

Description of HIV risk behavior among adolescent female sex workers: Findings from the nationwide cross-sectional integrated biological and behavioral surveillance (IBBS) 2014–15 survey for HIV in India

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ABSTRACT

Introduction: Adolescent female sex workers are at high risk of acquiring human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) infection. There was paucity of information regarding their sexual practices. The main objective of this study was to study the sexual behavior, condom use practices, and physical and sexual violence experienced by adolescent female sex workers (FSWs). **Materials and Methods:** This study was a secondary data analysis of the data collected during the nationwide IBBS 2014–15 survey. All adolescent FSWs aged 15 to 19 years were included in the analysis. The primary outcome variable was HIV serostatus, and independent variables included sexual behavior and condom use practices and socio-demographic variables. Descriptive analyses were performed to estimate the prevalence of independent variables. Ethical approval of the original IBBS study was obtained by the Ethics Committee of National AIDS Control Organization. **Results:** A total of 948 adolescent FSWs were included in the final analysis. The prevalence of HIV in adolescent FSWs was 1.2% [95% confidence interval, 0.1–1.9%]. The mean age [standard deviation (SD)] of FSWs was 18.2 (0.9) years. The mean (SD) age at first sexual intercourse was 15.6 (1.7) years, and the mean (SD) age of starting sex work was 16.6 (1.5) years. The majority of the FSWs (94%) had used condom during the last sexual intercourse with a commercial partner, and about one-thirds (66%) had consistently used condom with a commercial partner. About a quarter (26%) of the FSWs had anal intercourse with a commercial partner in the last 1 month. About one in five FSWs (21%) had experienced physical violence in the last 1 year. **Conclusion:** Almost one-third of FSWs had high-risk sexual behavior like multiple clients, anal intercourse, inconsistent condom use, and so on. These behaviors in turn increase their vulnerability to HIV infection.

Keywords: Adolescent, female sex worker, HIV, IBBS, India, risk behavior

Introduction

Adolescence is the beginning of physical, mental, and social developments that act as a transitional period from childhood to adulthood.^[1] Some examples of high-risk sexual behavior in adolescents include unprotected sexual intercourse, precocious

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sexual activity, multiple sexual partners, unprotected oro-genital contact, high-risk sexual partners, and unprotected anal sex.^[2] Globally, approximately 47% of adolescents had some form of sexual experiences. Reports also show that about 6% of people experienced their first sexual encounter before the age of 13 years.^[3,4]

Studies have reported that up to 40% of female sex workers (FSWs) worldwide started solicitation before the age of 18 years.^[5,6] There is a general consensus that participation of children and adolescents in sex work is violation of their human rights.^[7] Women who start sex work before the age of 18 years are at a higher risk of getting sexually transmitted infections (STIs), human immunodeficiency virus (HIV), and cervical cancer.

Although adolescent FSWs were at a higher risk of acquiring HIV, there was limited information available regarding their sexual behavior. The objective of this study was to study the sexual behavior, condom use practices, and physical and sexual violence experienced by adolescent FSWs who had participated in the *Integrated Biological and Behavioural Surveillance* (IBBS) 2014–15 survey in India.

Materials and Methods

IBBS was conducted in the year 2014–15.^[8] This was a cross-sectional probability-based survey among FSWs aged 15 years or older.

Methodology of IBBS – FSWs were women, aged 15 years or older, engaged in consensual sex in exchange for money, or payment in kind, in the last 1 month. A district was considered as a ‘domain.’ The sample size per domain was 400. The study was conducted in 73 randomly selected domains across 28 States/Union Territories of India.

The FSWs who gave written informed consent to participate were administered a questionnaire, followed by collection of blood specimens. Behavioral information was collected by the trained investigators using a structured questionnaire. Further details of the IBBS methodology are available elsewhere.^[8]

Operational definitions used in IBBS survey

Consistent use of condom – use of condom at every sexual encounter.

Physical violence – any physical beating including hurt, hit, slapped, pushed, kicked, punched, choked, or burned.

Sexual violence – Physically forced to have sexual intercourse with someone even though FSW did not want to.

Ethical consideration

Ethical clearance for the survey was provided by the Ethics Committee of the National AIDS Control Organization (NACO), India, as well as from the participating institutes of the Indian Council of Medical Research. Written consent/assent was obtained from the FSWs and guardians as applicable.

Methodology for the present study

The present study was a secondary data analysis of the data collected during the nationwide IBBS 2014–15 survey.

Study population

For this analysis, all adolescent FSWs aged 15 to 19 years were included.

Dependent variable: The outcome variable of interest was HIV sero status.

Independent variable

A high number of sexual partners, a high frequency of sexual intercourse, inconsistent condom use, and unprotected anal intercourse were considered as high-risk behaviors. Other dependent variables were demographic characteristics, sexual practices and behaviors, and physical and sexual violence.

Statistical analysis

Originally data were entered into the Integrated Information Management System (IIMS) made specifically for the IBBS 2014–15. National AIDS Control Organization provided the raw data set and permission to do secondary data analysis. Relevant data were extracted from the IIMS data set in excel format and analyzed using STATA 16.1 (Copyright 1985–2019 StataCorp LLC Statistics/Data analysis StataCorp 4905 Lakeway Drive Special Edition College Station, Texas 77845 USA). Prevalence of HIV was reported in percentage with 95% CI. Descriptive analyses were performed to estimate the prevalence of independent variables.

Results

A total of 27,007 FSWs were included in the IBBS 2014–15 survey. Out of these, 948 were adolescent and aged 15 to 19 years. These adolescent FSWs were included in this analysis. All the 28 States/Union Territories included in the original IBBS survey were still represented by the FSWs who were included in this study. However, the states of Odisha and Jharkhand, which collectively had 7 of 73 (9.6%) domains, contributed 226 of 948 (23.8%) of FSWs included in this analysis. The mean age [standard deviation (SD)] of FSWs was 18.2 (0.9) years. About half of the FSWs (53%) were educated up to the secondary level. The majority of the FSWs (60%) did not have any other occupation. Three quarters (76%) were unmarried.

Sexual practices

The mean (SD) age at first sexual intercourse was 15.6 (1.7) years, and the median [inter-quartile range (IQR)] was 18 (16–19) years. The mean (SD) age of starting sex work was 16.6 (1.5) years, and the median (IQR) was 17 (15–19) years. The mean (SD) duration of sex work was 1.6 (1.3) years.

About three-fourths (72%) of the FSWs had used mobile phones to solicit clients. The place of sex work for one-third (31%)

of them was home, followed by a rented room (27%) and lodge (24%). About half of the FSWs (51%) had engaged in sex work for 3 to 5 days, and another 23% engaged for less than 2 days in the previous 1 week. About half (54%) of the FSWs had entertained 1–2 clients on the last working day, followed by 21% who entertained 3–4 clients on the last working day [Table 1].

Condom use

The majority of the FSWs (94%) had used condom during the last sexual intercourse with a commercial partner, whereas 73% had used condom with a non-commercial partner. About two-thirds (66%) of the FSWs had used condom consistently with commercial clients in the last 1 month. About one-third (39%) of the FSWs had used condom consistently with non-commercial

clients in the last 3 months. A little over one-third (39%) of the FSWs in the last 1 month had turned away a potential client who had refused to use condom [Table 1].

Among the FSWs who had anal intercourse, about one-fifths (20.9%) had sexual intercourse without a condom in the last 1 month. The common reasons mentioned by the FSWs for not using a condom were as follows: clients offered to pay more for sex without the condom (29%), unavailability of condom (15.1%), forced sexual intercourse (13.1%), and intercourse with a trusted partner (9%).

Anal sex

About one-third (29.7%) of FSWs had anal intercourse in the last 1 month. Remaining FSWs (70.3%) had exclusive

Table 1: Distribution of FSWs by sexual behaviors

Variable	Category	n (%)
Marital status	Never Married	721 (76.0)
	Currently married	186 (19.6)
	Widowed	3 (0.3)
	Divorced	17 (2.0)
	Separated	7 (0.7)
	Others	13 (1.4)
	Missing data	1 (0.1)
Age of first intercourse (in years)	<=12	50 (5.3)
	12-15	326 (34.4)
	>15	485 (51.1)
	Don't know	87 (9.2)
Age at starting the sex work	<=12	14 (1.5)
	12-15	174 (18.4)
	>15	676 (71.3)
	Don't know	82 (8.6)
	Missing data	2 (0.2)
Use of mobile phone to solicit client	Yes	682 (71.9)
	No	265 (28.0)
	Missing data	1 (0.1)
Use of internet to solicit client	Yes	86 (9.1)
	No	699 (73.7)
	Not aware of internet	162 (17.1)
	Missing data	1 (0.1)
Primary place of having sex work with clients	Home	295 (31.1)
	Rented room	259 (27.3)
	Lodge	224 (24.0)
	Brothel	51 (5.4)
	Others*	119 (12.2)
No. of days of sex work in the last one week	<=2	224 (23.7)
	3-5	481 (50.8)
	6-7	128 (13.5)
	Don't know	113 (12.0)
No. of clients entertained on the last working day	1-2	510 (53.8)
	3-4	200 (21.1)
	>4	130 (13.7)
	Don't know	108 (11.4)
Use of condom during last sexual intercourse	Yes	852 (89.9)
	No	95 (10.0)
	Missing data	1 (0.1)
Turned away client who refused to use condom in last one month	Yes	377 (39.8)
	No	448 (47.3)
	No clients refused to use a condom	122 (12.8)
	Missing data	1 (0.1)

*Others – bar, nightclub, vehicle, highway, public place, dhaba. #Time frame for commercial partner was one month and non-commercial partner was three months

vaginal intercourse. About 26% had anal intercourse with a commercial partner in the last 1 month and 29% with a non-commercial partner in the last 3 months. The majority of the FSWs (80–90%) had used condom during their last anal intercourse. However, approximately half of the FSWs reported consistent condom use with a commercial (55%) or non-commercial (49%) partner.

Prevalence of physical and sexual violence

About one-third of the FSWs (30.6%) reported that they had been treated disrespectfully by their acquaintances. One

in five (20%) FSWs felt that they were treated differently at a health care facility. One in five (21%) FSWs had experienced physical violence in the last 1 year. The physical violence was caused primarily by their husband (38.5%) or client (25.7%).

About a quarter of the FSWs (23%) were physically forced to have sexual intercourse with someone, even though they did not want to. In most cases, the perpetrator of sexual violence was either the client (32.1%) or husband/regular partner (36.1%) [Table 2].

Table 2: Distribution of FSWs by experience of physical and sexual violence

Variable	Category (n=948)	n (%)
History of being treated disrespectfully by family/friends/neighbours because of being an FSW	Yes	276 (29.1)
	No	671 (70.8)
	Missing data	1 (0.1)
History of being treated differently at health care facility	Yes	192 (20.3)
	No	755 (79.6)
	Missing data	1 (0.1)
History of physical violence in last 12 months	Yes	218 (20.9)
	No	683 (74.1)
	Don't remember	47 (5.0)
Person causing physical violence (multiple options possible)	Husband/Partner/Boy friend	102 (38.5)
	Client	68 (25.7)
	Madam/Broker	46 (17.3)
	Police	9 (3.4)
	Others*	118 (44.5)
History of being physically forced to have sexual intercourse with in last 12 months	Yes	221 (23.3)
	No	727 (76.7)
Person who Physically forced to have sexual intercourse against their will (multiple options possible)	Husband/Partner/Boy friend	80 (36.2)
	Client	71 (32.1)
	Broker	25 (11.3)
	Police	9 (4.1)
	Others*	97 (43.4)

*Others – stranger, other sex workers, goondas

Table 3: Distribution of FSWs with history of physical violence by refusing unprotected sex, education status, and coerced sexual intercourse

	Turned away client who refused to use condom		χ^2	P
	Yes	No		
History of physical violence in last 12 months				
Yes	106 (54.6)	88 (45.4)	7.4	0.006
No	256 (43.4)	334 (56.6)		
Total	362 (46.2)	422 (53.8)		
	Education status		χ^2	P
	Up to Primary	More than Primary		
History of physical violence in last 12 months				
Yes	72 (33.0)	146 (67.0)	5.6	0.018
No	170 (24.9)	513 (75.1)		
Total	242 (26.9)	659 (73.1)		
	Physically forced to have sex in last 12 months		χ^2	P
	Yes	No		
History of physical violence in last 12 months				
Yes	56 (25.3)	165 (74.7)	0.5	<0.001
No	202 (27.8)	525 (72.2)		
Total	258 (27.2)	690 (72.8)		

Determinants of physical violence

The FSWs who had a history of physical violence in the last 12 months were more likely to turn away clients who refused to use condom and less likely to have been forced into coerced sexual intercourse. FSWs who had a history of physical violence in the last 12 months were likely to be less educated (up to the primary level). The observed differences were statistically significant [Table 3].

Prevalence of HIV

Eleven of 948 adolescent FSWs [1.2% (95% CI, 0.1–1.9)] were HIV-positive. Due to small numbers of HIV-positive FSWs, we did not attempt to find the factors associated with HIV sero-status. Seven of these FSWs were in sex work for up to 1 year. Most (9 of 11) were unmarried. Most (9 of 11) reported use of condom during the last sexual intercourse. Almost half of them reported anal sex in the last 1 month. Almost half of the anal intercourse was unprotected. None of them had a history of injecting drug use.

Discussion

The proportion of adolescent FSWs among all FSWs included in the IBBS 2014–15 was 3.5% (948 of 27,007). The prevalence of HIV among adolescent FSWs was 1.2% (95% CI, 0.1–1.9) compared to the overall HIV prevalence of 2.2% (95% CI, 1.8–2.6) among all FSWs included in the IBBS survey.^[8] The median duration of sex work in adolescent FSWs was 1.6 years, and yet, the prevalence of HIV among them was inching closer to that of adult FSWs.

The relatively high prevalence of HIV in the context of a low median duration of sex work (1.6 years) could be explained by the following factors: onset of sex work at a young age (mean age 16.6 years), high prevalence (approximately 20.9% of physical violence), one quarter reporting forced sex, and inconsistent condom use (almost 50%) during the highest risk sexual intercourse, that is, anal intercourse, in the overall context of stigma and discrimination.

Rapid HIV sero-conversion within a short period of start of the sex work is a cause concern. Hence, HIV harm reduction strategies should particularly focus on adolescent FSWs. In India, the Targeted Interventions Non-Government Organizations (TI-NGOs) offered services to persons at high risk of getting HIV infection, with FSW being one such group.^[9] TI-NGOs offered free-of-cost counseling, STI treatment, condoms, lubricants, and HIV testing. FSW beneficiaries registered at TI-NGO were aged 18 years or older. Adolescent FSWs were not eligible to be registered with TI-NGO because sex work by adolescents is proscribed by Indian law. Hence, adolescent FSW were denied harm reduction services offered by TI-NGO.^[10–12]

Multiple studies from across the world, representing broad geographical and cultural diversity, have indicated that 20–40%

of FSWs enter sex work as adolescents, with a mean or median age of 16 years or less.^[7] FSWs are at high risk of acquiring HIV infection due to early start of sex work, a high number of sexual partners, unsafe sex, inconsistent condom use, anal intercourse, and so on.^[13] The findings from this study show that most of the adolescent FSWs had high HIV risk behavior; for example, 20% had started sex work at an age younger than 15 years, 35% had more than three partners in a working day, 40% had inconsistent condom use, and 29.7% had anal intercourse. Our findings are similar to those of other studies that have found that female sex workers often have large numbers of sex partners, report infrequent or inconsistent condom use, and were likely to engage in high-risk sexual acts such as unprotected anal intercourse.^[14,15]

Adolescents have immature reproductive tract mucosa, which facilitates the transmission of HIV as the epithelial barrier of cervix is less efficient.^[15,16] The chance of getting HIV infection is 0.08% per receptive penile vaginal intercourse and 1.38% per receptive anal intercourse.^[17] Adolescent FSWs who engage in anal intercourse are at a much higher risk of HIV transmission due to more injury to the epithelium causing more microbleed. A study by Leynaert *et al.* found that the chance of HIV transmission in women with insertive unprotected anal intercourse was 3.38%.^[18] We found that among FSWs that reported anal intercourse, 9.9% (28 of 282) had not used condom during their last anal intercourse. Thus, the risk of acquiring HIV from an infected sexual partner during anal intercourse was present.

Most community level surveys have indicated that knowledge about HIV/AIDS was in excess of 90%.^[19] It would, therefore, be reasonable to assume that most of the FSWs must also have had a high level of knowledge of HIV/AIDS. We found that only 66% of FSWs had used condom consistently with a commercial client. It, therefore, appears that the knowledge about HIV/AIDS may be an essential requirement but not necessarily a sufficient factor for safer sexual practices among adolescent FSWs.

The context within which the sex work takes place may have an even more important role to play than the knowledge alone. We found that 87.1% (825 of 948) clients, in the last 1 month, had refused to use condom. Among them, 54.3% (448 of 825) were allowed to have sexual intercourse without the use of condom. The most common reason cited (29%) for such unprotected intercourse was that the client had offered to pay more money for sex without condom. Forced sexual intercourse (13.1%) was another reason. The economic dependence on sex work and a physically weaker status may make FSWs vulnerable to unprotected sexual intercourse, notwithstanding their knowledge about HIV/AIDS.^[20] FSWs who had a low educational status, that is, up to the primary level, would have had lesser possibility of an alternate source of livelihood. Less educated FSWs were therefore more vulnerable, and a higher proportion of them had experienced physical violence. In addition, adolescent FSWs may not have been able to negotiate safe sex with their clients due to the lack of experience.

Prevalence of sexual and physical violence

About one in five FSWs reported a history of physical violence in the last 1 year, and about a quarter were forced to have sexual intercourse with someone against their will. We found that FSWs who had experienced physical violence in the last 12 months were more likely to have turned away the clients who refused to use condom and less likely to have experienced forced sex. Since all these data were recorded simultaneously at the time of interview, their temporality could not be established. However, we speculate that the physical violence perpetrated on FSW was a consequence of refusing to have sex without the protection of condom and/or to be forced into sexual intercourse with someone whom they did not wish otherwise. Our assumptions are buttressed by the fact that the perpetrators of physical violence were predominantly husbands/partners (38.5%) and clients (25.7%) who may have had tacit support of the husband/partner. The underlying cause could have been the prospect of additional money that would have been offered by the client for unprotected sex. Physical violence against FSW is a known risk factor for HIV transmission.^[21,22] FSWs who were coerced into unprotected sex and/or sexual intercourse against their will, possibly under threat of physical violence, reflected a constrained work environment. Under such circumstances, FSWs may not have been able to opt for safe sexual practice, even if they wished to do so. Thus, the vulnerability of FSWs to HIV would increase for those experiencing physical violence.^[23]

HIV testing is considered as a gateway to care and treatment cascade.^[24] HIV testing facility was routinely available at the Integrated counselling and testing Centre (ICTC) at public health facilities and at targeted intervention sites operated by the NGOs. Twenty percent of FSWs reported that they were treated differently at the health facility. Therefore, FSWs were likely to be hesitant to use such a facility. Thus, adolescent FSWs faced considerable obstacles in accessing HIV testing facility. HIV-positive FSWs were therefore likely to remain undiagnosed and untreated. They would then continue to be a source of infection to their clients in case unprotected sexual intercourse were to take place.

Strength and limitation

The finding of our study adds new information regarding sexual practices among adolescent FSWs. As per the Protection of Children from Sexual Offences (POCSO) Act, 2012, sexual intercourse with a person younger than 18 years is punishable by law. As a consequence, research among FSWs younger than 18 years is sparse; we filled this gap. The IBBS 2014–15 had covered the entire country and had used probability-based sampling. However, when we extracted adolescent FSWs from the original data set, seven domains from two states (Odisha and Jharkhand) had contributed disproportionately more numbers of FSWs. Therefore, although the findings are still nationally representative, the benefits of probability-based sampling were somewhat degraded. Since this is a cross-sectional study, the temporality of risk behavior and HIV sero-positivity status could

not be established. The number of HIV-positive FSWs was small. We, therefore, did not attempt to assess factors associated with it. Collection of sensitive data through face-to-face interview is often beset by social desirability bias. The same may hold true for IBBS survey as well. We are unable to either quantify or suggest the direction of this bias.

Conclusions

The prevalence of HIV in adolescent FSWs was 1.2%. Almost one-third of FSWs had high-risk sexual behaviors like multiple clients, anal intercourse, inconsistent condom use, and so on. One in five FSWs had experienced physical and sexual violence, indicating their disempowered status and constrained work environment. Such a situation in turn increases their vulnerability to HIV infection.

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Conflicts of interest

There are no conflicts of interest.

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