HIV infection and related risk behaviours among female sex workers in greater Cairo, Egypt

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العدوى بفيروس الإيدز والسلوكيات ذات الصلة بها بين البغايا في القاهرة الكبرى، مصر

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الخلاصة: توجد في مصر ممارسة للبغاء رغم أن القانون يحظره. ولا يعرف معدل انتشار العدوى بفيروس الإيدز بدقة بين البغايا في القاهرة. وتستقصي هذه الدراسة السلوك المحفوف بمخاطر عالية للعدوى بفيروس الإيدز ومعدل انتشار فيروس الإيدز بين البغايا في القاهرة. وقد شملت الدراسة 431 بَغِيّاً، أجرى الباحثون معهن مقابلات حول السوابق الجنسية لديهن مع زبائن لقاء أجر أو بدون أجر، وحول استخدام العازل الذكري والسلوك المحفوف بالمخاطر للعدوى بفيروس الإيدز، كما أجرى الباحثون لهن كلهن اختبارات لكشف فيروس الإيدز. وأبلغت البغايا عن تعاطي الكحول (39.9٪) أو المخدرات (49٪) وأن 37.6٪ منهن يتعاطين مواد الإدمان لدى وجود زبائنهن فقط. وكان العازل الذكري معروفاً لدى 72.6٪ منهن، إلا أن معدل استخدامهن له خلال الشهر السابق كان منخفضاً (32.8٪)، كما أن 22.4٪ منهن فقط أشرن إلى استخدامه من قِبَل آخر زبون لهن. وقد كان السبب الرئيسي لعدم استخدام العازل الذكري هو عدم التفكير به (40.6٪)، ورفض الزبون لاستخدامه (20.5٪)، وكراهية العازل الذكري (19.3٪). وقد كانت جميع النساء اللاتي خضعن للاختبارات سلبيات لفيروس الإيدز. ويرى الباحثون أن السلوك المحفوف بمخاطر عالية لدى الكثير من البغايا يحتم إيجاد برامج التدخل لتخفيف مخاطر العدوى بفيروس الإيدز.

ABSTRACT Although illegal in Egypt, prostitution exists. The prevalence of HIV infection among female sex workers (FSWs) in Cairo is not precisely known. This cross-sectional study investigated the high-risk behaviour for HIV infection and HIV prevalence among FSWs in greater Cairo. A total of 431 FSWs were interviewed about their sexual history with paid and unpaid partners, condom use and risky behaviour for HIV infection; all were tested for HIV. Use of alcohol and drugs was reported by 39.9% and 49.0% of the women respectively; 37.6% only used such substances while with a client. Male condoms were known by 72.6% but their use in the previous month was low (32.8%) and only 22.4% had used one with their last client. The main reasons for not using condoms were not thinking of it (40.6%) and client refusal (20.5%). All the women tested negative for HIV infection. The high-risk behaviour of many FSWs necessitates intervention programmes to reduce their risk of HIV infection.

Infection à VIH et comportements à risque associés chez les professionnelles du sexe dans le Grand Caire (Égypte)

RÉSUMÉ Bien qu'illégale en Égypte, la prostitution existe. La prévalence de l'infection à VIH chez les professionnelles du sexe au Caire n'est pas connue précisément. La présente étude transversale a étudié les comportements associés à un risque important de contracter une infection à VIH et la prévalence de ce virus chez les professionnelles du sexe en activité dans le Grand Caire. Au total, 431 professionnelles du sexe ont été interrogées au sujet de leurs antécédents en matière de rapports sexuels avec des partenaires rémunérant ou non leurs services, d'utilisation du préservatif et de comportements à risque pour l'infection à VIH ; toutes les personnes interrogées ont été soumises à un test de dépistage du VIH. Parmi celles-ci, 39,9 % déclaraient consommer de l'alcool et 49,0 % de la drogue ; 37,6 % en consommaient uniquement avec leurs clients. Les préservatifs masculins étaient connus de 72,6 % d'entre elles mais elles étaient peu nombreuses (32,8 %) à en avoir utilisé au cours du mois précédent et seulement 22,4 % en avaient utilisé un avec leur dernier client. Les principales raisons de leur absence d'utilisation des préservatifs étaient l'oubli (40,6 %) et le refus du client (20,5 %). Toutes les professionnelles du sexe de l'étude ont obtenu des résultats négatifs dans le dépistage du VIH. Le comportement à haut risque de nombreuses professionnelles du sexe appelle des programmes d'intervention afin de réduire leur risque d'infection à VIH.

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Introduction

Worldwide, commercial sex workers are considered one of the most at-risk groups, including for HIV infection [1]. Sex workers frequently have insufficient access to adequate health services, male and female condoms and other preventive services [2].

The extent of HIV infection among female sex workers (FSWs) in Greater Cairo, Egypt, is not precisely known due to the fact that few field studies have been undertaken and therefore a scarcity of data. Conducting studies among female sex workers can be problematic because of the stigma related to sex work. That said, the prevalence of HIV infection in Greater Cairo still appears to be lower than that in other industrialized cities [3]. Worldwide studies estimate that nearly 5 million people are being infected with HIV every year [4,5] and about half of those currently infected with HIV are females [5]. Rates of HIV infection are higher among those involved with sex work than in most other populations [2].

The number of FSWs has been increasing over the past 2 decades mainly for economic reasons [5–7]. Many studies indicate that the risk of getting infected with HIV is high among FSWs and their clients [8]. Paid sex remains an important factor in many of the HIV epidemics in western, central and eastern Africa. It is estimated that 32% of new HIV infections 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) [9].

In Egypt, commercial sex is illegal but it does exist. This study aimed to determine the prevalence of HIV infection among FSWs in Greater Cairo, Egypt, and identify the HIV-related risk behaviours among them.

Methods

Setting and subjects

The study was conducted in Greater Cairo which includes 3 Governorates: Cairo, Giza and Qualiobia. This cosmopolitan area accommodates a population of nearly 14 million people [10]. Places of gathering of FSWs were identified through focus groups discussions with FSWs and with El-Shehab nongovernmental organization (NGO) working with FSWs.

The target population was FSWs representing different categories as identified by 3 focus group discussions that were conducted before starting the field work. Each focus group included 6–8 sex workers recruited by El-Shehab organization. The focus group discussions identified the different categories of FSWs and the main places they gathered. These were: Street FSWs; FSWs at bars and night clubs; Dancers; FSWs at brothels; FSWs at coffeehouses; FSWs at hotels.

The sample size was based on the calculation: $n = Z_{\alpha 0.95} \times [p \times (1-p)]/d^2$, where p = prevalence of HIV infection among FSWs, estimated to be 0.3% and d = expected margin of error (3%). Thus the total sample size was estimated at 234. We increased this number to 431 FSWs to ensure adequate representation of all categories.

A list of places where sex workers tended to gather was prepared based on information gained from focus group discussions and the experience of field work done by El-Shehab. One place for each category was randomly selected (a street, night club/bar, hair dresser where dancer gather to prepare for work, a brothel and a coffee shop). Sex workers at hotels were difficult to access as we did not succeed in getting approval from hotel authorities to conduct field work there, so they had to be omitted from in the study.

Data collection and tools

This work was conducted during the period from August 2009 to end of April 2010.

Data were collected by a questionnaire which was adapted from the questionnaire published by family health international [11]. It was translated into Arabic and some modifications were made to make it suitable for the situation of sex work in Egypt. Modifications were done based on the experience of the research team and in consultation with experts working previously with this group from El-Shehab. The questionnaire included questions covering the following:

- Sexual practices of FSWs
- HIV-related risk behaviour
- Knowledge and practice of FSWs of male condoms.

A pilot study was conducted with a sample of sex workers who were not included in the main study in order to test the questionnaire and ensure its feasibility for the study.

Data were collected through interview of the participants by 6 trained former sex workers who worked with El-Shehab outreach programme for harm reduction for HIV infection among sex workers in different regions of greater Cairo. The data collectors were directed to the locations to collect data from all those available at the time of interview. The process was repeated and another group of locations was randomly chosen and visited until the desired sample size was obtained. For each category the suitable timing for visiting the place was identified to ensure cooperation of the study participants and avoid interfering with their work needs. A suitable place, which offered comfortable conditions and confidentiality, was chosen by the data collectors to conduct the interview. The rate of refusal by the target population was 3%. Financial incentives were given to the sex workers who participated in the study to compensate for

the time lost during the interview. This incentive helped to minimize the rate for refusal.

Blood samples were also taken from each participant for HIV testing carried out using an ELISA method. The blood samples were taken by female workers trained in blood sampling who accompanied the data collector teams during the field work. None of the FSWs refused to give a sample.

Analysis

The collected data were organized, tabulated and statistically analysed using *SPSS*, version 17.

Ethical considerations

Data collection was anonymous. Confidentiality was ensured whereby no data were linked to names or specific persons. No pressure of any kind was used to recruit the study participants. The study objectives and contents of the questionnaire were explained to the participants before starting data collection. Witnessed (by the data collectors), informed verbal consent was taken before the interview and blood sampling. The collected data were only used for research purposes according to the objectives of the study and for the benefit of the participants.

Results

A total of 431 FSWs were included in the study. Their mean age was 29.38 [standard deviation (SD) 9.48] years and median age 27 years. Almost 61% had attended school with a mean duration of 10 years. The majority (65.9%) were ever or currently married during the study period. Over half of the participants (58.7%) first had sex in exchange of money or some other benefits between the ages of 15 and 25 years, with a mean age of 22.28 (SD 6.66) years. The mean duration of working as a sex worker was 6.32 (SD 6.42) years. Monthly income from sex work was reported as < US$ 100 by 29.2% of the women while 57.5% reported a monthly income ranging between US$ 100 and 500 (Table 1).

Nearly 40% admitted drinking alcohol, 7% daily and 32.9% occasionally. Drug use was reported by 49% of the women, which was mostly hashish (96.2%), and 37.6% of drug use was reported to be associated with sexual practices, i.e. they used drugs only when with a client. Injecting drug use was reported by 5.6% in the last year. The majority (61%) of the women reported freedom to choose clients while 8.1% never had this chance. Over one-third (35.3%) reported experiencing sexual violence , either the threat of violence to have sex or violence during sex, which was mostly physical as reported by 73.7%. Abnormal vaginal discharge in the last year was reported by 76.1% of the women while 15.5% reported suffering of genital ulcers (Table 2).

Having unpaid sexual partners was reported by 59.2% of the women; these were husbands (30.6%) or boyfriends (21.6%). Of the participants with unpaid partners, 38.4% reported that their partners had a spouse or other sexual partners. The number of times to have had sex with their unpaid partner in the month before data collection was 1–5 times for 48.6% of the women while 22.8% reported 10 or more times. Of the 255 women with unpaid partners, 29.4% reported abuse was used for sexual relations by the unpaid partner, which was mainly physical (74.7%). Use of drugs by unpaid partners was reported by 70.6% of the women, 10.6% of whom injected drugs (Table 3).

Most of studied sex workers (72.6%) knew about male condoms. However, only 22.4% had used them with the last client and 32.8% had used them in the past month. Their use was at the suggestion of the sex worker, as reported by 51.5% of the women who used a condom with their last client, while 37.1% reported that the client asked for condom use. The main reasons for not using male condom were not thinking about it (40.6%), client refused (20.5%),

Table 1 Sociodemographic characteristics of the female sex workers (*n* = 431)

Characteristic	Value
Age (years)	
Mean (SD)	29.38 (9.48)
Median	27.00
Attended school	
Yes [No. (%)]	262 (60.8)
Mean (SD) no. of years at school	10.18 (3.24)
Median no. of years at school	10
Married, now or previously [No. (%)]	283 (65.7)
Mean (SD) age at first selling sex (years)	22.28 (6.66)
Duration of sex work (years)	
Range	1–35
Mean (SD)	6.32 (6.42)
Median	4.0
Monthly income (US$) [No. (%)]	
< 100	126 (29.2)
100–	158 (36.6)
200–	90 (20.9)
500+	45 (10.4)
Unidentified	12 (2.8)

SD = standard deviation.

Table 2 Distribution of sex workers in relation to some risky behaviour

Variable	No. (*n* = 431)	%
Alcohol intake in the last month		
Daily	30	7.0
At least once weekly	70	16.2
2–3 times monthly	72	16.7
None	259	60.1
Drug use		
Used drugs[a]	211	49.0
Injecting drugs in the last year	24	5.6
Use of drugs associated with sex	162	37.6
Freedom to choose clients		
Always	263	61.0
Most of the time	50	11.6
Sometimes	52	12.1
Rarely	31	7.2
Never	35	8.1
Experienced sexual violence[b]		
Many times	26	6.0
Sometimes	28	6.5
Few times	98	22.7
Never	279	64.7
Type of violence (n = 152)		
Physical	112	73.7
Verbal	7	4.6
Both	33	21.7
Sexual health issues in the past 12 months		
Unusual vaginal discharge	328	76.1
Genital ulcers	67	15.5

[a] *96.2% of reported drug use was cannabis.*
[b] *Either the threat of violence to have sex or violence during sex.*

do not like it (19.3%) and using another contraceptive method (13.5%). Condom use during every a sexual relation during last month was reported by only 7.7% while 67.2% reported never using condoms in the previous month (Table 4).

Condom use with unpaid sexual partners was reported by 24.2% of the women which was at the recommendation of the sex worker in 58.8% of cases and of the sexual partner in 29.4%. Use of condom was "never thought of it" by 37.7% of the women, while 17.8% had no reason, 17.3% did not like condoms and for 15.2% the unpaid sexual partner refused. Most sex workers (76.3%) reported never using a condom with unpaid sexual partners in the last month while only 4.0% used one every time (Table 5)

The majority of the women identified pharmacies as the place for condom purchase (74.3%). Almost all the women (97.9%) reported never using a condom more than once and 90.6% did not use lubricants with condoms. Condom tear was experienced by 12.8% of the FSWs; the majority of these women (61.8%) continued sexual relations with a new condom and 29.1% continued without a condom. Having sex during menses was reported by 29.7% of the women; 61.7% of those doing this did so without a condom. On the other hand, 35.1% reported ever using condoms while having sex during menstruation. Only 7.7% reported practising group sex and of these 21.2% reported using condoms while having group sex (Table 6).

All the FSWs tested negative for HIV infection, giving a 0% prevalence of HIV infection.

Discussion

Our results show that the behaviours of FSWs in Cairo put them at risk of HIV infection. These include: alcohol intake, drug abuse, physical violence, inadequate use of protective measures, questionable self-efficacy in using condoms, and having sex during menstruation.

Although alcohol intake among Egyptians is extremely low (less than 0.2% of males, and less than 0.01% of females) [12], alcohol intake was prevalent among FSWs in this study; nearly 40% reported drinking alcohol. At the same time, drug use was reported by nearly a half of the FSWs, most commonly smoking hashish (cannabis), which parallels the fact that hashish is the most commonly abused drug in Egypt [13]. Injecting drugs was relatively low (5.6%). This is comparable to findings of a study in London showing drug injection to be 13% among FSWs [14]. Most of these FSWs had commercial and non-commercial (unpaid) partners and some of these unpaid partners abused drugs by injection [14,15]. Nearly 60% of FSWs in our study were having sex with unpaid partners 70.6% of whom abused drugs and 10.6% were injecting drugs. This exposes FSWs to an additional HIV-risk, as drug intoxication alters the users' mental status and judgement, which, in turn, can increase the likelihood that they will engage in high-risk sexual behaviours.

Violence against FSWs is widespread and it is committed by clients, controllers, managers of sex work establishments and intimate partners [2].

Table 3 Distribution of sex workers by sexual practices with unpaid partners

Variable	No.	%
Unpaid sexual partners during last 6 months (n = 431)		
Husband	132	30.6
Boyfriend	93	21.6
Multiple boyfriends	28	6.5
Girlfriend	2	0.5
None	176	40.8
Unpaid partner has another sexual partner (spouse or other) (n = 255)	98	38.4
Average daily number of sexual relations last month with unpaid partner (n = 255)		
0	12	4.7
1–	124	48.6
5–	61	23.9
10–	31	12.2
> 15	27	10.6
Experienced sexual violence[a] (n = 255)		
Many times	17	6.7
Sometimes	20	7.8
Few times	38	14.9
Never	180	70.6
Type of violence (n = 75)		
Physical	56	74.7
Verbal	3	4.0
Both	16	21.3
Unpaid partner's drug use		
Uses drugs (*n* = 255)	180	70.6
Injects drugs (*n* = 180)	19	10.6

[a]*Either the threat of violence to have sex or violence during sex.*

The same finding was obtained in our study where more than one-third of the studied sex workers reported having sex under the threat of abuse or abusive sex, which was mostly physical. Violence is associated with unprotected sex and increases the risk of HIV infection due to vaginal trauma and lacerations resulting from the use of force [2,15–18].

Sexually transmitted infections (STIs) are common among FSWs as shown by different studies [19–21]. However, the prevalence of such infections differs from one study to another based on the circumstances of sex work organization and whether it is legal or illegal [14,15]. In the present study abnormal vaginal discharge suggestive of STIs was reported by the majority of the FSWs as well as genital ulcers, at a lower prevalence. Individuals who are infected with STIs are 5–10 times more likely than uninfected individuals to acquire or to transmit HIV through sexual contact. The breaking of the genital tract lining creates a portal of entry for HIV, and HIV infected individuals with other STIs are more likely to shed HIV in their genital secretions [19].

Condoms are one of the most effective methods to prevent sexual transmission of HIV infection and other STIs. They should be readily available for sex workers and their clients [2]. Studies among FSWs show different rates of condom use in different countries. Condoms were always used by 93.4% of FSWs in Santiago, Chile [22], 44% in Calcutta, India [1] and 98% in London, UK [14]. Many reasons were given for not using a male condom including never having thought of it, client refusal, dislike of condoms and using another contraceptive method. Condom use among the women in our study was relatively lower with their unpaid partners. FSWs did not perceive the risk of HIV infection from their intimate unpaid partners in spite of our finding that these partners usually abused drugs and had other sexual partners. The same finding of low condom use with unpaid partners has been documented in other similar studies. [14,20,23]. Among a minority of the sex workers in our study reporting use of a condom with the last client, self-efficacy of condom use was questionable among those who experienced condom tear as almost

Table 4 Distribution of sex workers in relation to their experience with male condom during sex with clients

Variable	No.	%
Ever heard about male condom (n = 431)	313	72.6
Use of condoms with clients		
Used a condom in the past month (*n* = 313)	102	32.6
Used a condom with last client (*n* = 313)	70	22.4
Person recommending male condom use (n = 70)		
Sex worker	36	51.5
Client	26	37.1
Both	8	11.4
Reasons for not using male condom (n = 243)[a]		
Unavailable	11	4.5
It is expensive	2	0.8
Client refusal	50	20.5
Don't like it	47	19.3
Using other contraceptive methods	33	13.5
Not necessary to use it	11	4.5
Never thought of it	99	40.6
Don't know	13	5.3
Other reasons	31	12.7
Frequency of male condom use in the last month with clients (n = 311)		
Every time	24	7.7
Almost all the time	28	9.0
Sometimes	50	16.1
Never	209	67.2

[a]*Not mutually exclusive.*

Table 5 Distribution of sex workers in relation to their experience with male condom during sex with unpaid sexual partners

Variable	No.	%
Ever used a condom with unpaid sexual partner (n = 252)	61	24.2
Used a condom during the last sexual act with unpaid sexual partner (n = 253)	34	13.4
Person recommending condom use (n = 34)		
Sex worker	20	58.8
Sexual partner	10	29.4
Both	4	11.8
Reason for not using condom (n = 191)[a]		
Condom unavailable	2	1.0
Expensive	0	0.0
Partner refused	29	15.2
Don't like it	33	17.3
Using other contraceptive methods	23	12.0
Not necessary to use it	9	4.7
Did not consider using it	72	37.7
Don't know	34	17.8
Other reasons	24	12.6
Frequency of male condom use during last month ith unpaid sexual partner (n = 253)		
Every time	10	4.0
Almost all the time	16	6.3
Sometimes	34	13.4
Never	193	76.3

[a]*Not mutually exclusive.*

Table 6 Distribution of studied female sex workers in relation to their knowledge about male condoms

Variable	No.	%
Places where condoms can be obtained (n = 424)		
Pharmacies	315	74.3
Supermarkets	1	0.2
Clinics	4	0.9
Hospitals	14	3.3
Bars/hotels	3	0.7
From a friend	15	3.5
Nongovernmental organizations	23	5.4
Don't know	100	23.6
Have used a condom more than once (n = 429)		
Yes	9	2.1
No	420	97.9
Have used a lubricant with condoms (n = 427)		
Yes	40	9.4
No	387	90.6
Have experienced condom tear (n = 429)		
Yes	55	12.8
No	374	87.2
Response to condom tear (n = 55)		
Stopped sexual act	5	9.1
Continued after using a new condom	34	61.8
Continued without condom	16	29.1
Had sex during menses (n = 431)		
Yes	128	29.7
No	303	70.3
Used condom for sex during menses (n = 128)		
Yes	45	35.1
No	79	61.7
No answer	4	3.1
Group sex[a]		
Have had group sex (*n* = 431)	33	7.7
Used condom during group sex (*n* = 33)	7	21.2

[a] *Having sex with more than 1 partner at the same time.*

one-third continued sexual relations without a new condom. Similar findings were reported in a study conducted in Singapore [21].

An additional risk factor for HIV infection, as shown by a study on FSWs in Thailand, is having sex during menses [24]. With the shedding of the uterine mucosal lining, numerous blood vessels are open to receive the virus if the male partner is infected with HIV [24]. Sex during menses was reported by almost one-third of the FSWs in our study and almost two-thirds of them did so without using condoms.

The prevalence of HIV infection among FSWs in Greater Cairo was 0%. A similar finding was found among FSWs in Santiago, Chile, which was attributed to high compliance of condom use among them [22]. In our study, however, this low prevalence of HIV infection, despite a low rate of condom use, may be explained by the low prevalence of HIV infection in FSWs' communities and clients. In a study in India, which covered different districts, the prevalence of HIV infection showed a large inter-district variation ranging from 2% to 38% which correlated with the prevalence of infection among clients in the different districts [15].

The zero prevalence of HIV infection among our participants indicates a low prevalence of HIV infection in spite of the observed risky behaviours for infection. This indicates that the potential HIV epidemic may be in the first stages among this most at-risk population and it could be a golden opportunity for intervention programmes to be implemented to limit its spread among sex workers and their clients.

Limitations of the study

There are two noteworthy limitations regarding the present study. The first concerns the nature of this research; this study focused on a very sensitive subject, with much stigma attached to it, which has not previously been studied in Egypt. Clearly, this represents a challenging task for research. As such, the research was limited in scope and aimed mainly to generate knowledge for further research. The second limitation has to do with the generalizability of the findings beyond the cases studied. Give the very specific group of participants the extent to which the results can be generalized to a wider population is limited.

Conclusion

FSWs in Greater Cairo are exposed to different factors that put them at high risk of HIV infection. These factors include: alcohol intake, drug abuse, physical violence, inadequate use of protective measures, questionable self-efficacy in using condoms,

and an additional risk of having sex during menstruation. These risk factors urgently require more focused HIV-related health research, and highly specific long-term intervention programmes.

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