

# Prevalence of Sexual Assault and Use of Emergency Contraceptives Among Female Commercial Sex Workers in Dodoma city, Central Tanzania: A Cross-Sectional Study.

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## Research article

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# Abstract

## Background

Female Commercial Sex Workers (FCSW) are in a constant risk of being abused by their customers or community. With the increased rate of unwanted pregnancies signify the problem in preventive measures and emergency contraception. This study aimed on assessing prevalence of sexual assault and use of emergency contraceptives among female commercial sex workers in Dodoma city, Tanzania.

## Methods

A descriptive cross-sectional study was conducted to 326 female commercial sex workers with a snow ball sampling technique in 10 administrative wards of Dodoma city where by selection of 10 wards from 41 total wards was performed systematically through excel.

## Results

Majority of study respondents 58% were aged between 21 to 31 years. More than a half (51.8%) had experienced sexual assault and majority (64.4%) had never used emergency contraceptives. There was significant relationship between use of emergency contraceptives with variable like ever being pregnant ( $p = 0.002$ ), ever used drug ( $p < 0.001$ ), level of education ( $p = 0.009$ ) and ever heard about emergency contraceptives ( $p < 0.001$ ). After adjusting for the confounders, the determinants of emergency contraceptives use among female commercial sex workers were level of education; ordinary secondary education (AOR = 0.373 at 95% CI = 0.158–0.878,  $p = 0.024$ ), College level of education (AOR = 0.131 at 95% CI = 0.036–0.469,  $p = 0.002$ ), ever used drug (AOR = 0.197 at 95% CI = 0.197–0.608,  $p < 0.001$ ) and ever heard about emergency contraceptives (AOR = 6.2 at 95% CI = 3.443–11.17,  $p < 0.001$ ).

## Conclusion

FCSW suffer a significant sexual assault which most of them are afraid to report these assaults basing on the nature of worker being illegal. Most of them heard about emergency contraceptives but few of them are consuming them in their protection against unwanted and unplanned pregnancy.

## Background

Commercial sex referred to an act of exchanging sexual intercourse and other sexual pleasures with something valuable in return for several purposes including generating income<sup>1</sup>. Globally, female commercial sex workers (FCSW) differ from one place to another<sup>2</sup>. Commencement reasons into that

business is still personal<sup>1</sup> but in developing countries, poverty<sup>3</sup>, lack of employment, civil war was mainly noted to be the courses<sup>4</sup>.

Worldwide there is a gargantuan number of FCSW and some are living with HIV<sup>5</sup> with a global prevalence of 11.8% up to 30% higher than other women of reproductive<sup>6</sup>. They are also presupposed to be a source of HIV and STI's transmission<sup>7,8</sup> due to unprotected consummation and having many couples<sup>7,9</sup>. A study performed in Australia revealed the increased burden of STI's which are bridged by involvement in commercial sex with 39% rise in chlamydia and 47% in gonorrhoea infections with low HIV prevalence among FCSW which was 0.2%<sup>9</sup>. China has prevalence of 49%<sup>8,10</sup> with an estimated of 4 up to 10 million sex workers<sup>11</sup>. Brazil has also large number of commercial sex workers<sup>12</sup> but with minimal number of HIV infected FCSW<sup>13</sup> due to its maintained lower country-wise HIV prevalence<sup>14</sup> while Uganda being the leading country in the world with the highest prevalence of HIV among FCSW, 85% followed by Lesotho with the prevalence of 72%<sup>12,15,16</sup> same as in South Africa<sup>17</sup>.

As per data reported by UNAIDS, people who are living with HIV/AIDS in Tanzania range from 1.4 to 1.7 million with the prevalence of 4.4%. A nutshell number of female commercial sex worker in Tanzania is estimated to be 155,500 where by in their midst, the prevalence of FCSW living with HIV is 15.4%<sup>12,16,18</sup>.

Apart from commercial sex work being attributed in escalation of HIV and other sexual transmitted infections<sup>19</sup>, it has also been associated with the great increase in unwanted pregnancies<sup>20</sup>. Most of these FCSW have children and some of them have families also<sup>21</sup>, they both in a need of structuring families despite being labeled bad<sup>22</sup>. Knowledge regarding pregnancy intention and preparedness lack to many FCSW<sup>23</sup> as most of them are unable to access health services<sup>24</sup> and hence predisposed to unwanted pregnancies<sup>25</sup> and give birth to children which lead to them continue working so that to feed families<sup>16,21,26,27</sup>. Nearly quarter of all FCSW in Sub-Saharan countries have one child<sup>28</sup>.

Maternal mortality and morbidities among these FCSW have been ignored for number of years and no any consideration has been laid on it<sup>21</sup>. Most FCSW deal with infection preventions and leave aside consideration about their reproductive health concerns<sup>23</sup>. 23.7% of women in Ethiopia with cervical cancer were noted to engage themselves in commercial sex work which showed that, they were predisposed<sup>4</sup>. Study done in India also revealed predicament in counselling FCSW on how to breast-feed as they are constant at risk of being infected, hence most of them lack prenatal services as well as breast-feeding recommendation<sup>24</sup>. 81.6% of Indian commercial sex worker initiated breast-feeding<sup>24</sup> with no knowledge on mother to child transmission<sup>23</sup>. Community stamping towards FCSW is what made them lack important reproductive health services like any other women of reproductive age<sup>23</sup>.

According to nature of work itself, leads into so many actions which put FCSW into danger<sup>1</sup> and these violation of some human rights<sup>25</sup>. Other commercial sex-workers face heightened sexual violence, victimization<sup>8</sup> and other social isolations<sup>9</sup>. In so many regions across the globe they receive high level of

brutality from their customers, sexual risk and worse part of it, some cannot access health services<sup>24</sup>. Study performed in Guatemala revealed that most of FCSW are in danger as they are vulnerable to poor health, gender based violence and sexual exploitation<sup>2</sup>. Canada Supreme Court laid a huge protection to these sex workers<sup>23</sup> while in Kenya they receive extreme violation of some of their common human rights<sup>25</sup>. Joint United Nation Program on HIV/AIDS launched a program in 2014 which aimed in promoting FCSW to have access to health services including family planning despite these violence<sup>29</sup>. Tanzania also protects their human rights but local government prohibit that sex work<sup>30</sup> and the law of country criminalize the act of selling sexual activities<sup>6</sup>, being a criminal act made most of FCSW to hide their victimization, violence due to commercial sex and not even to seek medical help in a fear of being prosecuted<sup>31</sup>.

Contraception method which most of FCSW are aware of, is condom<sup>17,19</sup>. Consistent use of condom was reported in Australia<sup>9</sup> while in China most of these workers are in low social economic status and 62.5% up to 95% are immigrant, hence become unable to negotiate with their customers about condom use<sup>8</sup>. In United Kingdom, they commonly use condom with their customers but not regularly with their intimate partners and hence increase the risk of transmission sexually transmitted infections<sup>22</sup>. Kenya implement a policy and program for FCSW to promote condom use<sup>29</sup> to which 29% up to 74% adhere to it<sup>28</sup>. Tanzania reported inconsistent use of condom among FCSW as most put their prices regarding type of sexual pleasure a customer needs to receive including condom-less coitus<sup>6</sup>.

Little is known about FCSW in Tanzania which brought a motive for this study. Sex work is performed almost in all regions in Tanzania but mainly in the big cities. Assault has been noted to be performed to these FCSW in Tanzania as reported in several medias and these violence have been keep them in danger and lead into performing of this work incognito<sup>32</sup>. Most of these sex workers have been limited to access to several family planning services including access to contraception<sup>19,21,22,25,28,29</sup> so most of them tend to use condom as a method of infection prevention as well as contraceptive method. Very little information has been explored in Tanzania and it is still unknown if knowledge of emergency contraception has been delivered to these FCSW in Tanzania. The main purpose of this research was to assess prevalence of sexual assault and use of emergency contraceptives among FCSW who are mainly working in Dodoma City in central Tanzania.

## Methods

### Study design and Setting

A descriptive cross-sectional study was conducted between March and April 2019 in Dodoma City, Tanzania. The city is subdivided into 4 divisions (Urban, Hombolo, Kikombo and Zuzu Division) comprising of a total of 30 wards and 42 villages/streets. Dodoma Region lies in the eastern-central part of Tanzania and it is the capital city in the country. According to the 2012 national census, the region had a population of 2,083,588<sup>33</sup>. The most dominant ethnic group is Gogo but other ethnics exist too such as

Sandawe, Rangi, Sukuma, Chagga. People of this area are involved in economic activities like business, livestock keeping, office work and farming<sup>34</sup>. Dodoma city was selected for this study because it is a fast-growing city in Tanzania with high population of youths.

## Study population

The study population were Female Commercial Sex Workers who were around during the time of study.

## Inclusion criteria

Inclusion criteria were Female commercial sex workers who consented to participate in the study

## Exclusion criteria

Female commercial workers who were serious sick and those with pronounced mental illnesses.

## Sample size calculation

The sample size was obtained by using the Kish Leslie formula<sup>35,36</sup>. This study used an estimated prevalence of 50% as a standard to calculate the sample size.

$$N = \frac{Z^2 P(100-P)}{E^2} \text{ Hence, } N = \frac{(1.96)^2 \times 50(100-50)}{(0.05)^2} = 384.16$$

Whereby; N = sample size of study population, Z = Confident interval to 95% (1.96), P = Prevalence (50%), E = Worst acceptable margin error (0.05). Therefore, the sample size was 384.

## Sampling technique

The sampling technique used in this study was a snow ball technique, where the first respondent was found then she assisted in obtaining the next respondent, next respondent assisted to obtain the followed respondent until the required sample size was obtained. The identified possible respondent if consented was enrolled to the study but if she refused, she only assisted to obtain the next respondent. If she also refused to assist in obtaining the next respondent the previous respondent was consulted to assist in obtaining another possible respondent.

## Data Collection Procedure

Street survey using interviewer administered semi-structured standardized questionnaire was used. The English version interview questions were translated into Swahili by three times back and forth translation with double check from linguists, to obtain data from the study participants and to ensure they understand the contents properly. The female commercial sex workers were asked for consent and it was made clear to them that they are free to make a choice to participate or not because there won't be any punishment for that.

## Data Processing and Analysis

The data collected through questionnaires was first coded, and entered into SPSS version 25. Data cleaning was performed before analyzing the data's so as to identify the incorrect data, missing data during entering and duplicate data. Then data were subjected to simple descriptive statistical analysis. The model which was used for analysis was logistic regression which was used to determine the association between dependent and independent variable.

## **Ethical Consideration**

The letter of permission for the conduction of this study was obtained from research and ethical committee of the University of Dodoma. Permission from the local authorities to collect data to the wards and streets was also obtained. The rights of the participant were well protected by obtaining informed consent in oral and written form. And confidentiality was assured among the respondent who agreed to participate in the study.

## **Results**

### **Socio-demographic characteristics**

A total of 326 commercial sex workers were included in this study with a response rate of 85%. Majority of study respondents 58% were aged between 21 to 31 years, 85.2% were not living with a male partner, 62.3% begin sexual intercourse at the age between 15 years to 20 years, 88.1% had post primary education and 52.1% had homes (see Table 01).

### **Prevalence of sexual assault among female commercial sex workers**

More than a half 51.8% of the interviewed respondents had experienced sexual assault (see Fig. 01).

### **Use of emergency contraceptive**

Majority of study respondents (64.4%) had never used emergency contraceptives (see Fig. 02).

### **Determinants of emergency contraceptive use among commercial sex workers**

Socio-demographic characteristics which showed significant relationship with use of emergency contraceptives were ever being pregnant ( $p = 0.002$ ), Ever used drug ( $p < 0.001$ ), level of education ( $p = 0.009$ ) and ever heard about emergency contraceptives ( $p < 0.001$ ), see Table 02.

After adjusting for the confounders, the determinants of emergency contraceptives use among female commercial sex workers were level of education; ordinary secondary education (AOR = 0.373 at 95% CI = 0.158–0.878,  $p = 0.024$ ), College level of education (AOR = 0.131 at 95% CI = 0.036–0.469,  $p = 0.002$ ), ever used drug (AOR = 0.197 at 95% CI = 0.197–0.608,  $p < 0.001$ ) and ever heard about emergency contraceptives (AOR = 6.2 at 95% CI = 3.443–11.17,  $p < 0.001$ ), see Table 03.

## Discussion

Majority of study participant assessed were adolescents and adults as in the other study done in China focused into that population<sup>11</sup>. Study revealed early initiation of sexual activities for most of commercial sex workers with most of them being single mothers living with a family and the rest of majority being divorced, this array presence of commercial sex workers who have intimate partners or once before<sup>7</sup>. Study area being a city with universities, make a place where even university student take part into this business as it was noted in other places where educated and skilled people go in for it<sup>22</sup>. Even though in this study plus other studies revealed that most participant of commercial sex work are those ended in junior and senior high school<sup>5,7,25,29</sup>.

Under this study, sexual assaults were put to be visible as majority of study participants communicate to be assaulted in performing this commercial sex in number of ways. The responses exhibit the torture and suffering these Tanzanian female commercial sex workers went through in their business regimen from their customers, intimate partners as well as community at large, this goes in line with so many published researches which depict hardship these commercial sex-workers pass through<sup>1,13,25,37</sup>. But at the same instance, other studies revealed number of reasons to which project these FCSW into suffering sexual assault which were not assessed in this study which is the status of immigration, majority of the assaulted commercial sex workers under the study done in China showed that is the state of not being inhabitant of a particular area<sup>8,38</sup>. Hence, the prevalence of sexual assault in Tanzania is very high which call for a serious attention as progression of these acts might further lead into violation of human rights, these assaults being the first in East Africa followed by Kenya which is going behind other East Africa member countries<sup>20</sup>.

Tanzanian FCSW were noted to be far left behind as far as family planning knowledge is concerned. This has been due to the fact that performing these commercial sex works face moral and religious constraint in the community with a veneer of composure cracked a little to effectuate the act. This study divulges that most of FCSW had never use emergency contraceptive methods while doing their business, this has been eminent to be due to lack of knowledge regarding it and inattentiveness in their midst and much less consideration in their proper wellbeing<sup>39</sup> and inner ill-motives of inconsistence use of condoms<sup>6</sup>. Prevalence of the use of emergence contraceptive in Tanzania were noted to be very small as majority of assessed individual delineated not to use these contraceptives and this propensity of many FCSW not being using emergency contraceptive has been reported in number of researches which impart the same as in the findings of this study<sup>20,37</sup>. But in unison with that there a numbers of studies which showed that there are FCSW which are knowledgeable about emergence contraceptives and they have been adhering into it<sup>19,25,37</sup> and for that reason pose a challenge in delivering the same knowledge to the Tanzanian commercial sex workers at large with a challenge of it being illegal and proscribe work<sup>31</sup>.

Interdiction of commercial sex work in Tanzania<sup>31</sup> has hampered delivering of knowledge to these vulnerable groups regarding their health exceptionally concerning their reproductive health apropos of their work to expand their knowledge regarding emergency contraception. Findings of this study disclosed that those who ever heard about emergency contraception were five times more likely to use them than those who had never heard about it. In harmony with this, another research let out the same findings, most of the consumer of emergence contraception methods among FCSW were those who have access to health services and likely to receive education about it at some point<sup>25</sup>. Most of Tanzanian FCSW who heard about emergency contraception must be just by chance so far within the limit of our knowledge no any project is implemented to these FCSW regarding family planning methods, so most of them must had acquire these knowledge in their visitation to hospital with the concerns other than commercial sex work. Another uncovering from other studies indulged dearth of knowledge about emergency contraception but most of the FCSW still use other methods aside from condom and use those methods as back-up methods in case condom method failed<sup>37</sup> hence go averse with the findings of this study.

Surprisingly, those who were noted to use drug of abuse were more likely to use emergency contraceptives more than those who are not abusing drugs. Most of commercial sex workers under this study were reported to be involved in abusing drugs and also another research done in Albuquerque showed that most are tempted and are at risk of starting abusing drugs but those who abusing it are nevertheless adhering to personal protections inclusive of emergency contraception<sup>40</sup>. Most of commercial sex workers are using drugs to conceal their immoral act toward society perception, but luckily most of those who are informed about emergence contraception they still use it<sup>3</sup>. In Tanzania, they are equiprobable to use them as they are the one who are mostly involved in the work more than those who are not abusing drugs and this has been conforming with the study performed in China which showed most of commercial sex workers are using drugs of abuse but still adhere to emergence contraception<sup>11</sup>. But also uncovering of this research has been denied by a study performed in Canada which manifested the escalation of drug addiction and predisposition to unwanted pregnancies with a surge risk of channeling HIV and other sexual transmitted infections<sup>41</sup>. Even though it is still ill-defined on how Tanzanian FCSW acquire that knowledge about emergency contraception and another study reported the use of drugs to be low in Tanzania among FCSW<sup>6</sup>.

Education level among FCSW was also seen to affect the adherence to emergency contraception use in a paradoxical direction through which those who reached to the college were acclaimed to be less likely use emergence contraception than those with no formal education. This was attributed by nature of customers and methods of sexual activities as it has been espied in the study done in United Kingdom<sup>22</sup> also intention of receiving a lot money from customers was noted to be result of them not to use<sup>6</sup>. Antithetical findings also showed that education contributed a lot in the decision and readiness of these sex workers to use emergency contraceptive<sup>1,21,42</sup>.

## **Conclusion And Recommendation**

Finally, female commercial sex workers in Tanzania suffer a significant sexual assault which most of them are afraid to report these assaults basing on the nature of worker being illegal and banned by the government. Most of them heard about emergency contraceptives but few of them are consuming them in their protection against unwanted and unplanned pregnancy. Obtained knowledge regarding emergency contraceptive is still unclear on how they acquire such a knowledge, further study needs to be done to access it. Nature of the work being illegal in Tanzania also number of interventions has to be implemented on how to stop this work so as to reduce number of sexual assaults, transmission of HIV and STI's, unwanted pregnancies as well.

## **Abbreviations**

AIDS – Acquired Immunodeficiency Syndrome, EC – Emergency Contraceptive, FCSW – Female Commercial Sex Workers, HIV – Human Immunodeficiency Virus, STI – Sexual Transmitted Infection, SPSS – Statistical Package for Social Sciences, UNAIDS – The Joint United Nations Program for HIV/AIDS.

## **Declarations**

### ***Competing Interest***

Authors reaffirm that, there is no competing interest in both financial and non-financial.

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### ***Availability of data and materials***

Data and materials are available to all and can be accessed from corresponding author via [ellisteven.es@gmail.com](mailto:ellisteven.es@gmail.com) or [fabiola.moshi@gmail.com](mailto:fabiola.moshi@gmail.com)

### ***Author's contribution***

YS and EE participated in study plan, framework and data collection. FM added knowledge in data analysis and SK made a review of all the work. All authors participated in a manuscript preparation and final review. All authors read and agree with final submission of manuscript.

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## ***Declaration***

Author declare that, main source of idea was from corresponding author and it is published as part of supplement. This study has received no sponsorship for the publication

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## Tables

**Table 01: Socio-demographic characteristics of study respondents**

Variable	Frequency	Percentage
<b>Age group</b>		
10years-20years	73	22.4
21-30	189	58
31 and above	64	19.6
<b>Marital Status</b>		
Married	48	14.7
Single	149	45.7
Divorced	109	33.4
Widow	20	6.1
<b>Religion of participants</b>		
Christian	176	54
Muslims	131	40.2
No religion	14	4.3
Otherreligion	5	1.5
<b>Age to begin the sex</b>		
Below 14	3	0.9
15-20	203	62.3
21-30	111	34
Above 30	9	2.8
<b>Use of drug abuse</b>		
Yes	174	53.4
No	152	46.6
<b>Level of education</b>		
Standard seven	39	12
Form four lever	145	44.5
Form six lever	104	31.9
University level	38	11.7
<b>Having family</b>		
Yes	172	52.8
No	154	47.2
<b>Force to sex</b>		
Yes	169	51.8
No	157	48.2

Table 02: The relationship between socio-demographic characteristics and use of emergency contraceptive among female sex workers in Dodoma City

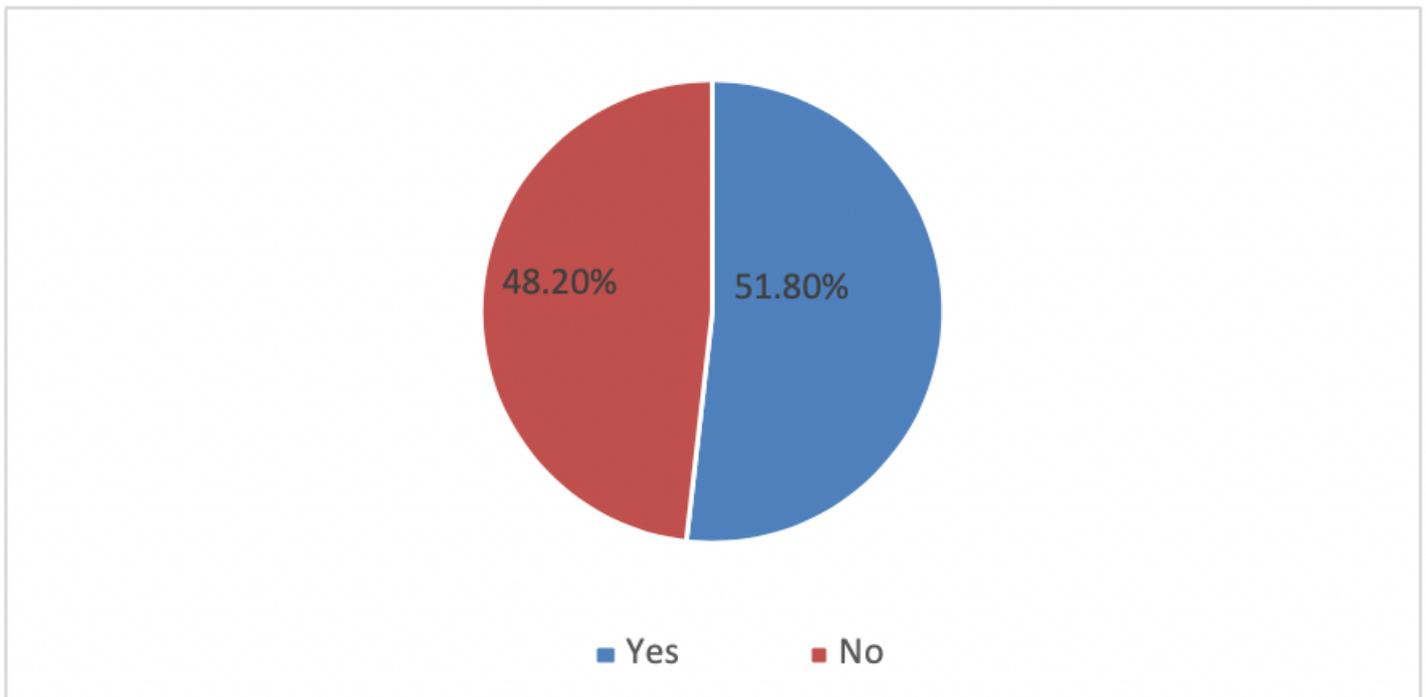
Variables	Use Frequency (%)	Do not use Frequency (%)	X <sup>2</sup>	p-value
<b>Marital status</b>				
Married	20(41.7)	28(58.3)		
Single	47(31.5)	102(68.5)		
Divorced	37(33.9)	72(66.1)	7.165a	0.067
Widow	12(60)	8(40)		
<b>Age group</b>				
10yrs-20yrs	25(34.2)	48(65.8)		
21-30	66(34.9)	123(65.1)	.431a	0.806
31 and above	25(39.1)	39(60.9)		
<b>Religion of participants</b>				
Christian	64(36.4)	112(63.6)		
Muslims	43(32.8)	88(67.2)		
No religion	7(50)	7(50)	1.794a	0.616
Other religion	2(40)	3(60)		
<b>Age to begin the sex</b>				
Below 14	0(0)	3(100)		
15-20	66(32.5)	137(67.5)		
21-30	47(42.3)	64(57.7)	4.725a	0.193
Above 30	3(33.3)	6(66.7)		
<b>Ever been pregnancy</b>				
Yes	82(42.3)	112(57.7)		
No	34(25.8)	98(74.2)	9.342a	0.002
<b>Drug abuse</b>				
Yes	85(48.9)	89(51.1)		
No	31(20.4)	121(79.6)	28.660a	0.000
<b>Level of education</b>				
Primary and below	19(48.7)	20(51.3)		
Ordinary level secondary education	54(37.2)	91(62.8)		
Advanced level secondary education	38(36.5)	66(63.5)	11.488a	0.009
College and University	5(13.2)	33(86.8)		
<b>Awareness on EC</b>				
Yes	89(52.4)	81(47.6)		
No	27(17.3)	129(82.7)	43.589a	0.000

Table 03: Factors which influence use of emergency contraceptive among female sex workers

Variable	OR	95%CI		p-value	AOR	95%CI		p-value
		Lower	Upper			Lower	Upper	
<b>Level of Education</b>								
Primary and below	1							
O'level secondary	0.625	0.306	1.274	0.195	0.373	0.158	0.878	0.024
A'level secondary	0.606	0.288	1.275	0.187	0.44	0.184	1.053	0.065
College and above	0.159	0.051	0.494	0.001	0.131	0.036	0.469	0.002
<b>Ever used Drug</b>								
No	1							
Yes	3.728	2.275	6.109	0.000	0.346	0.197	0.608	0.000
<b>Ever Being Pregnant</b>								
No	1							
Yes	2.11	1.302	3.421	0.000	1.425	0.811	2.501	0.218
<b>Ever heard about EC</b>								
No	1							
Yes	5.25	3.145	8.764	0.000	6.2	3.443	11.17	0.000

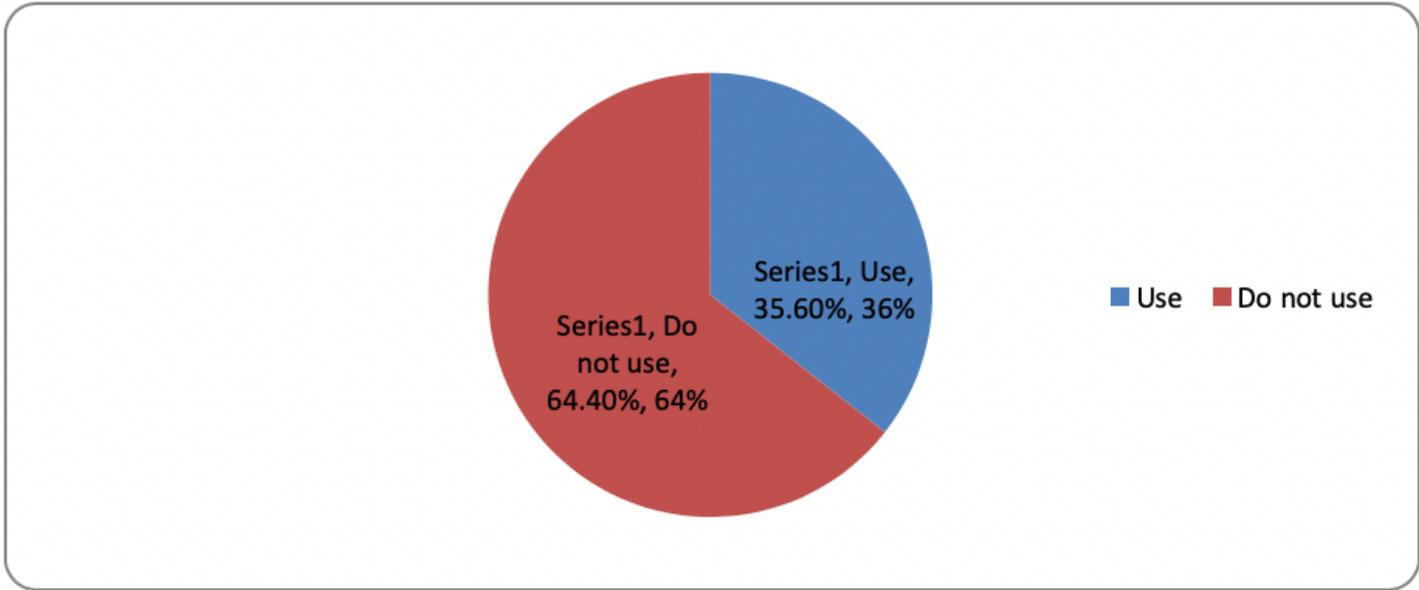
OR=Odds Ratio, AOR=Adjusted Odd Ratio, CI=Confidence Interval, EC=Emergency contraceptive

## Figures



**Figure 1**

Prevalence of sexual assault among female commercial sex workers.



**Figure 2**

Use of emergency contraceptives.