

## Police-related experiences and HIV risk among female sex workers in Andhra Pradesh, India.

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### **Abstract:**

Research suggests experiences with police are related to human immunodeficiency virus (HIV) sexual risk among women working as sex workers. However, little is known about the links between specific police-related behaviors and HIV vulnerability. We examine whether 5 police-related experiences are associated with measures of HIV risk and violence among a sample of female sex workers (FSWs) in Andhra Pradesh, India, and consider the implications for HIV prevention. FSWs at least 18 years of age (n = 835) were recruited through respondent-driven sampling for a cross-sectional survey conducted as part of Avahan, the India AIDS Initiative. Using logistic regression models adjusted for age, age at start of sex work, and sex work venue, we assessed police-related experiences reported by FSWs in relation to HIV risk behaviors and violence. Results showed having sex with police to avoid trouble, giving gifts to police to avoid trouble, having police take condoms away, experiencing a workplace raid, and being arrested were associated with sexually transmitted infection symptoms, inconsistent condom use, acceptance of more money for sex without a condom, and experience of client violence. These findings suggest a need for interventions targeting police–FSW interactions to reduce HIV vulnerability among FSWs.

**Keywords:** HIV risk | female sex workers | India | Andhra Pradesh | sexual risk | HIV | police

### **Article:**

Understanding human immunodeficiency virus (HIV) risk among female sex workers (FSWs) requires attention not only to individual risk behaviors but also to social contextual factors that shape their risk environments. A key part of risk environments for FSWs is the often-illegal nature of sex work. Where sex work is criminalized, FSWs are vulnerable to exploitation by clients, coworkers, and police [1]. The interactions of FSWs with police can be particularly problematic because laws relating to sex work are often ambiguous and leave considerable room for police discretion. In India, for example, the law does not punish sex workers who are >18

years old and do not solicit business publicly, but it does punish running a brothel, living on the earnings of prostitutes, procuring or inducing people to become prostitutes, and soliciting in public places [2]. These, along with laws relating to public nuisance, are used to arrest FSWs [2].

A growing literature suggests that in both direct and indirect ways, police authority or power over FSWs enforces FSW disempowerment and may create barriers to safer sexual practices. FSWs report police harassment as among the most significant problems they face [3–6] and indicate needing to provide police with bribes or to have sex with police to avoid arrest [1, 2, 6, 7]. Police may confiscate condoms from FSWs or use the possession of condoms as evidence of sex work, thereby reducing the likelihood FSWs will carry them [5, 8].

Police authority over FSWs may also affect STI/HIV risk indirectly. To avoid frequent police pressure, FSWs may move to venues that are more remote, which may put them at greater risk for violence from clients and at farther distance from prevention workers and related services [4, 8–11]. Arrest and lack of police protection from violence have been associated with HIV risk among FSWs in China [12] and South Africa [5]. Violence is a major risk factor for HIV among women regardless of occupation [13, 14], and FSWs experience high rates of violence perpetrated by clients, police, and other male partners [15, 16]. Beattie et al [17] found that as many as 26% of FSWs in Karnataka state, India, reported violence in the preceding year, and those reporting violence were more likely to report a range of HIV-related risks.

Much of the literature on the role of police interactions in the HIV risk of FSWs is based on qualitative research, and very little, whether qualitative or quantitative, connects specific police-related behaviors and practices to specific STI/HIV risk factors. Here we examine whether 5 police-related experiences are associated with indicators of HIV risk and violence among a sampling of FSWs in Andhra Pradesh (AP), India, and consider the implications for HIV prevention.

## METHODS

### Data Source

Data analyzed in this paper were collected as part of a larger research study, Project Parivartan, an assessment of a community-led structural intervention for HIV prevention among FSWs [18]. The structural intervention has been operating in Rajahmundry in East Godavari district in AP

since late 2004, and includes components that address police–FSW interactions as part of HIV risk [2].

We collected data in 2009–2010 by way of a cross-sectional survey of FSWs that consisted of an interviewer-administered questionnaire; no STI/HIV-testing or other biomarker data were collected. We recruited respondents using respondent-driven sampling (RDS). For each round, 5 initial respondents (“seeds”) were recruited from the target population. After completing the interview, the seeds were asked to distribute 3 coupons to members of their social networks who met study criteria ( $\geq 18$  years of age, engaged in sex work within the past 12 months). We provided 3 coupons to each subsequent participant until the predetermined sample size was achieved. Interviews lasted approximately 90 minutes and were conducted in the local language (Telugu) by trained interviewers, following participants’ providing informed consent. Participants received modest monetary incentives for completion of the interview and for successfully recruiting other FSWs. This research was approved by the Duke University Health Systems Institutional Review Board, the Yale University Human Investigations Committee, the Institutional Review Board at American University, and the VHS-YRG Care Medical Centre Institutional Review Board in Chennai, India.

After excluding 15 participants who were missing data on relevant study variables, we had an analytic sample of 835 FSWs.

## Study Variables

### Police-Related Experiences.

We examine 5 police-related experiences reported by FSWs. Having sex with police to avoid trouble, giving gifts (including money) to police to avoid trouble, having police take condoms away, experiencing a workplace raid, and having been arrested were reported through questionnaire items that asked whether the respondent had experienced each event in the 6 months prior to interview.

### Demographic and Sex Work Characteristics.

We also control for several relevant characteristics that may be related to FSWs' experiences and interactions with police, as well as to their HIV risk behaviors. Age was grouped into 7 categories (18–24 years, 25–29 years, 30–34 years, 35–39 years, 40–44 years, 45–49 years, or  $\geq 50$  years) and age at start of sex work was grouped into 4 categories (began sex work at  $< 18$  years, 18–29 years, 30–39 years, or  $\geq 40$  years). Because venue may be related to visibility to police, we measured the venue where they practiced most recently (brothel, street, lodge or hotel, home, highway, agricultural setting, or other or multiple types).

#### HIV Risk and Experience of Client Violence.

The outcome STI symptoms (yes/no) was based on syndromic assessment of STI as a proxy for STI. Respondents reporting any of 6 vaginal/anal STI symptoms (abdominal pain not related to diarrhea or menses, foul-smelling vaginal discharge, pain while urinating, genital ulcers, swelling, or itching) in the 6 months preceding the interview were coded as STI symptomatic. This syndromic assessment is the standard of care in settings without diagnostic facilities [19, 20]. The outcome inconsistent condom use (yes/no) was based on respondents reporting sexual intercourse without a condom with any client in the past 7 days. FSWs were also asked whether they had accepted more money for sex without a condom within 6 months of the interview (yes/no). Finally, the outcome sexual or physical violence by client(s) was measured by asking women about any forced sexual intercourse with a client or beating by a client in the 6 months prior to the interview [13, 21, 22].

#### Data Analysis

We conducted all statistical analyses using Stata 10.1/IC software (StataCorp) and employed no RDS weights [23, 24]. We used logistic regression models, calculated for each of the 4 outcomes, to assess the association of police-related experiences with indicators of FSWs' HIV risk and experience of client violence. Initial models (results not shown) assessed the bivariate association; models presented here additionally adjust for age, age at start of sex work, and venue, which are potential confounding variables that we selected based on the research literature and theoretical importance. We report adjusted odds ratios (AORs) and 95% confidence intervals (CIs) for each outcome of interest.

## RESULTS

Table 1 describes the sample. Nearly 40% of respondents are between 18 and 30 years old, and most started sex work before age 30 years, with 20% indicating that they were <18 years when they started. Many sex work venues are represented by the sample, with nearly half indicating that they work in >1. More than one-fourth of respondents had experienced a raid of their workplace in the past 6 months. During this same period, 11% had sex with police and 12% gave police gifts to avoid trouble; 7% reported that police had confiscated their condoms. HIV risk characteristics were relatively pervasive as well: nearly half of respondents report recent STI symptoms, 18% accepted more money for sex without a condom, and 23% experienced sexual or physical violence by clients in the 6 months preceding the survey. About one-quarter of respondents indicated inconsistent condom use with clients in the past 7 days.

Table 1.

Descriptive Characteristics of Sample of Female Sex Workers in Rajahmundry, Andhra Pradesh, India (n = 835)

	Percentage	No.
Demographic characteristics <sup>a</sup>		
Age		
18–24 y	16.7	139
25–29 y	22.6	189
30–34 y	15.0	125
35–39 y	20.5	171
40–44 y	12.1	101
45–49 y	8.5	71
≥50 y	4.7	39
Age at start of sex work		
<18 y	20.4	170
18–29 y	66.3	554
≥30 y	13.3	111
Most recent sex work venue		

	Percentage	No.
Brothel	3.7	31
Street	4.4	37
Lodge or hotel	1.6	13
Home	19.2	160
Highway	5.9	49
Agricultural setting	19.5	163
Other/multiple venues	45.7	382
<b>Police-related experiences<sup>b</sup></b>		
Police had sex with respondent so she could avoid trouble	10.9	91
Police accepted bribe or gift from respondent so she could avoid trouble	12.0	100
Police took condoms away	7.4	62
Police raided workplace	26.8	224
Police arrested respondent	12.0	100
<b>HIV risk and client violence characteristics<sup>b</sup></b>		
STI symptoms	48.5	405
Inconsistent condom use with clients	24.0	200
Accepted more money for sex without a condom	18.1	151
Client(s) perpetrated sexual or physical violence	22.9	191

Abbreviations: HIV, human immunodeficiency virus; STI, sexually transmitted infection.

a For demographic characteristics (age, age at start of sex work, and most recent sex work venue), the table shows column percentages.

b The variables police-related experiences and HIV risk and client violence characteristics are dichotomous (yes/no) and the table shows row percentages, or the proportion reporting these exposures or outcomes.

We next examined the bivariate distributions by demographic characteristics for police-related experiences and HIV risk and client violence characteristics (results not shown).  $\chi^2$  tests indicated FSWs' police-related experiences varied by age, with women <40 years more likely to have experienced a police raid. There was also notable variation by venue: FSWs working in brothels and in lodges or hotels had much greater likelihood of reporting each of the 5 police experiences; FSWs working in homes or in agricultural settings were less likely to have these experiences. There was significant variation by sex work venue for STI symptoms and inconsistent condom use. Brothel-, street-, and lodge- or hotel-based FSWs were more likely (and home- and agriculture-based FSWs less likely) to report STI symptoms. FSWs in street-, highway-, agriculture-based, and other/multiple venues were more likely than FSWs in other settings to report inconsistent condom use. These findings suggest both exposures and outcomes of interest in the current study may be related to the venues in which FSWs work.

The associations between police experiences and HIV risk outcomes are shown in Table 2. Unadjusted associations are shown as the proportion experiencing the outcome among the exposed and the proportion among the unexposed. Adjusted associations (AORs) are also presented for each outcome. To calculate each AOR, separate logistic regression models were run (for each police-related behavior, 4 logistic regressions were run, 1 for each of the outcomes of interest), controlling for age, age at start of sex work, and venue. Women who reported giving gifts to police to avoid trouble, having the police take condoms away, or being arrested by police were more likely to report all of the measured HIV risk behaviors (AORs, 1.63–5.11) as well as client violence (AORs, 3.06–7.14). Those who had sex with a police officer to avoid trouble were more likely to report recent STI symptoms (AOR, 3.56; 95% CI, 2.14–5.93), acceptance of more money for sex without a condom (AOR, 2.03; 95% CI, 1.21–3.41), and client violence (AOR, 3.06; 95% CI, 1.89–4.93). Women who reported experiencing a recent police raid were more likely to report recent STI symptoms (AOR, 3.72; 95% CI, 2.61–5.31) and client violence (AOR, 4.64; 95% CI, 3.16–6.81); they were also marginally significantly more likely to report accepting more money for sex without a condom (AOR, 1.52; 95% CI, 1.01–2.29).

**Table 2 is omitted from this formatted document.**

We observed particularly strong associations between certain police-related experiences and measures of FSWs' HIV risk. Giving gifts to police to avoid trouble was highly linked with STI symptoms: 81.0% of FSWs who reported giving gifts to police had recent STI symptoms, compared with 44.1% among those who did not report this. The association remained robust in multivariate analysis (AOR, 5.11; 95% CI, 3.01–8.70). FSWs who reported having the police take condoms away were between 2 and 5 times as likely as those who did not have condoms confiscated to report each of the 4 outcomes: STI symptoms (74.2% vs 46.4%; AOR, 3.09; 95% CI, 1.69–5.66), inconsistent condom use with clients (51.6% vs 21.7%; AOR, 2.66; 95% CI, 1.50–4.72), acceptance of more money for sex without a condom (43.6% vs 16.7%; AOR, 4.09;

95% CI, 2.32–7.22), and client violence (54.8% vs 20.3%; AOR, 5.62; 95% CI, 3.22–9.82). Experiencing a police raid of one's workplace was particularly associated with STI symptoms (71.4% vs 40.1%; AOR, 3.72; 95% CI, 2.61–5.31) and client violence (42.4% vs 15.7%; AOR, 4.64; 95% CI, 3.16–6.81). Finally, FSWs who had been arrested were more likely than other FSWs to report each of the outcomes, but most notably client violence (58.0% vs 18.1%; AOR, 7.14; 95% CI, 4.45–11.44).

## DISCUSSION

Our findings indicate that police-related experiences are highly associated with HIV risk and violence in this sample of FSWs. There was a clear pattern of linkages between experiences demonstrating police power over FSWs and different indicators of HIV sexual risk, especially self-reported STI symptoms, acceptance of more money for sex without a condom, and experience of violence from clients. There were also statistically significant associations between inconsistent condom use and having sex with or giving gifts to police to avoid trouble, having condoms confiscated, and arrest.

Our study is among the first to suggest that police-related experiences are related to women's risk for violence from clients (see also [17]). Women may be moving their work to more remote contexts to avoid police, thus increasing their vulnerability to client violence; however, more work is needed to better understand the specific pathways by which police-related experiences may influence risk of violence. Such findings have extremely important implications for future research and intervention efforts, given the strong association between violence and HIV risk among FSWs [5, 6, 12, 17], and adding violence to the multitude of negative behaviors linked to FSWs' experiences with police [6]. Our findings are consistent with the idea that there may be both a direct link between police experiences and HIV risk for FSWs, and an indirect link mediated by client violence.

Our findings should be interpreted in light of several limitations. First, the data analyzed were cross-sectional, restricting our ability to ascertain causality. Future longitudinal research is needed to confirm the observed associations and establish temporal order. We also focused exclusively on adult FSWs; no conclusions can be drawn regarding experiences of younger FSWs. In addition, the accuracy and reliability of FSW self-reports of either HIV risk behaviors or experiences with police in this context is unknown. Other studies have shown a tendency to underreport sensitive issues or socially undesirable behaviors [25]; such underreporting would

likely decrease power to detect an association between police-related experiences and HIV risk. Finally, the study employed RDS. The use of RDS has been criticized, particularly when the method is applied without sufficient regard to the statistical assumptions and recruitment requirements necessary to achieve an unbiased sample [24, 26]. Although we cannot be certain we achieved a sample truly representative of the underlying population, numerous prior studies have established RDS as an effective method to sample hard-to-reach and hidden populations such as FSWs [24, 27–30].

In conclusion, we believe these results contribute to an understanding of the role of police in HIV risk and prevention among FSWs. They suggest that FSWs who have more interactions with police may be situated in more risky scenarios with clients. For example, giving bribes to police may increase the urgency of women's work to make up for lost finances and hence, make them more likely to agree to riskier sex trades with clients (eg, sex without a condom for more money). More research is needed to better understand the mechanisms of these relations between police-related experiences and risk for HIV and violence among FSWs. Nonetheless, our findings support the potential positive impact of innovative interventions targeting police–FSW interactions to reduce HIV and STI vulnerability among FSWs [2, 31].

#### Notes

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#### Potential conflicts of interest.

All authors: No reported conflicts.

#### Potential conflicts of interest.

All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

#### Footnotes

This article is part of a supplement entitled, "Sex Work in Asia: Health, Agency, and Sexuality," which was organized by the Harvard University Asia Center.

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