required at 5% (standard value of d = 0.05)

Substituting figures into the formula

$$N = \frac{(1.645)^2 \times 0.29 \times 0.71}{(0.05)^2} = \frac{2.7060 \times 0.22 \times 0.78}{0.003}$$

$$= \frac{0.5572}{0.003}$$

$$= 185.7 \text{ approx. } 186$$

The estimated sample size of the commercial sex workers was 186; however, to account for non-response, 10% of the calculated sample was added, which increased the required sample for this study to 205 subject.

## Sampling Technique

Purposive sampling technique was used to select brothels/lodges from the ten (10) political wards (Districts) in Calabar municipality. 205 female sex workers were then purposively selected from the brothels.

## Instrument and data collection procedure

A researcher-administered pretested and validated semi structured questionnaire was used to obtain information on the knowledge and attitudes of female sex workers regarding the female condom.

## Method of data analysis

Data collected from the study was analyzed using the Statistical Package for Social Sciences (SPSS) and the result was presented using descriptive statistics in tables and figures.

## Ethical consideration

The ethical clearance for the study was given by the ethical committee of the Public Health Department of the University of Calabar. Verbal consent was also obtained from the respondents who were told that their permission into the selected lodges. Before the questionnaire's administration, the participants were informed that their participation in the study was voluntary and that their confidentiality and anonymity would be assured.

## RESULTS

### Social-Demographic data of the respondents

As shown in Table 1, the analysis of the 205 questionnaires showed that 52(25.4%) of the respondents were 40-49 years, 28(13.7%) were 30-39 years, 57(27.8%) were 21-29 years, 50 (24.4%) were 16-20 years while 18(8.8%) were 50-59 years.

**Table 1. Socio-demographic data of the respondents (n=205)**

Variable	Group	Frequency	Percentage
Age category	16-20	50	24.4
	21-29	57	27.8
	30-39	28	13.7
	40-49	52	25.4
	50-59	18	8.8
	Total	205	100
Marital status	Single	125	60.9
	Married	1	0.5
	Widowed	22	10.7
	Divorced	24	11.7
	Separated	20	9.7
	Cohabiting	13	6.3
Total	205	100	
Educational qualification	Primary	45	21.8
	Secondary	145	70.8
	Tertiary	15	7.4
	Total	205	100
Religion	Christianity	193	94.1
	Islam	11	5.4
	Others	1	0.5
	Total	205	100

The mean age of the respondents was 32.2 years, ranging from 16 and 59 years. Majority 126 (60.9%) of the female sex workers were single, 24(11.7%) were divorced, 22 (10.7%) were widowed, 20(9.7%) were separated, 13(6.3%) were cohabiting and only 1(0.5%) was married. Most of the respondents 145 (60.8%) had secondary school as their highest educational qualification, followed by primary education 45 (21.8%); 15 (7.4%) of the FSWs had attained a tertiary education.

### Knowledge level of female condom by the respondents

Out of the 205 respondents who participated in the study, only 115 (56.1%) of them have heard of female condom and 90(43.9%) of the respondents have not heard of it. fifteen (13.0%) of the subjects got their knowledge about female condom from the mass media (TV/radio), 20(17.4%) from nurses, 41(35.6%) from NGO while 22 (19.1%), and 17(14.8%) of the FSWs got their information from their sexual partners and friends respectively. See Table 2.

**Table 2. Knowledge about the female condom**

Variable	Group	Frequency	Percentage
Have you heard about the female condom (n=205)	Yes	115	56.1
	No	90	43.9
	Total	205	100
Source of information about the female condom (N=115)	Sexual partner	22	19.1
	Friend	17	14.3
	Nurse	20	17.4
	Local NGO	41	35.6
	TV/Radio	15	13.1
	Total	115	100

### Perceptions of the female sex workers about the female condom

As shown in Table 3, majority, 110 (95.6%) of the 115 FSWs had some knowledge about the female condom, and indicated that the female condom, can prevent unplanned pregnancy; 44(38.3%) of them stated that the female condom is a protective device used during vaginal or oral sex; 9 (7.8%) of them said that the condom can provide protection against STIs and HIV/AIDs; while 3 (2.6%) of the FSWs were of the opinion that the female condom is an alternative to the male condom. Moreover, as shown in Figure 1. Majority, 58(53.8%) of the respondents stated that the female condoms were bigger in size than male condoms, 48 (44.4%) opined that the female condom is more likely to slip out during sexual intercourse while 2 (1.8%) indicated that the female condom is more likely to break during sexual intercourse.

**Table 3. Perceptions about the female condom (N=115)**

Variable	Group	Frequency
What is the female condom?	Contraceptive barrier	57
	An alternative to male condom	3
	A device used during vaginal or oral sex.	44
	A protective sheath against STIs & HIV/AIDS	11
	Total	115
Do you think the female condom can prevent pregnancy?	Agree	110
	Disagree	5
	Total	115
	Percentage	95.6

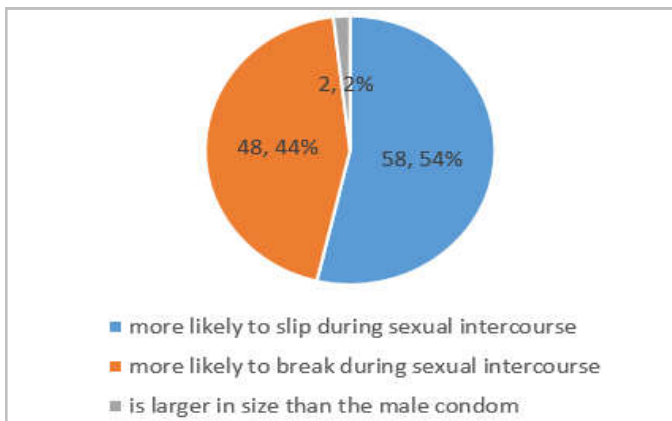


Fig. 1. Perception of the FSWs towards the use of female condoms

**Attitudes of the respondents toward the use of female condoms**

The result revealed that 108 (52.7%) of the 205 FSWs have used the female condom at least once with their clients. Of the 108 FSWs who have used the female condom, 101 (93.5%) of them said that the female condoms were “more difficult” to use than male condoms during hetero-sexual intercourse with their clients as shown in Figure 2. When asked if they thought that the female condom inhibits the attainment of female sexual climax, majority 61(56.5%) of the FSWs; 38(35.2%) disagreed while only 9 (8.3%) agreed. See Table 4.

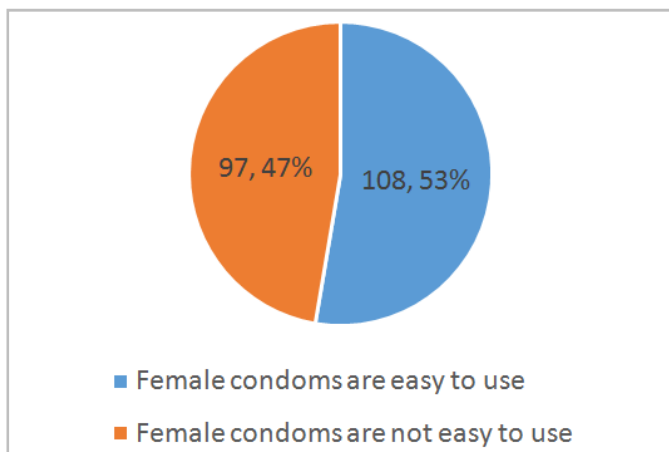


Fig. 2. Attitude concerning the ease of use of the female condoms

**Table 4. Attitude of female sex workers towards the utilization of female condoms (n=108)**

Variable	Group	Frequency	Percentage
Do you think the female condoms inhibits the attainment of female sexual climax ?	Disagree	38	35.2
	Neither disagree nor agree	61	56.5
	Agree	9	8.3
	Total	108	100
	Do you think the female condoms gives better protection against HIV/AIDS ?	Disagree	4
Neither disagree nor agree		2	1.9
Agree		102	94.4
Total		108	100
Do you think the female condom better protects against unwanted pregnancy than the male condom?		Yes	67
	No	41	38
	Total	108	100

**DISCUSSION**

Sex workers are considered a core group for the transmission of HIV and other sexually transmitted diseases (STDs), because of their patronage by large numbers of paying clients, coupled with their regular sexual partners, the rate of HIV and STI infections among them is very high (FHI, 2001). This underscores why sex workers are considered to be priority groups to be targeted for special intervention in most national HIV/AIDS control / elimination programmes (Overs (2002); WHO, 2009). Among one of the key interventions for the prevention of the spread of HIV/AIDS was the introduction of the female condom. We conducted this study to determine the knowledge of female sex workers about the female condom; we also assessed their perceptions about the device and their attitude towards its use.

**Knowledge of the female sex workers about the female condom**

The findings from our study showed that only about 108 (54%) of the respondents were knowledgeable about the existence of the female condom. This is similar to the findings in a study by Ananga et al. (2017) on the acceptance and utilization of the female condom among women of reproductive age in Ghana, who reported that 53.9% of their subjects reported to have ever seen a pack of the female condoms. In a related KAP study among university students in Douala, Cameroon, only 29.3% of the students were able to describe the female condom (Ekono, 2019). The result of our study has showed that 46% of the FSWs in our study had no knowledge about the female condom. This is an indication that there is a gap in knowledge about the female condom among FSWs who are potentially at risk of STIs, that needs to be bridged and that more efforts were needed by the health authorities at both the National and State levels to create awareness about availability, affordability and utility of the female as a viable and effective alternative to the male-directed condom to protect against STIs including HIV and also prevent unplanned pregnancy.

**Sources of information about the female condom**

Evidences abound to show that the use of the radio and television in the promotion of condoms and other public health interventions across the globe has been largely successful, not only in developed countries but also in developing countries (Kreps, 1988; Agha and Rossem, 2002; Biagi, 2003; Sharma and Gupta, 2016; Pinchoff et al. 2016). From the responses obtained about the sources of information of the female condom in our study, as shown in Table 2, majority 35.5% the FSWs obtained their information about the female condom from NGOs; this was followed by health workers and friends (17.4%), while only 13%, of our respondents obtained their information about the female condom from the formal media (TV/Radio). This shows that the public media has not been adequately deployed in promoting the knowledge about the female condom. This veritable medium for information dissemination in Nigeria if adequately explored would expand the scope for the dissemination of information about the female condom.

**Perceptions of the female sex workers about the female condom**

The finding of our study showed that 53% of our respondents conceded that the female condom was easy to use; this is

however in contrast to the findings of a study in Kenya by Mativo, (2010), in which 92.4 % of the study subjects expressed misgivings about the device by stating that the female condom was difficult to use. A similar negative sentiment on the perception of the usability of the female was also expressed by 93% of the respondents in a study that was conducted by Muheua, (2007) among Polytechnic students in Namibia. In our study, 2.2% of the FSWs commented that the female condom was bigger in size compared to the male condom. This perception about the big size of the female was equally expressed by 64.3% of the respondents in the same study conducted by Muheua (2007). On the durability of the female condom, 48.4% of our respondents were of the opinion that the female condom was more likely to break during sexual intercourse, while 58.5% had the perception that the female condom can slip freely off during sexual intercourse. In our study only 9.5% of our respondents were convinced that the female condom can protect against HIV infection, this in contrast to the finding by Mativo (2010) in which 60.2% of the study subjects stated that the proper use of the FC can prevent STI's and HIV infection.

#### **Attitude of the female sex workers towards the use of the female condom**

Majority (56.5%) of our respondents were undecided about whether the female condom affects the attainment of female sexual climax. 35.2% of our respondents disagreed that the female condoms inhibit female orgasm while 8.3% agreed that it does. The result of a study by Mbarushimana and Ntaganira (2013) conducted in Kigali, Rwanda to assess the attitude of students towards the use of the female condom also showed that majority (73.5%) of their respondents were neutral about the use of the FC interfering with sexual intercourse; 18.1% of the subjects agreed, while 8.5% disagreed. Moreover, 20.1% of the respondents agreed that FC use would change sexual satisfaction, while 13.1% disagreed.

#### **Limitation of the study**

There is paucity of literature on the perceptions, attitudes, acceptability and use of female condoms by female sex workers to enable cross comparisons of related study findings in the different social or geographic contexts. This limitation may have to some extent affected the robustness of the discussions.

#### **Conclusion and recommendations**

Sex workers are considered a core group for the transmission of HIV and other sexually transmitted diseases (STDs), because of their patronage by large numbers of paying clients and their involvement with their regular sexual partners. These multiple sexual experiences expose the FSWs to high HIV and STI infection rates. Findings from HIV intervention programs that targeted sex workers with the aim of reducing the transmission of HIV infection within this core groups in some Asian countries like, India, Thailand, Cambodia and Laos have shown that such focused or targeted programs are feasible and effective in ensuring successful risk reduction and decreased levels of infection. Our study, aimed at exploring the knowledge, perceptions and attitude FSWs towards the utilization of the female condom has brought to the fore the need for Nigeria as a country to adopt a similar targeted female condom social marketing strategy as the Asian countries that

have recorded remarkable success stories in their fight against HIV/AIDS by consciously getting the buy-in and acceptance of the female condom by FSWs as a genuine and practicable intervention for the prevention of STIs including HIV/AIDS and the promotion their health and wellbeing. In addition, by getting the FSWs to accept the female condom as a plausible female-directed contraceptive method, the health authorities in Asia supported the FSWs to adopt the use of a non-male directed, non-invasive and non-hormonal device to prevent unplanned pregnancies and the resultant abortions they would have had to carry out to terminate the unplanned and unwanted pregnancies resulting from the unprotected sex. The media is considered to be a veritable medium for communicating health information, however the finding from our study showed that the role of NGOs in disseminating information about the female condoms in Nigeria was quite substantial compared to the little role played by the official public media (Radio /TV) in the propagation of messages about the female condom; based on this finding we therefore recommended that concerted efforts should be made to provide NGOs working in the field of sexual and reproductive health in Nigeria with the enabling environment such as tax incentives to import female condoms for free distribution or at subsidized rates for the users. In addition, considering the fact that there is a gap in knowledge about the female condom among our study participants, which invariably reflected on the overall uptake and utilization of the female condom by our subjects, it is also recommended that the ministries of health at both the national or state levels take full advantage of the veritable and powerful tools for mass communication that the television and radio offers in our contemporary times to disseminate information about the useful and effectiveness of the female condom as a veritable sexual and reproductive health promotion intervention and encourage FSWs to use it consistently with their clients.

#### **REFERENCES**

- Agha S. and Rossem RV. 2002. Impact of Mass Media Campaigns on Intentions to Use the Female Condom in Tanzania. *International Family Planning Perspectives*, 28(3):151–158. Accessed at: [https://www.guttmacher.org/sites/default/files/article\\_files/2815102.pdf](https://www.guttmacher.org/sites/default/files/article_files/2815102.pdf)
- Ananga, M.K., Kugbey, N., Akporlu, J.M. et al. 2017. Knowledge, acceptance and utilisation of the female condom among women of reproductive age in Ghana. *Contracept Reprod Med*, 2, 15, <https://doi.org/10.1186/s40834-017-0042-9>
- Asadi-Ali A.M., Abolghasemi J., Rimaz S, Majdzadeh R., Shokoohi M., et al. 2018. High-Risk Behaviors Among Regular and Casual Female Sex Workers in Iran: A Report from Western Asia. *Iran J Psychiatry Behav Sci.*, 12(1): e9744. doi: 10.5812/ijpbs.9744.
- Biagi S. 2003. Media impact: An introduction to mass media. California: Thomson/Wadsworth. Collins, R. L. Elliott, M.N., Berry, S.H., Canouse, D.E, and Hunter, S.B. 2003. Entertainment television as a healthy sex educator: The impact of condom-efficacy information in an episode of friends. *Pediatrics*, 112(5), 1115-21
- Cichocki M. 2020. A Brief History of the Condom. Retrieved from: <https://www.verywellhealth.com/the-history-of-condoms-48689>
- Davies I. 2016. Championing female condom in Kenya. Freethinker Co. Accessed at: <https://freethinkerco.com/2016/01/12/championing-female-condoms-in-kenya>
- Ekono M., Essome H., Bwemba JGS., Tebeu PM., Belinga E., Elong AF., Mboudou E., 2019. Female condom: Knowledge,

- attitudes and practices of students in three faculties of the University of Douala. *The Journal of Medical Research*, 5(1): 22-25
- ESHRE Capri Workshop Group, 2014. Simultaneous prevention of unintended pregnancy and STIs: a challenging compromise, *Human Reproduction Update*, Volume 20, Issue 6, November/December 2014, Pages 952–963, <https://doi.org/10.1093/humupd/dmu030>
- Family Health International (FHI) 2001. HIV /AIDS Prevention and Care in Resource-Constrained Settings — Chapter Eight. Reducing HIV Risk in Sex Workers, Their Clients and Partners. Retrieved from: [https://www.who.int/hiv/topics/vct/sw\\_toolkit/reducing\\_hiv\\_risk\\_sex\\_workers.pdf](https://www.who.int/hiv/topics/vct/sw_toolkit/reducing_hiv_risk_sex_workers.pdf)
- Guerra, F.M., Simbayi, L.C. 2014. Prevalence of Knowledge and Use of the Female Condom in South Africa. *AIDS Behav*, 18, 146–158, <https://doi.org/10.1007/s10461-013-0580-3>
- Gwarisa M. Female Condom Uptake Still Low, 2017. HealthTimes, Accessed at: <https://healthtimes.co.zw/2017/07/05/female-condom-uptake-still-low/>
- Hoffman S., Mantell J., Exner T. and Stein Z. 2004. The Future of the Female Condom. *International Family Planning Perspectives*, Volume 30, Number 3, pp. 139-145. Accessed at: [https://www.guttmacher.org/sites/default/files/article\\_files/3013904.pdf](https://www.guttmacher.org/sites/default/files/article_files/3013904.pdf)
- Kharsany A.B.M. and Karim Q.A. 2016. HIV Infection and AIDS in Sub-Saharan Africa: Current Status, Challenges and Opportunities. *The Open AIDS*, 10, 34-48. Accessed at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4893541/pdf/TOAIDJ-10-34.pdf>
- Kreps, G.L. 1988. The pervasive role of information in health care: Implications for health communication policy. In J. Anderson (Ed.), *Communication Yearbook 11*, (238 -276). Newbury Park, CA, Sage Publication
- Kumar SG. 2014. Control of HIV: Role of female sex workers in risk of HIV transmission. *Indian J Sex Transm Dis AIDS*, 35(2):165-166. doi:10.4103/0253-7184.142421
- Lehmiller, J. J. 2018. *The Most Common Reasons For Becoming a Sex Worker in a Country Where Sex Work is Legal*. Accessed at: <https://www.lehmiller.com/blog/2018/12/30/most-common-reasons-for-sex-work>
- Lutz, W. 1982. Survey sampling. A practical guide for health workers. New York. Academic Press.
- Marseille E, Kahn JG, Billingshurst K, Saba J. 2001. Cost-effectiveness of the female condom in preventing HIV and STDs in commercial sex workers in rural South Africa. *Social Science & Medicine*, Volume 52, Issue 1, Pages 135-148
- Matavo N. 2010. Perceptions and factors influencing accessibility and acceptability of the Female Condom among women in Kiambaa Division, Kiambu District; Kenya. Accessed at: <https://ir-library.ku.ac.ke/handle/123456789/595?show=full>
- Mbarushimana V. and Ntaganira J. 2013. Knowledge and Attitude to Female Condom Use among Undergraduates of Kigali Health Institute. *Rwanda J. Health Sci*. Vol 2 No1.
- McClelland RS., Lingappa, JR., Srinivasan S., Kinuthia J., John-Stewart GC., Jaoko W., et al. 2018. ‘Evaluation of the association between the concentrations of key vaginal bacteria and the increased risk of HIV acquisition in African women from five cohorts: a nested case-control study’, *Lancet Infectious Disease*, Volume 18, Issue 5, p554-564
- McMahon J., Wanke C., Terrin N., Skinner S., & Knox T. 2011. Poverty, hunger, education, and residential status impact survival in HIV. *AIDS and Behavior*, 15, 1503-1511. doi:10.1007/s10461-010-9759-z
- Muheua A. 2007. A description of the perceptions and barriers that influence initial and consistent use of condoms amongst a sample of male and female students of the polytechnic of Namibia. Theses. Assessed from: [http://etd.uwc.ac.za/xmlui/bitstream/handle/11394/2119/Muheua\\_MPH\\_2007.pdf?sequence=1](http://etd.uwc.ac.za/xmlui/bitstream/handle/11394/2119/Muheua_MPH_2007.pdf?sequence=1)
- National Population Commission (NPC) [Nigeria] and ICF International. 2014. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International. Accessed at: <https://www.dhsprogram.com/pubs/pdf/FR293/FR293.pdf>
- Newman L, Rowley J, Vander Hoorn S, Wijesooriya NS, Unemo M, Low N, et al. 2015. Global Estimates of the Prevalence and Incidence of Four Curable Sexually Transmitted Infections in 2012 Based on Systematic Review and Global Reporting PLoS ONE 10(12): e0143304. doi:10.1371/journal.pone.0143304
- Nsanzimana S, Mills EJ, Harari O, Mugwaneza P. et al. 2020. Prevalence and incidence of HIV among female sex workers and their clients: modelling the potential effects of intervention in Rwanda. *BMJ Global Health*, 5:e002300.
- Pellowski J. A., Kalichman S.C., Matthews K.A., & Adler N. 2013. A pandemic of the poor: Social disadvantage and the U.S. HIV epidemic. *American Psychologist*, 68, 197-209. doi:10.1037/a0032694
- Pinchoff, J., Chowdhuri, R.N., Tarubekera, N. et al. 2016. Impact of communication strategies to increase knowledge, acceptability, and uptake of a new Woman’s Condom in urban Lusaka, Zambia: study protocol for a randomized controlled trial. *Trials* 17, 596, <https://doi.org/10.1186/s13063-016-1681-1>.
- Sharma, S. K. & Gupta Y. K. 2016. Impact of Mass Media on Health-seeking behaviour on an individual. *Research Journal of Social Science & Management*, 5:172-187
- Society for Family Health (SFH), 2008, Universal Access to Female Condom (UAFC). Accessed at: <https://www.sfhigeria.org/universal-access-to-female-condom-uafc/>
- Trussell J. 1998. Contraceptive efficacy of the Reality female condom, *Contraception*, 58(3):147–148
- UNAIDS 2019. Women and HIV- A spotlight on adolescent girls and young women. Retrieved from: [https://www.unaids.org/sites/default/files/media\\_asset/2019\\_women-and-hiv\\_en.pdf](https://www.unaids.org/sites/default/files/media_asset/2019_women-and-hiv_en.pdf)
- UNAIDS, 2017. When Women Lead Change Happens- Advancing the end of AIDS. Retrieved from: [https://www.unaids.org/sites/default/files/media\\_asset/when-women-lead-change-happens\\_en.pdf](https://www.unaids.org/sites/default/files/media_asset/when-women-lead-change-happens_en.pdf)
- UNFPA, 2006. Female Condom: A Powerful Tool for Protection. Seattle: UNFPA, PATH; 2006. Accessed at: [https://unfpa.org/sites/default/files/pub-df/female\\_condom.pdf](https://unfpa.org/sites/default/files/pub-df/female_condom.pdf)
- WHO, 2009. Priority interventions: HIV/AIDS prevention, treatment and care in the health sector. Accessed at: [https://www.who.int/hiv/pub/priority\\_interventions\\_web.pdf](https://www.who.int/hiv/pub/priority_interventions_web.pdf) · PDF file
- WHO, 2011. Preventing HIV among sex workers in sub-Saharan Africa: A literature review. Accessed at: [https://apps.who.int/iris/bitstream/handle/10665/44549/9789241501279\\_eng.pdf;sequence=1.chap1.pdf](https://apps.who.int/iris/bitstream/handle/10665/44549/9789241501279_eng.pdf;sequence=1.chap1.pdf).
- Zhang Z., Song L, Luo H., Mei J., Lu R., Xiao M., Jia M. 2014. An analysis of high risk behaviors among female sex workers in Yunnan province in 2013]. *Zhonghua Yu Fang Yi Xue Za Zhi*. 48(12):1057-62. Chinese. PMID: 25619216.