JOURNAL OF
COMMUNITY MEDICINE
&PRIMARY HEALTH CARE

Knowledge of HIV/sexually transmitted infections, sexual behavior and HIV sero-prevalence of brothel-based female sex workers in Abakaliki, southeast Nigeria

Ogbonnaya LU, Azuogu BN, Alo CN

Communicable diseases control research centre
Department of Community Medicine,
Ebonyi State University Teaching Hospital, Abakaliki

Corresponding author:
E-Mail: uluogbonnaya@yahoo.com

Abstract

Setting: Brothel based female sex workers in Abakaliki metropolis, Ebonyi State.
Objective: To determine the HIV prevalence, knowledge of sexually transmitted infections (STIs)/HIV, and sexual behavior of brothel-based female sex workers (FSWs)
Methods: Using a cross-sectional descriptive design, data was collected from a total population sample of 85 female sex workers in three brothels located in the town. HIV diagnosis was made using rapid test kits according to the national algorithm. Presumptive STIs diagnosis was made syndromically.
Results: HIV prevalence among this group was 18.8% while 35.3% had symptoms of STIs. Misconceptions exist in the FSWs' knowledge of HIV transmission and STIs/HIV prevention methods as 20% believe that mosquito transmits HIV; 63.5% douche, 60% take antibiotics and 36.5% consume local gin *('Ogogoro')* after sex while 15.3% take antibiotics before sex as means of preventing STI/HIV transmission; 8.2% felt no need for HIV screening since there is no cure for HIV/AIDS. Condom use by client was significantly related to FSW previous history of HIV testing.
Conclusion: HIV prevalence among this high risk group is four times higher than the state average. Despite high knowledge of HIV/STIs, misconceptions exist concerning means of transmission and relevance of regular HIV testing.

Key Words: STIs/HIV; Knowledge; Sexual behavior; HIV Sero- prevalence; Sex workers; Abakaliki southeast Nigeria.

Introduction

Since the beginning of the acquired immune deficiency syndrome (AIDS) pandemic, sex workers have remained a high risk group for the transmission of the human immuno-deficiency virus (HIV) globally [1]. Paid sex remains an important factor in many of the HIV epidemics in Western, Central and Eastern Africa. It is estimated that almost one third (32%) of new HIV infection in Ghana, 14% in Kenya and 10% in Uganda are linked to sex work (HIV infection among sex workers, their clients or their other sex partners[2-3]. Recent sero-prevalence studies among female sex workers (both brothel- based and non-brothel based) in Nigeria ranged from 12.9-49.1% and is the highest for any population group[4].

The risk factors associated with high HIV prevalence among sex workers include multiple sex partnering, co-infection with other sexually transmitted infections (STIs) which serve as co-factors for HIV transmission, and inconsistent use of condoms[5,6]. Sex workers are a 'core population' in HIV transmission dynamics (that is, a small group in which the infection is endemic and from whom it spreads to the population at large) due to their high HIV prevalence, their increased ability to transmit HIV when co-infected with other STDs, and the broad population groups they reach through their clients[7]. It is therefore important to deliberately target sex workers with HIV prevention programmes especially in countries where heterosexual transmission is the main route of HIV transmission and sex work is an important contributor to the spread of the virus. Some such programmes have shown remarkable successes in countries like Senegal, Kenya and India [8,-10]. However, such programmes need to be locally adjusted to the prevalent distribution of behavioural and societal factors associated with HIV transmission in sex workers[8], and should not permit the stigmatization of and discrimination against sex workers[1].

This preliminary study of the socio-demographic characteristics, HIV/STI knowledge, sexual behavior, HIV screening practice and HIV sero-prevalence of brothel-based FSW in Abakaliki was aimed at providing such data as a prelude to deliberate targeting of the sex workers with HIV prevention programmes as part of the State wide AIDS control programme in Ebonyi State southeast Nigeria. To the best of the knowledge of the authors, no such work has previously been done in Abakaliki.

Materials and methods

Background

Abakaliki the capital of Ebonyi State is a growing city with a population of nearly two hundred thousand (200,000) people[11]. In the southeast geo-political zone, Ebonyi is the least developed and the poorest. Its people are mostly farmers with a small population of civil servants and traders. The most prominent industrial activity is the stone quarrying and crushing industry.

Ebonyi is experiencing a generalized HIV epidemic. The HIV sero prevalence among ANC attendees is 4.5%, similar to the national average of 4.4%[12]. However, Ebonyi is surrounded by States with very high sero-prevalence (Benue to the North [12%] and Cross River to the east [10%]), with whom it maintains a very high level of interactions in commerce and other social activities[13]. Sex work in Ebonyi state is not legalized and sex workers are highly stigmatized and discriminated against. Brothels are not registered, neither are sex workers licensed. There are different types of sex workers depending on the place where they recruit their clients[14]. The common ones found in the State include 'street workers' (those who recruit their clients by standing on the streets at certain junctions at nights), those who recruit their clients in hotels, bars, truck stops, and those attached to brothels. This study was done amongst the brothel-based sex workers.

Study design

This was a cross sectional descriptive survey

Sampling and sample size

Because brothels in Ebonyi state are not registered, it was difficult locating their

addresses as they do not display signboards. The brothels studied were identified through snowballing by interviewing some residents in the town who have lived in the city for a long time. By this process, three brothels were identified at *'Ogbe Hausa'*, another near the 'Spera in Deo' junction at the terminus of the Enugu-Abakaliki expressway before the Akanu Ibiam roundabout and the last one at a truck stop along the Abakaliki-Ogoja express way just after the Akanu Ibiam roundabout. All the 85 FSW met at the brothels were recruited and interviewed.

Data collection

Data was collected over a 3 week-period in the month of May 2010, using a structured questionnaire with some few semi structured questions by five medical students who had been previously trained as research assistants for the purpose. The questionnaire sought information on the socio-demographic characteristics of the sex workers, knowledge and use of contraceptives, knowledge of STIs including HIV, including the mode of transmission and prevention, sexual behavior, previous HIV screening practices, willingness to undergo another HIV screening test for those who have not had a recent HIV screening and willingness to access HIV care for those who might test positive to HIV screening (the FSW were offered free condoms and voluntary counseling and testing as part of the study protocol).

Data analysis

Data was analyzed with EPI Info version 3.5.1 (2008) using simple frequency tables and percentages. Variables were cross tabulated to check for associations between socio-demographic variables and knowledge of STIs, HIV, number of clients per day, use of condoms as well as HIV screening practices. Association between categorical variables was tested for statistical significance using the Chi Square Statistic. The level of significance was set at $P < 0.05$.

Ethical clearance

The study was approved by the research ethics committee of Ebonyi State University Teaching Hospital. Permission was sought from the managers of the different brothels in order to gain access to the sex workers. Verbal informed consent was obtained from the sex workers before they were interviewed.

Results

Socio-demographic characteristics

The age range of the FSW was 20-52 years with a mean of 26.7 +/- 4.5 years. Majority 72 (85.7%) were Christians; 77.6% were single; virtually all (83 or 97.7%) had secondary education or less. See Table 1.

STIs/HIV knowledge

Majority (>97%) of the FSWs were aware that HIV, gonorrhoea and syphilis could be transmitted sexually. However, hepatitis B, hepatitis C, Chlamydia were not as well known. The sex worker's knowledge of the mode of transmission of HIV was relatively high. Majority (> 63%) of the FSWs identified unprotected sex with an infected partner, transfusion with improperly screened blood, contaminated sharp objects, vertical transmission from an infected mother to an unborn child as mode of transmission of HIV. There was a relatively high knowledge of contraceptives. Nearly 90% identified the use of condoms as a means of preventing unwanted pregnancy, see Table 2.

The women had a high volume of clients. The number of clients the women had daily ranged from 3-20 with a mean of 7±3.7. Although all the FSWs claimed they request their clients to use condoms, only 11 (12.9%) reported consistent use of condoms by their clients. The major reason for refusal of condom use was a willful or forceful rejection by their clients, Table 3.

HIV screening practices and HIV sero-prevalence among the sex workers

Majority 70 (82.4%) of the sex workers have been screened for HIV at least once, and 55 (78.6%) of them were through voluntary counseling and testing. However, only 34 (40%) of the sex workers have done an HIV test within the past three months. See Table 5

Of the 15 who have never had an HIV screening test 7 (46.6%) felt it was not necessary

Table 1: Socio-demographic characteristics of brothel based FSW

Characteristic	Frequency	Percentage
Age:		
20-24	18	21.2
25-29	51	60
≥ 30	16	18.8
Educational status:		
No Formal Education	1	1.2
Primary Education	42	49.4
Secondary Education	40	47.1
Tertiary Education	2	2.4
Religion:		
Christianity	72	84.7
African traditional religion	7	8.2
Islam	4	4.7
Other	2	2.4
Marital status:		
Single	66	77.6
Married	3	3.5
Divorced	9	10.6
Separated	6	7.1
Widowed	1	1.2

Table 2: Knowledge of STIs, their routes of transmission and the means of preventing transmission

Variable	Frequency	Percentage
Which of these is an STD*:		
HIV/AIDS	85	100
Gonorrhea	84	98.8
Syphilis	83	97.6
Hepatitis B	14	16.5
Hepatitis C	11	12.9
Chlamydia	4	4.7
Human Papilloma Virus	2	2.4
Which of these is a route of HIV transmission*		
Unprotected sex with an infected partner	71	83.5
Transfusing a patient with improperly screened blood	70	82.4
Sharing of contaminated sharp instruments	68	80
Mother to child transmission	54	63.5
Mosquito bite	17	20
Knowledge of means of preventing transmission of STIs including HIV:		
Good knowledge	13	15.3
Poor Knowledge	72	84.7
Answers given by those with poor knowledge*:		
Douching with warm water after sexual intercourse	54	63.5
Taking antibiotics after sexual intercourse	51	60
Taking local gin (*'Ogogoro'*) after sexual intercourse	31	36.5
Taking antibiotics before sexual intercourse	13	15.3

*Respondents ticked more than one answer.

since there was no cure for HIV/AIDS, 4 (26.7%) were either afraid of the result of the test or do not know where to get the test done respectively.

As part of the study protocol, the sex workers were offered voluntary counseling and testing and 16 (18.8%) of them tested positive and were referred to Ebonyi State University Teaching Hospital for care. Testing followed the national algorithm of two parallel rapid tests (Unigold and Determine) while a third rapid test (Starpack) was reserved as the tie breaker in case of indeterminate result.

Presence of symptoms of STIs

Significantly, 30 (35.3%) of the sex workers had symptoms of STIs. Out of this, 7 (23.3%) had Vaginal discharge, 6 (20%) had lower abdominal pain, 5 (16.7%) had fever and 1 (3.3%) had painful urination. However, 11 (36.7%) had 2 or more symptoms as at the time of the interview.

Discussion

This study demonstrates an HIV sero-prevalence rate of 18.8% among brothel-based sex workers in Abakaliki Nigeria. This rate is more than four times higher than the 4.5% state average sero-prevalence rate[15]. This is in keeping with findings from similar studies among sex workers globally[16,17]. Considering the large clientele of the sex workers in this study, the potential for transmission to the general population through this 'bridge population' is huge.

The sex workers' knowledge of HIV and its routes of transmission were high. This could be explained by the intensive dissemination of HIV/AIDS information, education and communication, especially through the radio in the state by the State Action Committee against AIDS (EBOSACA) for the past 11 years. However, there were two misconceptions that should be quickly dispelled among this group. First is that mosquito transmits HIV. About 20% of the sex workers in this study believe that HIV could be transmitted through mosquito bites. This misunderstanding could lead to risky behavior such as failing to use condom consistently during sex. Second is that it is not necessary to do an HIV test since there is no cure for AIDS. A sizeable proportion (38.9%) of those 18 sex workers who had never had an HIV screening test subscribe to this. The usefulness and centrality of voluntary counseling and testing in HIV control is not in doubt as knowing one's status is the entry point for effective HIV care. A negative result would spur one to implement and/ or retain risk reduction measures in order to remain negative. A positive result would help one to begin care early, including Anti-Retroviral Therapy (ART) at a time when the body systems have not been so overwhelmed by illness and the CD4+ count not so low as to make immune reconstitution difficult. There is therefore the need to deliberately target this group with the right message to clear these misconceptions.

Many of the sex workers had not done an HIV screening recently. Only 41% of the sex workers had done screening in the past 3 months. For a high risk group such as sex workers to rely on an HIV screening result of more than 3 months is misleading. As has been suggested by other workers, regular screening of sex workers for both HIV and other STIs is necessary[18-21].

As is expected of this group, a sizeable 35.3% of the sex workers have symptoms of STIs. Out of the 30 with symptoms, 11 (36.7%) have 2 or more symptoms. Many of the sex workers' knowledge and practice of STIs prevention is faulty. Majority douched or took antibiotics as well as consumed locally brewed gin (*'Ogogoro'*) before or after sex. This practice would definitely place them at increased risk of acquiring STIs, transmitting it to their clients and producing resistant strains of otherwise easily treatable infections through indiscriminate use of antibiotics. Against the backdrop of unhindered access to all manner of medicines over the counter especially through the patent medicine vendors in Nigeria due to the chaotic drug distribution channels, the risk is unimaginable. Evidence abounds supporting the role of STIs as HIV co-factors facilitating HIV transmission[5,6]. Interventions to improve knowledge of STIs prevention in this group, and

Table 3: Sexual behavior of the FSWs

Practice	No of FSWs reporting	Percentage
Number of clients/day:		
3	**10**	**11.8**
4	**4**	**4.7**
5	**31**	**36.5**
6	**9**	**10.6**
7	**4**	**4.7**
8	**1**	**1.2**
9	**1**	**1.2**
10	**18**	**21.2**
15	**5**	**5.9**
20	**2**	**2.4**
Total = 595;Mean = 7.0 ± 3.7		
Clients' use of condom during transaction:		
Requests clients to use condom always	**85**	**100**
Insist on clients' use of condom	**11**	**12.9**
Clients sometimes use condom	**74**	**87.1**
Reason why clients do not sometimes use condom (n = 74):		
Client forcefully rejected the use of condom	**30**	**40.6**
Client was 'a regular and trusted friend'	**22**	**29.7**
Condom was not available at that material time	**22**	**29.7**

Table 4: Use of the female condom by the FSWs

Variable	Frequency	Percentage
Are you aware of the female condom?		
Yes	71	83.5
No	14	16.5
Have you seen a female condom before?		
Yes	64	75.3
No	21	24.7
Do you know where to source a female condom?		
Yes	46	54.1
No	39	45.9
Have you used a female condom before?		
Yes	46	54.1
No	39	45.9
Reasons for not having used the female condom (n = 39)		
Not seen one before	21	53.8
Don't know how to use it	8	20.5
Don't like it	5	12.8
Couldn't afford to buy one because it was costly	1	2.6
Other reasons (did not specify)	4	10.3

Table 5: HIV screening practices and HIV sero-prevalence of FSWs

Variable	Frequency	Percent
Ever been screened before?		
Yes	70	83.3
No	15	16.7
Have you had a recent HIV test (past 3 months)?		
Yes	34	41
No	51	59
Why have you not done an HIV test recently?(n = 51)		
Fear of testing positive	11	21.6
Test is not necessary as there is no cure for AIDS	20	39.2
Don't know where to get a test done	11	21.6
Other	9	17.6
If you test positive, would you be willing to access care?		
Yes	60	70.6
No	25	29.4
What factors would make it difficult for you to access care?		
Fear of stigmatization	42	48.9
Fear of loss of job	20	23.4
Fear of both stigmatization and loss of job	11	12.8
Other	12	14.9
Do you know where to access care in this city?		
Yes	62	74.7
No	23	25.3

to screen and treat STIs will impact most positively in the HIV control programme of the state. Countries with poor STI control have been most vulnerable to HIV epidemics, while improvements in STI control parallel or precede declines in HIV incidence and prevalence[19].

It is instructive that as much as 45.9% of the sex workers do not know where to access the female condom and have never used one before. In a culture where many men do not accept to use condom even in commercial sex setting, it would be important to have a preventive measure whose use would be dependent on the woman and not on the man. Pending when microbicides would be approved for use, female condoms should be made widely available and sex workers taught how to use it.

The main limitations of this study include the inability to test for the specific STIs as well as the small number of the FSW studied. We recruited and conducted the interviews with the sex workers in the brothels. It was difficult to carry out these detailed examinations within that environment as the interview was frequently interrupted by their '*business*es. We did however refer the symptomatic sex workers to our centre where a more thorough examination and specific diagnosis of the STDs would be done and reported on in a follow-up study.

Conclusion and Recommendations

In conclusion, this study demonstrates high knowledge of HIV, high prevalence of HIV sero-prevalence; high prevalence of symptoms of STIs; wrong notions of means of preventing STIs and high clientele volume amongst the brothel based sex workers in Abakaliki southeast Nigeria.

Considering the central role played by sex workers in the transmission dynamics of HIV in Nigeria, it is recommended that STI and HIV prevention interventions be deliberately targeted to sex workers and their clients as a means of improving the HIV control programme. Such a programme should go hand in hand with poverty alleviation/economic

empowerment programmes so that those sex workers who were driven into sex work by economic circumstances could be rehabilitated off it.

Acknowledgement

We acknowledge the assistance the brothel managers gave to us which enabled us to have access to the sex workers. We also sincerely acknowledge Mrs. Igboke Nkechi, Oti Ogbonna, Enenwally Harriet, Alieze Ogwa and Njoba Sunday who served as research assistants. We are also grateful to the Matron in-charge of the HIV Counseling and Testing (HCT) unit of Ebonyi State University Teaching Hospital and her team who conducted the HCT for the sex workers. We thank Mr. Paul Onwe who helped us in finding the brothels, and the management of Ebonyi State Action Committee against AIDS (EBOSACA) for the condoms donated to us for distribution to the sex workers.

References

1. UNAIDS, WHO: UNAIDS/WHO AIDS Epidemic Update: December 2010. http://www.unaids.org/en/HIV_data/epi2010/
2. Gelmon L, Kenya P, Oguya F, Cheluget B, Haile G. Kenya: HIV prevention response and modes of transmission analysis. Nairobi, Kenya National AIDS Control Council, 2009.
3. Wabwire-Mangen F, Odiit M, Kirungi W, Kisitu DW, & Wanyama JO. Uganda: HIV modes of transmission and prevention response analysis. Kampala, Uganda National AIDS Commission, 2009.
4. Federal Ministry of Health. HIV/STI Integrated Biological and Behavioural Surveillance Survey (IBBSS). Federal Ministry of Health Abuja, 2007.
5. Ramakrishnan L, Gautam A, Goswami P, Kallam S, Adhikary R, Mainkar MK, Ramesh BM, Morineau G, George B, Paranjape RS. Programme coverage, condom use and STI treatment among FSWs in a large-scale HIV prevention programme: results from cross-sectional surveys in 22 districts in southern India.Sex Transm Infect 2010 Feb; 86 Suppl 1:62-68
6. Diallo BL, Alary M, Barry A, Rashed S. HIV epidemic among female sex workers in Guinea: prevalence, associated risk factors, vulnerability and trend from 2001 to 2007. Rev Epidemiol Sante Publique 2010 Aug; 58 (4): 245-254.
7. Lowndes CM, Alary M, Meda H, Gnintoungbe CAB, Mukenge-Tshibaka L, Adjavi C, Buve A, Morison L, Laourou M, Kanhonou L, Anagonou S. Role of core and bridging groups in the transmission dynamics of HIV and STIs in Cotonou, Benin, West Africa. Sex Transmit Infect 2002; 78: i69-i77
8. Wang C, Hawes SE, Gaye A, Sow PS, Ndoye I, Manhart LE, Wald A, Critchlow CW, Kiviat NB. HIV Prevalence, previous HIV testing, and condom use with clients and regular partners among Senegalese commercial sex workers. Sex Transm Infect 2007; 83: 534-540.
9. Luchters S, Chersich MF, Rinyiru A, Barasa MS, King'ola N, Mandaliya K, Bosire W, Wambugu S, Mwarogo P & Temmerman M. Impact of five years of peer-mediated interventions on sexual behavior and sexually transmitted infections among female sex workers in Mombasa, Kenya. BMC Public Health April 2008; 8: 143-153
10. Ramesh BM, Beattie TS, Shajy I, Washington R, Jagannathan L, Reza-Paul S, Blanchard JF, Moses S. Changes in risk behaviors and prevalence of sexually transmitted infections following HIV preventive interventions among female sex workers in five districts in Karnataka state, south India.

Sex Transm Infect 2010 Feb; 86 Suppl 1: i17-24.
11. National Population Commission. The 2006 Nigeria national census result. National Population Commission Abuja, Nigeria; April 2008.
12. National Agency for the Control of AIDS (NACA). National HIV sero-prevalence Sentinel survey. Federal Ministry of Health, Abuja; 2007.
13. Ebonyi State Government of Nigeria. Ebonyi State Economic and Empowerment Development Strategy (EB-SEEDS) document. Ebonyi State SEED committee, Abakaliki, September 2004.
14. Harcourt C, Donovan B. The many faces of sex work. Sex Transm Infect 2005; 81: 201-206.
15. National Agency for the control of AIDS. National HIV sentinel survey 2007. National Agency for the Control of AIDS; Abuja Nigeria.
16. UNAIDS. Sex work and HIV/AIDS. Geneva; Joint United Nations Programme on HIV/AIDS, 2002.
17. Bautista CT, Pando MA, Revnaga E, Marone R, Sateren WB, Montano SM, Sanchez JL, Avila MM. Sexual practices, drug use behaviors, and prevalence of HIV, syphilis, hepatitis B and C, and HTLV-1/2 in immigrant and non-immigrant female sex workers in Argentina. J Immigr Minor Health 2009 April; 11 (2): 99-104.
18. Steen R. & Dallabetta G. Sexually Transmitted Infection Control with sex worker: Regular screening and presumptive treatment augument efforts to reduce risk and vulnerability. *Reproductive Health Matters* 2003; 11 (22): 74-90.
19. Steen R., Wi T. E., Kamali A. & Ndowa F. Control of sexually transmitted infections and prevention of HIV transmission: mending a fractured paradigm. *Bull. WHO* 2009 Nov; 87 (11): 858-865.
20. Michael Rekart. Sex Work Harm reduction. *The Lancet* 2005 Dec; 366 (24/31): 2123-2134
21. Wi T., Ramos E. R., Steen R., Esguerra T. A., Roces M. C. R., Lim- Quizon M. C., Neilsen G. and Dallabetta G. STI declines among sex workers and clients following outreach, one time presumptive treatment, and regular screening of sex workers in the Philippines. *Sexually Transmitted Infections* 2006 Oct; 82 (5): 386-391