

RESEARCH ARTICLE

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# Knowledge, attitude, and utilization of HIV counseling and testing by female sex workers in Lagos State, Nigeria

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## Abstract

**Objectives:** The Human Immunodeficiency Virus (HIV) epidemic continues to expand among female sex workers (FSWs) who have limited access to and utilization of HIV counseling and testing services (HCT). HCT plays a pivotal role in increasing knowledge and awareness to prevent, treat, and control HIV/AIDS. The study objective was to determine the knowledge, attitude, utilization of HCT among brothel-based FSWs (BBFSWs).

**Method:** This was a descriptive cross-sectional study among 300 BBFSWs in Lagos State. The respondents were recruited by snowballing after a multistage sampling method was used in the selection of the brothels. The data was collected using an adapted interviewer-administered questionnaire and analyzed using IBM SPSS Statistics version 23. The level of statistical significance was set at  $p < 0.05$ .

**Results:** Majority (63.0%) of the respondents were between the ages of 21-30 years and 67.4% had good knowledge of HIV and HCT. About 75.0% had a positive attitude towards HCT and 55.6% of FSWs in this study had utilized an HCT center in the past. The main reason for not taking HIV test was the fear of a positive result (90.6%) while the main reasons given for not visiting any HCT center were lack of confidentiality (13.3%), stigmatization (14.8%), and distance to the HCT center (67.2%).

**Conclusion:** There was a good knowledge of HCT and a positive attitude towards HCT services by the respondents. The main reasons for not taking the HIV test as indicated by respondents were fear of a positive result. HIV-stigma related issues should be adequately addressed.

**Keywords:** Attitude, BBFSWs, HCT, Knowledge, Utilization

## Plain English Summary

The HIV/AIDS epidemic continues to expand among female sex workers (FSWs) who have limited access and utilization of HIV counseling and testing services (HCT). HCT plays a pivotal role in increasing knowledge and awareness to prevent, treat, and control HIV/AIDS. This study aimed to determine the knowledge, attitude, and utilization of HCT centers among brothel-based FSWs (BBFSWs). This was a descriptive cross-sectional study among 300 BBFSWs brothel-based FSWs in Lagos State. The respondents were recruited by firstly identifying a few female sex workers who then invited their co-workers to participate in the study. The data was collected by trained interviewers with an adapted questionnaire. The data were analyzed using the Statistical Package for Social Sciences. The majority of the respondents were between the ages of 21-30 years and 67.4% had good knowledge of HIV and HCT. About 75.0% had a positive attitude towards HCT and 55.6% of FSWs in this study had utilized an HCT center in the past. The main reason for not taking the HIV test was fear of a positive result (90.6%) while the main reason given for not visiting any HCT center was the distance to the HCT center (67.2%). More HCT centers should be made available for use.

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## Background

The access point to prevention, treatment, and control of human immunodeficiency virus (HIV) infection is HIV Counselling and Testing (HCT) (1). HCT is the process whereby an individual or a couple undergoes counseling to enable them to make informed choices about being tested for HIV. HIV infection among female sex workers (FSWs) plays an important role in the development of HIV epidemics in many regions of the world and has a significant potential to cause HIV transmission to the general population, with male clients serving as the bridging population (2, 3). HIV/AIDS has currently neither a cure nor a reliable vaccine (4). The control remains entirely on either preventing the infection of healthy people from acquiring the infection or containing the problem size to the minimum that would enable those already infected persons to live longer, healthy and remain non-infective to others (5). HCT centers offer reliable HIV/AIDS information and serve as a continuum for HIV prevention, care, treatment, and support services (1).

Lack of information and access to services by FSWs, as well as the distance to HCT facilities, is expected to fuel the HIV/AIDS epidemic (6, 7). Lack of knowledge regarding the importance of HCT and stigmatization has been identified as major factors affecting the uptake of HCT. Given the public health importance of HIV/AIDS, the utilization of HCT service in Nigeria is low; only 26.3% of Nigerians have ever tested for HIV (8).

Fulfilling the Joint United Nations Programme on HIV and AIDS (UNAIDS) 2010 vision of zero new infections will require careful consideration of the societal structures, beliefs, and value systems that present obstacles to effective HIV prevention efforts (9). Despite the significance of HCT in HIV control, access to HCT services by high-risk groups like FSWs in sub-Saharan Africa remains at a suboptimal level (10, 11). Due to the paucity of data especially among BBFSWs in the commercial nerve center of Nigeria, Lagos State, this study aimed to fill the knowledge gap and guide HIV programmers to address challenges in HTC service delivery.

## Methods

This was a descriptive cross-sectional study among brothel-based FSWs. The inclusion criteria were female sex workers aged 18 years and above who were living in brothels and were involved in sex work. A sample size of 300 was calculated using the Cochran's formula (12) based on the prevalence of 26.0% in a previous study (13) of sex workers' knowledge on HCT

to give a 95% confidence interval and margin of error of  $\pm 5\%$ .

A multistage sampling method was employed in the selection of a representative sample from the source population. Stage 1 involved the selection of three of the 5 administrative divisions in Lagos State using simple random sampling (by balloting) and they were Ikeja, Badagry, and Lagos divisions. In stage 2, one Local Government Area (LGA) was selected from each of the 3 divisions using simple random sampling (by balloting). They were Kosofe LGA, Amuwo-Odofin LGA, and Apapa LGA respectively. In the third stage, 2 brothels were selected each from the three LGAs by simple random sampling (by balloting), totaling 6 brothels. Finally, the respondents were selected using the snowball sampling technique. In this technique, 3 FSWs were initially recruited at each of the brothels then each of the initial respondents was asked to recruit additional respondents, this was repeated with all respondents until the desired sample size of 300 respondents were reached. Each participant was categorized based on their charges to clients as high (>N10,000); medium (N5,000- N10,000) or low class (<N5000).

The data was collected using an adapted, pre-tested, semi-structured interviewer-administered questionnaire (13, 14). The questionnaire comprised of four sections that comprised the socio-demographic characteristics of respondents, knowledge of HIV/AIDS and HCT, the attitude of respondents towards HCT, utilization, and factors affecting utilization of HCT centers. In the knowledge section, correct responses were scored 1 mark while incorrect responses were scored 0 for all questions. The sum of correct responses that ranged between 0-49 percent was regarded as poor knowledge while 50-100 percent was regarded as good knowledge. Similarly, the respondents' attitude was graded on a five-point Likert scale from 1 to 5 from negative to positive responses and scores below 50% were regarded as negative attitude and those 50% and above were regarded as positive attitudes. IBM SPSS Statistics version 23 was used to analyze the data. Frequency distribution and percentage were represented in tables and narratives. Approval from the Health Research and Ethics Committee of Lagos University Teaching Hospital (LUTH) was obtained to carry out the research. Informed consent was obtained from the participant before administering the questionnaire. Participation was voluntary and every finding was treated with the utmost confidentiality.

## Results

In table 1, the majority (63.0%) of the respondents were between 21-30 years and were single (68.7%). The mean age of respondents was  $27.1 \pm 5.4$  years while only 3.3% of them indicated that they were married. A few (4.0%) of the respondents had no formal

education, 76.0% had secondary school education, while 10.0% had tertiary education. Approximately half (49.7%) of the respondents had been involved in sex work for more than 2 years and 45.0% had been engaged in sex work for 1-2 years. More than half (57.7%) of the respondents indicated that they were in the low-class of FSWs.

**Table 1: Socio-demographic characteristics of respondents**

Variable	Frequency (n =300)	Percentage (%)
<b>Age (Years)</b>		
≤20	42	14.0
21-30	189	63.0
31-40	67	22.3
41-50	2	0.7
<b>Marital Status</b>		
Single	206	68.7
Married	10	3.3
Divorced/separated	82	27.3
Widowed	2	0.7
<b>Educational level</b>		
No Formal Education	12	4.0
Primary	30	10.0
Secondary	228	76.0
Tertiary	30	10.0
<b>Years of experience</b>		
Less than 1 year	15	5.0
1-2years	136	45.3
Greater than 2 years	149	49.7
<b>Category</b>		
Low class	173	57.7
Middle class	102	34.0
High class	25	8.3

Almost all (96.0%) of the respondents had heard of HIV counseling and testing (HCT) centers, and 93.0% knew that HIV can be transmitted from one person to another. Concerning knowledge, 96.3% of the FSWs knew the various methods that HIV could be transmitted. About two-thirds (66.0%) of the respondents indicated that sex work exposed them to high risk of being infected while 93.3% and 62.5% revealed that HIV is preventable and

can be prevented by the consistent use of condoms respectively. In table 2, more than three-quarter (84.3%) of the respondents indicated that AIDS is incurable and 87.3% stated that they knew a test center for HIV test. This study showed that 78.7% of the respondents had been tested for HIV and 67.4% of the respondents had good knowledge of HCT.

**Table 2: Knowledge of HIV/AIDS and HCT**

Variable	Frequency (n =300)	Percentage (%)
<b>Heard of HCT centers</b>		
Yes	288	96.0
No	12	4.0
<b>Sources of information about HCT center (n=288)</b>		
Friends	113	39.2
Media	77	26.7
Family Members	62	21.5
Health care workers	35	12.2
Others	1	0.3
<b>Can receive HIV information at the HCT center (n=288)</b>		
Yes	244	84.7
No	13	4.5

Don't know	31	10.8
<b>HIV can be transmitted from one person to another</b>		
Yes	279	93.0
No	18	6.0
Don't know	3	1.0
<b>Modes of HIV transmission*</b>		
Sharing of sharp objects	289	96.3
Blood transfusion	258	86.0
Mosquito bites	35	11.7
Unprotected sex with an infected person	289	96.3
From infected mother to her unborn child	214	71.3
<b>Sex Work exposes one to a higher risk of being infected</b>		
Yes	198	66.0
No	22	7.3
Don't know	80	26.7
<b>HIV is preventable</b>		
Yes	280	93.3
No	18	6.0
Don't know	2	0.7
<b>HIV can be prevented by what means (n=280)</b>		
Abstinence	56	20.0
Consistent use of condoms	175	62.5
Not sharing object	49	17.5
<b>AIDS is incurable</b>		
Yes	253	84.3
No	9	3.0
Don't know	38	12.7
<b>Who should be tested</b>		
Everyone	194	64.7
People who have unprotected sex	50	16.7
People who have sex with HIV infected persons	40	13.3
People who use needles for tattoos, piercings	1	0.3
Only sexually active people	15	5.0
<b>Know where to go to get an HIV test</b>		
Yes	262	87.3
No	5	1.7
Not sure	33	11.0
<b>Ever been tested to see if you have the HIV</b>		
Yes	236	78.7
No	64	21.3
<b>Did you find the test helpful (n=236)</b>		
Yes	185	78.4
No	32	13.6
<b>Overall knowledge</b>		
Good	194	67.4
Poor	94	32.6

\*Multiple responses allowed

In table 3, the majority (70.1%) of the respondents agreed that it was good to know one's HIV status while 32.6% were of the view that HIV test should be done every six months. Approximately 62% of the respondents were willing to be counseled and tested for HIV at an

HCT center and 55.9% agreed that condoms were useful in protecting them against HIV. Over half (54.2%) of the respondents agreed that condoms should be used regularly and 48.3% were willing to introduce a colleague to an HCT center.

**Table 3: Attitude towards HIV counseling and testing (HCT)**

Variables	Strongly Agree frequency (%)	Agree frequency (%)	Disagree frequency (%)	Strongly Disagree frequency (%)	Indifferent frequency (%)
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Think it is necessary to know one's HIV status	84 (29.2)	202 (70.1)	1 (0.3)	1 (0.3)	1 (0.3)
HCT is useful for everyone to ensure they know their HIV status	172 (59.7)	115 (39.9)	0 (0.0)	1 (0.3)	1 (0.3)
HIV test should be done for sexually active people only	3 (1.0)	87 (30.2)	113 (39.2)	45 (15.6)	40 (13.9)
HIV testing is only necessary for sick people and should not be done in healthy people	2 (0.7)	88 (30.6)	138 (47.9)	36 (12.5)	24 (8.3)
Counselling and testing for HIV should take place at a HCT center	179 (62.2)	92 (31.9)	8 (2.8)	4 (1.4)	5 (1.7)
Feel HCT centers should be made more readily accessible to people	168 (58.3)	111 (38.5)	5 (1.7)	2 (0.7)	2 (0.7)
Positive HIV test is a death sentence	3 (1.0)	166 (57.6)	87 (30.2)	12 (4.2)	20 (6.9)
Whoever tests positive got it from the test kit and not from a previous infection	2 (0.7)	161 (55.9)	85 (29.5)	16 (5.6)	24 (8.3)
HCT services in Lagos State are substandard because it is free of charge	3 (1.0)	68 (23.6)	32 (11.1)	133 (46.2)	52 (18.1)
Condoms are protective against HIV	110 (38.2)	163 (56.6)	3 (1.0)	1 (0.3)	11 (3.8)
Willing to introduce colleagues to an HCT center	139 (48.3)	83 (28.8)	3 (1.0)	42 (14.6)	21 (7.3)
<b>Overall attitude</b>		<b>Frequency</b>		<b>%</b>	
Negative		72		25.0	
Positive		216		75.0	

The overall attitude scores depicted that 75.0% had a positive attitude towards HCT. The utilization of HCT is represented in table 4. About 60.4% of the respondents indicated that they had access to HCT centers. The main

place of access to HCT service as specified by respondents was Primary Health Centers (34.5%). More than half (55.6%) revealed that they had sought service at an HCT site before.

**Table 4: Utilization of HIV counseling and testing centers**

Variable	Frequency	Percentage (%)
<b>Have access to HCT Centre (n=288)</b>		
Yes	174	60.4
No	114	39.6
<b>Nearest HCT Centre is over 25km (n=174)</b>		
Yes	85	48.9
No	89	51.1
<b>Place of access to HCT service (n=174) *</b>		
Private hospital	28	16.1
Primary Health Centre (PHC)	60	34.5
General Hospital	41	23.6
Tertiary Hospital	18	10.3
Mobile HCT centers	43	24.7
Organized outreaches	25	14.4
Faith-based centers	15	8.6
Pharmacy/ Chemist	11	6.3
Private Doctor/ Clinic	24	13.8
Business premise/workplace	5	2.9
<b>Ever sought service at any HCT site before (n=288)</b>		
Yes	160	55.6
No	128	44.4
<b>Engaged in sex with a person whose HIV status is unknown in the past 12 months (n=300)</b>		
Yes	148	49.3
No	152	50.7
<b>Engaged in sex with a person whose HIV status was different from yours in the past 12 months (300)</b>		
Yes	30	10.0
No	270	90.0
<b>OVERALL UTILIZATION SCORE</b>		

**Ever sought service at any HIV counseling and testing site before (n=288)**

Yes	160	55.6
No	128	44.4

\*Multiple responses allowed

In table 5, the majority of the respondents revealed that the main reasons for not taking HIV tests were fear of a positive result (90.6%) and fear of rejection by family and society (6.3%). The main reasons for not visiting any HCT center before were distance to the HCT center (67.2%) and worry about discrimination

of FSW status (25.0%). The main reasons for visitation to the testing center by respondents were to know their HIV status (79.4%) and for blood transfusion purposes (28.8%). Also, 66.9% stated that their last experience at the HCT center was good.

**Table 5: Factors affecting the utilization of HCT**

Variable	Frequency	Percentage (%)
<b>Main reasons for not taking the HIV test (n=64)</b>		
Expensive	1	1.6
Fear of a positive result	58	90.6
Fear of rejection by family and society	4	6.3
Takes time for the result to be out	1	1.6
<b>Reason for not visiting any HCT center before (n=128)*</b>		
Distance to the HCT center	86	67.2
Worry about discrimination of FSW status	32	25.0
Stigmatization	19	14.8
Lack of Confidentiality	17	13.3
Fear of being seen by people	17	13.3
No support by the manager	14	10.9
Negative attitudes of the Health Worker	14	10.9
Unreliable test result	13	10.2
Not willing to attend HCT center for testing	12	9.4
Payment for services	8	6.3
Religious belief	7	5.5
Delay in results	5	3.9
<b>Reason for visiting the testing center (n=160)</b>		
To know my HIV status	127	79.4
It was enforced	24	15.0
Blood transfusion purposes	46	28.8
School admission purposes	16	10.0
Others	1	0.6
<b>Description of last experience at the site you visited for the HIV Counselling and Testing (n=160)</b>		
Good	107	66.9
Fair	49	30.6
Bad	4	2.5

\*Multiple responses allowed

**Discussion**

This study assessed the knowledge, attitude, and utilization of HCT by 300 BBFSWs in Lagos State. Almost all the respondents were aware of HCT centers, through friends, the media, family members, and healthcare workers in this study. This was similar in other studies however, media was the main source of information among students in a tertiary institution in Abia State, southeast Nigeria (15) while it was the health workers in a study among youths in Gulu, Northern Uganda (11). Almost all of the respondents knew that HIV is

transmissible from one person to another majorly by unprotected sex with an infected person, sharing of sharp objects and transmission from an infected mother to her unborn child and this is consistent with a study among FSWs in Kano (16). In Papua New Guinea, the majority were aware that HIV is transmissible through sexual contact followed by pregnant mothers to unborn children (17). Transmission from infected blood and unprotected sexual intercourse were the two most common means listed by FSWs in Shanghai, China (18). In all these studies, the

FSWs were aware that sexual intercourse was an important means of transmission of HIV.

About two-thirds of the participants in this study believed that their job put them at a high risk of being infected and only a few of the respondents did not agree that their job exposes them to HIV. Similarly, one out of five sex workers perceived that they had a high or moderate risk of contracting HIV in a Korean study (19). This finding differs from a study among FSWs in four cities in Nigeria where the respondents underestimated the risk of infections from their job as sex workers but rather a strong belief in fatalism and predestination (20). Also, 80% of FSWs who participated in a study in Aden, Yemen (21), reported low perceived risk. Rationalization and defense of risky behaviors is a typical psychological response to threat and anxiety of belief and behavior discrepancies as explained by the principle of balance theory (20, 22). Most (93.3%) respondents in this study thought that HIV was preventable, and the majority indicated the use of condoms as a method of prevention. In the Yemen study, the respondents were less likely to use condoms and to seek medical assistance for sexually transmitted infections (STI) which increases the vulnerability to HIV (21). Existing research suggests that risk perception is a critical determinant of health behavior (23).

Over three-quarters of the respondents in this study confirmed they have been tested for HIV in the past which is similar to a study conducted among Cameroonian and Ethiopian female sex workers (24, 25). About a third of the respondents were of the view that HIV tests should be done every six months which is also consistent with the Ethiopian study (25). The majority of the respondents were willing to be counseled and tested for HIV at an HCT center similar to the study conducted in the tertiary institution in Abia State, Nigeria (15). However, more than half of the respondents in this study felt HCT centers should be made more readily accessible. About half (54.2%) of the respondents strongly agreed that on the need for regular use of condoms and this was lower than the study in Ethiopia, where 79.3% of the respondents advocate correct and consistent use of condoms (25). This study revealed an overall positive attitude of 75% which is higher than the findings from a study conducted in Kenya (26).

Over half of the respondents in this study utilized the HCT centers lower than two-thirds of them who had access to the centers. This finding for utilization was similar among the FSWs in Kenya (26). PHC was the commonest place of access to HCT in this study similar to

the study done in Abia State, Nigeria (15). The main reason for not taking the HIV test as indicated by respondents was majorly the fear of a positive result. For the respondents in this study who had not visited any HCT center before, the main complaint was the distance to the HCT (67.2%) followed by stigmatization (14.8%) and lack of confidentiality (13.3%) which differed from a study in Abia State (15) in which lack of awareness of HIV testing centers (37.1%), followed by fear of positive test result (22.9%) and the lack of desire to get tested for HIV in 22.4% were their main reasons for not visiting the HCT center. However, a study in South Africa study, showed that slightly more than half (52.0%) of the survey participants cited stigma or negative attitudes as a factor that deterred HIV testing (27).

The main reason for visiting the HCT centers by the majority of respondents in this study was the need to know their HIV status similar to what was reported in a study in Cameroon (25). Other reasons for HIV testing in this study were for school admission (10.0%), blood transfusion (28.8%) and when enforced (15.0%) while in the Cameroonian study, it was for school admission (22.0%), illnesses (10.2%) and marriage purposes (8.5%) (25). The majority of the FSWs in this study described their last experience at the HCT center as "good", similar to the study in Abia State, Nigeria (15). Among the respondents who had not visited HCT centers before, reasons given included stigmatization (14.8%), discrimination (13.3%), negative attitude of health workers administering HCT (10.9%), the distance of HCT center (67.2%), and doubt about client confidentiality (13.3%). Similar findings were observed in a recent study in Abuja, Nigeria, where stigmatization and discrimination, health workers' attitude while offering HCT service, location of HCT center, and client confidentiality were factors militating against HCT utilization (1).

The study contributes to our understanding of BBFSWs and their HCT knowledge and utilization in Lagos State. A potential source of bias for the study is with the sampling method as research participants are likely to refer people they know and have similar traits. Secondly, an additional qualitative input such as a focus group discussion as part of this study would have allowed more detailed information on beliefs, opinions, and experiences of the respondents on HCT utilization.

### Conclusion

In conclusion, there was a good knowledge of HIV and a positive attitude towards HCT services by the respondents. The main reasons

for the non-utilization of HCT centers included distance to the centers and worry about sex work discrimination. It is recommended that more HCT centers should be made available for use and HIV-stigma related issues should be adequately addressed.

#### List of abbreviations

BBFSWs:	Brothel-Based Female Sex Workers
FSWs:	Female Sex Workers
HIV/AIDS:	Human Immunodeficiency Virus/Acquired immunodeficiency Syndrome
HCT:	HIV counseling and testing services
LGA:	Local Government Area
LSACA:	Lagos State AIDS Control Agency
LUTH:	Lagos University Teaching Hospital
PHC:	Primary Health Centre
STI:	Sexually Transmitted Infections
UNAIDS:	The Joint United Nations Programme on HIV/AIDS
VCT:	Voluntary Counselling and Test centers

#### Declarations

##### *Ethics approval and consent to participate*

The study was approved by Lagos University Teaching Hospital Health Research and Ethics Committee with approval number ADM/DCST/HREC/APP/1832.

##### *Consent for publication*

The authors hereby give consent for the publication of our work under the creative commons CC Attribution-Noncommercial 4.0 license.

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

The data and materials associated with this research will be made available by the corresponding author upon reasonable request.

##### *Competing interests*

The authors have declared no conflict of interest.

##### *Funding*

The authors received no research funding.

##### *Authors' contributions*

OA and OO conceived of the presented idea and the study design. OA, OO, OE, and EA processed the data, interpreted the analysis,

and drafted the manuscript. All authors discussed the results, commented on the manuscript, and approved the final manuscript.

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