

HIV prevalence and risk behavior among clients of female sex workers in Abidjan, Côte d'Ivoire

Bea L. Vuylsteke^{a,b}, Peter D. Ghys^{a,b}, Moussa Traoré^c, Yao Konan^c,
Guessan Mah-Bi^c, Chantal Maurice^b, Dramane Soroh^b,
Jeanne N. Diarra^c, Thierry H. Roels^{b,d} and Marie Laga^{a,d}

Objective: To assess socio-demographic and behavioural characteristics of clients of female sex workers in Abidjan, and to determine their HIV prevalence and related risk factors.

Design: A cross-sectional study among clients of female sex workers in Abidjan, Côte d'Ivoire.

Methods: A trained interviewer approached clients leaving the room of a female sex worker and invited them for an interview using a structured questionnaire, and to provide a saliva sample. Saliva was tested for HIV antibodies by the GACELISA assay (Murex, Dartford, UK).

Results: A total of 526 clients agreed to participate, and 423 (80.4%) provided a saliva sample. Reported condom use was very high, 92.7% said they always use condoms and 95.4% reported condom use during the visit preceding the interview. The overall HIV prevalence among the clients who provided a saliva sample was 13.4%. Older age and being married or cohabitating was significantly associated with HIV infection in multivariate analysis.

Conclusions: HIV prevalence appears to be relatively low, and condom use is high among clients of female sex workers in Abidjan. Existing HIV prevention efforts among female sex workers and among the general population should be sustained and reinforced.

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Introduction

Since the beginning of the HIV/AIDS epidemic, sex workers in developing countries have belonged to one of the groups most vulnerable to HIV infection. Men who have both commercial and non-commercial sex

partners play a major role in bringing HIV infection into the general population. These 'bridge' populations may be as important as core groups for directing prevention programs [1]. However, few prevention programs have been specifically focusing on these men, their identification and accessibility being a major

From the ^aInstitute of Tropical Medicine, Antwerp, Belgium, ^bProjet RETRO-CI, the ^cInstitut National de Santé Publique, Abidjan, Côte d'Ivoire, and the ^dCenters for Disease Control and Prevention, Atlanta, USA.

Correspondence to B. Vuylsteke, 01 BP 1712 Abidjan 01, Côte d'Ivoire.

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obstacle. To enable effective targeting of prevention messages to this population, it is essential to learn more about their socio-demographic characteristics, knowledge and attitudes regarding HIV infection and condom use, and current risk behavior.

In Côte d'Ivoire, sexually transmitted infection (STI)/HIV prevention and care programs for female sex workers and their partners have been carried out since 1991 [2]. In a 1997 survey among female sex workers in Abidjan, the reason most frequently mentioned for not using a condom was the client's refusal [3].

The objectives of this study were to assess socio-demographic and behavioral characteristics of clients of female sex workers in Abidjan, and to determine their HIV prevalence and related risk factors.

Methods

A cross-sectional study was conducted from September through October 1999 in 84 sex worker sites in Abidjan, Côte d'Ivoire. A two-stage sampling method was used. In the first stage, 84 sex worker sites were selected out of a total of 350 using a sampling method with probability proportional to size (i.e., number of sex workers per site). At each selected site, between four and eight clients (second-stage units) during one night were interviewed.

A total of 12 trained male interviewers (six teams) and three field supervisors carried out the study. Each study team visited their selected sites at least 1 day before the date of the data collection, to make contact with the owner or manager of the site and with the female sex workers working at the site. Interviews and sample collection were carried out at each selected site, between 8 p.m. and 1 a.m. A trained interviewer approached clients leaving the room of a female sex worker and invited them to a discrete place near the site. After obtaining their informed consent, clients were interviewed with a structured questionnaire on socio-demographic characteristics and knowledge, attitudes and practices regarding STI, HIV and AIDS, including condom use. After the interview, each participant was asked to provide a saliva sample by putting the Omni-SAL device (Saliva Diagnostic Systems, Singapore) under his tongue for 1 min.

The saliva samples were transported to the laboratory of Projet RETRO-CI within 12 h and tested for HIV antibodies by using the GACELISA assay (Murex, Dartford, UK) according to the instructions given by the manufacturer [4].

Statistical analysis of the data was carried out by using

the Intercooled Stata 5.0 statistical package (Stata Corporation, Texas, USA). For non-normally distributed quantitative data, median and interquartile range (IQR) were used to describe their distribution. Univariate analysis was done using Yates' corrected χ^2 or Fisher's exact test for comparing proportions and Kruskal-Wallis test for comparing medians. Independent risk factors of HIV infection were assessed using a logistic regression model, with variables entered into multivariate model on the basis of significance ($P < 0.05$) in univariate analysis.

The study received approval from the ethics committees of the Ministry of Health, Abidjan, Côte d'Ivoire, the Institute of Tropical Medicine, Antwerp, Belgium and from the Institutional Review Board of the Centers for Disease Control and Prevention, Atlanta, USA. Participation in the study was anonymous and no personal identifiers were recorded. Participants were given an information leaflet on sexually transmitted infections and HIV, free condoms and 2000 CFA (\$US 2.6) to compensate for the time taken by the interview. They were invited to attend a voluntary HIV testing and counseling center in Abidjan free of charge.

Results

A total of 780 male clients were approached and 526 (67.4%) agreed to participate and answered the questionnaire. Of those, 423 (80.4%) provided a saliva sample after completion of the questionnaire. The median age of the study participants was 26 years (range, 14–54 years; IQR, 22–30 years) and 66.7% were Ivorian. Almost all (97.7%) reported to being circumcised. More than 40% had attained secondary school level, and 68.4% were blue-collar workers.

The median age of sexual debut was 17 years (IQR, 15–18 years). Among the study participants 64.1% said they had a regular partner. A history of an STI during the last year was reported by 18.7%. Places of first encounter for STI treatment included: public or private health center (57.8%), pharmacy (9.9%), and market or local vendors (16.1%).

Twenty percent of the interviewed clients reported they visit a female sex worker at least once a week and 41.0% reported two or more visits to female sex workers in the last month. Almost half of the clients said they prefer to visit the same female sex worker repeatedly.

Most participants (96.7%) said they believe in the existence of HIV/AIDS, among them 67.6% thought they were at risk themselves. Knowledge of HIV/AIDS

transmission modes was very high, correct answers ranging from 83.7% (mother-to-child transmission) to 98.4% (heterosexual transmission). However, 49.1% of the respondents believed AIDS could be transmitted by mosquito bites, 22.7% by witchcraft, and 24.4% by using the same cutlery.

Reported condom use was very high, 92.7% said they always use condoms and 95.4% reported condom use during the visit preceding the interview. Of those, 61.1% said they proposed condom use themselves. Characteristics that were associated with consistent condom use are presented in Table 1 and include younger age, being single, lower number of visits to female sex workers, and lower price paid.

HIV prevalence and associated factors

The overall HIV prevalence among the clients who provided a saliva sample was 13.4%; it was 0% among men younger than 20 years and 26.6% among men older than 30 years. Factors associated with HIV infection in univariate analysis are listed in Table 2. In multivariate analysis, age and marital status remained significantly associated with HIV infection.

Discussion

This is the first study on the prevalence of HIV and sexual risk behavior among clients of female sex work-

Table 1. Comparison of clients reporting consistent condom use and clients who did not.

Characteristic	Clients reporting consistent condom use (%) (n = 481)	Clients not reporting consistent condom use (%) (n = 38)	P
Age < 25 years	41.0	18.4	0.006
Being married or cohabiting	21.9	39.5	0.01
At least secondary school level	49.3	36.8	ns
Believes that AIDS exists	98.7	77.8	< 0.001
First sexual contact before 15 years of age	22.4	17.2	ns
Has paid < 1000 CFA ^a for last visit	52.0	24.3	0.001
At least two visits to female sex workers during the previous month	39.2	63.1	0.004
History of sexually transmitted infections	9.4	22.6	0.02

^a1 \$US = 750 CFA. ns, Non-significant.

Table 2. Factors associated with HIV among clients of female sex workers in univariate and multivariate analysis.

	HIV positive (%)	Univariate P	Multivariate odds ratio	Multivariate P (χ ²) ^b
Age (years)		< 0.001 ^a		0.01
< 25	5.1		1	
25–29	13.7		2.5	
≥ 30	26.6		2.8	
Marital status		< 0.001		0.004
Single	9.7		1	
Married/cohabiting	26.5		1.8	
Occupation		0.05		0.18
Student	6.1		1	
Blue collar worker	12.2		0.64	
White collar worker/senior staff	22.6		0.78	
Unemployed	21.4		3.0	
Monthly income ^c		0.01 ^a		0.25
No income	7.7		1	
< 100 000 CFA	13.1		2.3	
≥ 100 000 CFA	23.1		3.2	
Price paid for last FSW visit, CFA ^c		0.05 ^a		0.19
< 500	9.8		1	
501–1000	15.9		1.4	
1001–1500	21.6		1.9	
≥ 1500	16.3		1.4	

^aP for trend. ^bBased on the likelihood ratio test. ^c1 \$US = 750 CFA.

ers in Abidjan, Côte d'Ivoire. Our results show that this population is accessible and can be targeted for HIV prevention activities. They don't belong to an easy identified socio-demographic group, so preventive messages should not be limited to the traditional high risk groups such as truck drivers or immigrant workers.

Clients of female sex workers in Abidjan reported a high rate of condom use, which confirms reports of female sex workers in earlier studies in Abidjan. Consistent condom use with clients during the last working day was reported by 85% and 88% of the female sex workers at the clinic (1998) and during a community based study (1997) respectively [2,3]. This indicates that ongoing prevention programs, including information campaigns and social marketing programs, do result in behavior change and can make a difference in the HIV epidemic, as also indicated by the spectacular decrease in HIV prevalence among female sex workers in Abidjan [2].

The HIV prevalence among this sample of clients of female sex workers in Abidjan was 13.4%. It is possible that this prevalence was biased due to the sampling method, the HIV testing algorithm used, or the non-participation rate. The sampling method may have resulted in under-representation of clients of high-class and occasional sex workers. The HIV prevalence among these clients may be lower than the prevalence found. Moreover, HIV test results were based on only one ELISA test, and no confirmatory test was done. This again could have led to an overestimation of the HIV prevalence. Finally, out of the 780 clients approached, 357 did not provide a saliva sample (non-participation rate 46%). Among these, we have information on 103 clients who refused to give a saliva sample but accepted to be interviewed. When compared to participants who provided a saliva sample, these clients were younger (results not shown). This could have led to an underestimation of the HIV prevalence.

The prevalence of HIV in the general population in Abidjan was estimated at 11% in 1999 [5], which seems very similar to the prevalence found in clients of female

sex workers. However, we have no data on the age-specific HIV prevalence among men in the general population, which makes a comparison with the prevalence found in this study extremely difficult.

In conclusion, HIV prevalence appears to be relatively low, and condom use is high among clients of female sex workers in Abidjan. Existing HIV prevention efforts among female sex workers and among the general population should be sustained and reinforced.

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