

Police-Related Correlates of Client-Perpetrated Violence Among Female Sex Workers in Baltimore City, Maryland

Katherine H. A. Footer, MSc, Ju Nyeong Park, PhD, Sean T. Allen, PhD, Michele R. Decker, PhD, Bradley E. Silberzahn, MA, Steve Huettner, Noya Galai, PhD, and Susan G. Sherman, PhD

Objectives. To characterize interactions that female sex workers (FSWs) have with the police and explore associations with client-perpetrated violence.

Methods. Baseline data were collected April 2016 to January 2017 from 250 FSWs from the Sex Workers and Police Promoting Health in Risky Environments (SAPPHIRE) study based in Baltimore, Maryland. Interviewer-administered questionnaires captured different patrol or enforcement and abusive police encounters, experiences of client-perpetrated violence, and other risk factors, including drug use. We conducted bivariate and multivariable analysis in Stata/SE version 14.2 (StataCorp LP, College Station, TX).

Results. Of participants, 78% reported lifetime abusive police encounters, 41% reported daily or weekly encounters of any type. In the previous 3 months, 22% experienced client-perpetrated violence. Heroin users (70% of participants) reported more abusive encounters (2.5 vs 1.6; $P < .001$) and more client-perpetrated violence (26% vs 12%; $P = .02$) than others. In multivariable analysis, each additional type of abusive interaction was associated with 1.3 times (95% confidence interval [CI] = 1.1, 1.5) increased odds of client-perpetrated violence. For patrol or enforcement encounters, this value was 1.3 (95% CI = 1.0, 1.7).

Conclusions. Frequent exposures to abusive police practices appear to contribute to an environment where client-perpetrated violence is regularly experienced. For FSWs who inject drugs, police exposure and client-perpetrated violence appear amplified.

Public Health Implications. Structural interventions that address police-FSW interactions will help alleviate police's negative impact on FSWs' work environment. (*Am J Public Health*. Published online ahead of print December 20, 2018; e1–e7. doi:10.2105/AJPH.2018.304809)

Globally, female sex workers' (FSWs') lifetime prevalence of experiencing violence in the workplace is 45% to 75%.¹ Street-based sex workers particularly experience high levels of violence, including physical, verbal, and sexual abuse; robbery; kidnapping; and murder.^{2–5} In addition to the immediate impact, violence against women has substantial longer-term health-related implications, including substance use, depression, posttraumatic stress, suicide, mortality, and the acquisition of sexually transmitted infections, including HIV.⁶

International calls to make violence against sex workers a human rights and public health

priority are well established.⁷ A growing body of data linking violence against FSWs with bio-assessed HIV and sexually transmitted infection (STI) outcomes highlights the importance of violence to health outcomes.^{8,9}

However, the drivers of violence against this vulnerable population are insufficiently understood. In particular, compared with individual and interpersonal determinants of violence, the role of structural-level factors remains poorly articulated.¹⁰ Given the high rates of violence, the criminal justice system and the police should have a custodial role in FSWs' protection, whether sex work is legal or not. However, a social environment of gendered norms and unequal power relations leaves FSWs vulnerable to abuse from police and other perpetrators.¹¹ In particular, evidence suggests that FSWs' HIV risk environment¹² can be exacerbated by a range of police practices, including enforcement (e.g., arrest, crackdowns)^{13,14} and extrajudicial practices (e.g., syringe confiscation, sexual coercion).^{8,15}

In settings where sex work is criminalized, evidence suggests that a punitive and stigmatizing environment can normalize violence and deter FSWs from reporting or seeking redress.^{2,15–18} Existing evidence of the key role police play in FSWs' experience of violence is largely derived from qualitative studies. A recent systematic review of the correlates of violence against sex workers found only 4 studies (in Canada, India, and the United Kingdom) that quantitatively explored the role of the police, often as a secondary focus.¹ Nevertheless, these studies found that police behaviors (including, arrest,

ABOUT THE AUTHORS

Katherine H. A. Footer is with the Department of Health, Behavior, and Society, and the Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD. Ju Nyeong Park, Sean T. Allen, and Bradley E. Silberzahn are with the Department of Health, Behavior, and Society, Johns Hopkins Bloomberg School of Public Health. Michele R. Decker is with Johns Hopkins Bloomberg School of Public Health; Population, Family, and Reproductive Health; and School of Nursing. Steve Huettner is with Johns Hopkins School of Medicine. Noya Galai is with the Department of Epidemiology Johns Hopkins Bloomberg School of Public Health. Susan G. Sherman is with the Departments of Health, Behavior, and Society; Population, Family, and Reproductive Health; and Epidemiology, Johns Hopkins Bloomberg School of Public Health.

Correspondence should be sent to Katherine Footer, Hampton House, 624 N Broadway, Suite 178, Baltimore, MD 21205 (e-mail: kfooter1@jhu.edu). Reprints can be ordered at <http://www.ajph.org> by clicking the "Reprints" link.

This article was accepted October 1, 2018.

doi: 10.2105/AJPH.2018.304809

police violence, and coercion), were independently associated with experiencing violence.^{10,13,19,20} Other studies point to the harmful impact of omnipresent and abusive policing practices on FSWs' risk avoidance (e.g., screening clients, choosing policed strolls),^{3,21} which may increase their likelihood of experiencing violence, including that perpetrated by clients. Despite these findings, the potential additive effect of police exposures on aspects of FSWs' risk environment, including experiences of client-perpetrated violence, remains underexplored. This is particularly true within the United States, where, to our knowledge, no existing studies have systematically quantified FSW interactions with the police despite recent increases in scrutiny following highly publicized human rights offenses committed by police against vulnerable populations, including street-based sex workers.^{22,23}

We used cross-sectional data from a cohort of street-based FSWs in Baltimore City, Maryland, to describe the type and frequency of a wide range of FSWs' police-related experiences and their association with client-perpetrated violence, with adjustment for other key drivers of violence such as drug use.

METHODS

The data from this study came from the Sex Workers and Police Promoting Health in Risky Environments (SAPPHIRE) study, a prospective FSW cohort, recruited between April 2016 and January 2017.

Recruitment and Data Collection

Targeted sampling was used in 15 zones across Baltimore City, identified as where street-based FSWs worked.²⁴ In each zone, study staff approached potential participants and briefly described the study. Interested persons were invited to a study van, which was parked nearby, and screened. Eligibility criteria were (1) aged 15 years or older; (2) sold or traded oral, vaginal, or anal sex "for money or things like food, drugs, or favors"; (3) picked up clients on the street or at public places 3 or more times in the past 3 months; and (4) willing to undergo HIV and STI testing. The exclusion criterion was identifying as male or a man. Eligible participants

who provided informed consent participated in an interviewer-administered computer-assisted personal interview survey and HIV and STI testing. Shorter follow-up surveys and additional testing were conducted with participants across a further 4 field visits (3-, 6-, 9-, and 12-month).

Trained staff performed oral HIV tests (OraQuick Advanced Rapid HIV-1/2 test kit, OraSure Technology Ltd, Bethlehem, PA).

Participants received on-the-spot counseling for positive HIV tests and were referred to a provider of their choice. Biological specimens were collected for STI testing with self-administered vaginal swabs and sent for gonorrhea, chlamydia, and trichomoniasis testing. Laboratory testing used nucleic acid amplification tests (Hologic, Marlborough, MA). All testing was confidential and described in the consent process; results were forwarded to the Baltimore City Health Department for patient follow-up to ensure they were engaged in care. Participants were notified of their STI results by disease intervention specialists with the Baltimore City Health Department or during follow-up interviews and provided with resources on where to seek treatment. Referrals to a range of local health and social service organizations (e.g., case management, counseling, drug treatment programs) were offered to all participants. Participants were compensated with a prepaid \$70 Visa gift card for completing the baseline visit.

Measures

Sociodemographic and risk factor measures.

We collected information on age, gender, ethnicity, types and frequency of drug use, time in sex work, and the frequency of sex work. We drew survey items from existing validated scales, the literature, and previous studies.²⁵

Client-perpetrated violence measures. Clients were defined as "people you've had oral, vaginal or anal sex with for money, food, drugs or favors." We measured client-perpetrated violence (sexual and physical) with a 3-item adapted version of the Revised Conflict Tactic Scale.²⁶ We asked whether they had been hit, punched, slapped, or otherwise physically hurt; threatened with a weapon or had a weapon used against them; or physically forced to have vaginal or anal sex when they did not want to. Individuals were coded "1" if they had experienced client-perpetrated violence in the prior 3 months and "0" otherwise.

Police interaction measures. A list of different police interactions was developed from a systematic review of previous studies²⁷ and refined by a police ethnography conducted in Baltimore City and input from a Community Advisory Board (comprising current and former sex workers). We divided police interactions into 2 groups: patrol or enforcement practices and abusive practices. There were 7 patrol or enforcement practices: asking the women to move along, performing a routine stop, offering assistance (being helped without expecting anything in return or being referred to health or social services, such as drug or alcohol treatment or a violence shelter), conducting a search of person or property, confiscating drugs or drug paraphernalia, confiscating condoms, and arrest. The survey was unable to capture whether the circumstances made individual interactions legal or extrajudicial (e.g., confiscating needles obtained from a needle exchange program would be against policy directives in the State of Maryland).

Abusive practices consisted of 7 egregious acts outside the scope of enforcement practices: verbal or emotional harassment, sexual harassment or assault, damage of property, physical violence, pressuring the woman into having sex in exchange for no arrest, acceptance of money or other goods in exchange for no arrest, and having police becoming clients. Each of the questions was answered with a "yes" if the women had ever experienced that practice and "no" otherwise. The only exception was police as clients, for which only the previous 3 months was considered. We also created 2 aggregate measures: aggregate patrol or enforcement exposure (calculated as the total number of different patrol or enforcement practices ever experienced) and aggregate abusive exposure (total number of different abusive interactions ever experienced).

Statistical Analysis

We used the Pearson χ^2 test to explore whether there were significant differences between the proportion of participants that did and did not experience client-perpetrated violence in the past 3 months by demographic characteristics, working conditions, drug use, and sexual risk behaviors, and for the different police encounters.

Bivariate analyses. We used a bivariate logistic regression model to evaluate the

associations with recent client-perpetrated violence, adjusting for intrazone correlations for women recruited from the same zone.

Multivariable analysis. We included variables from a set of a priori selected variables based on theory and areas of interest for which $P < .20$ on bivariate logistic regression in a multivariable logistic model. To fit the model, we used generalized estimating equations with an exchangeable correlation structure and robust variance to adjust for zone clustering. Because we were interested in the overall association of patrol or enforcement and abusive police practices with client-perpetrated violence, we considered the aggregate rather than the individual police measures in multivariable analysis. This approach assumes that each of the exposures included within the aggregate measures are of equal weight. We also assumed that a linear relationship between the number of interactions and the log odds of violence, supported by observing an approximate linear effect when we considered this factor as a discrete rather than continuous covariate. As a sensitivity analysis, we also estimated relative risks in the final multivariable model with robust Poisson regression. We assessed multicollinearity by uncentered variance inflation factors.

We conducted analyses in Stata/SE 14.2 (StataCorp LP, College Station, TX).

RESULTS

We recruited 250 FSWs from around Baltimore with a mean age of 36 years (range = 18–61; Table 1). Most FSWs had been arrested in their lifetime (82%), about half had entered street-based sex work within the past 5 years (48%), and 55% had 30 or more clients in the past 3 months. Drug use was common; 70% used daily heroin daily, 62% used crack cocaine daily, and 12% used opioids or benzodiazepines daily. Some women were also involved in the drug trade (23%). Most (79%) of FSWs who sold, touted, or steered drugs in the past 3 months also used heroin or crack cocaine daily. Daily heroin users were more likely to engage in daily sex work (74% vs 47%; $P < .001$) than other participants. HIV prevalence was 5%, and 54% were infected with at least 1 STI (chlamydia 10.5%, gonorrhea 12.6%, trichomoniasis 48.8%).

TABLE 1—Descriptive Characteristics Among 250 Female Sex Workers in Baltimore City, MD, 2016–2017

	Overall, No. (%)	Client-Perpetrated Violence in Past 3 Months		<i>P</i>
		Yes, No. (%)	No, No. (%)	
Total	250 (100.0)	55 (22.0)	195 (78.0)	
Demographic characteristics				
Age, y				.10
18–29	66 (26.4)	17 (30.9)	49 (25.1)	
30–39	109 (43.6)	28 (50.9)	81 (41.5)	
≥ 40	75 (30.0)	10 (18.2)	65 (33.3)	
Race/ethnicity				.001
Non-Hispanic White	166 (66.4)	45 (81.8)	121 (62.1)	
Non-Hispanic Black	57 (22.8)	2 (3.6)	55 (28.2)	
Hispanic or other	27 (10.8)	8 (14.5)	19 (9.7)	
Highest level of education attained				.80
Did not complete high school	131 (52.4)	27 (49.1)	92 (47.2)	
High school or greater	119 (47.6)	28 (50.9)	103 (52.8)	
Working conditions				
Length of time in street-based sex work, y				.43
≤ 1	44 (17.6)	7 (12.7)	37 (19.0)	
> 1–5	77 (30.8)	20 (36.4)	57 (29.2)	
> 5	129 (51.6)	28 (50.9)	101 (51.8)	
Frequency of street-based sex work				.031
Daily	85 (34.0)	12 (21.8)	73 (37.4)	
Weekly or monthly	165 (66.0)	43 (78.2)	122 (62.6)	
Number of clients ^a				.27
1–29	111 (44.8)	21 (38.2)	90 (46.2)	
≥ 30	137 (55.2)	34 (61.8)	103 (52.8)	
Drug use and involvement in the drug trade^a				
Daily heroin use	175 (70.0)	46 (83.6)	129 (66.2)	.012
Daily crack cocaine use	155 (62.0)	35 (63.6)	120 (61.5)	.78
Daily opioid or benzodiazepine pill use ^b	29 (11.6)	3 (5.5)	26 (13.3)	.11
Sold, touted, or steered drugs	58 (23.2)	12 (21.8)	46 (23.6)	.78
Sexual risk				
HIV infection	13 (5.2)
STI infection ^c	136 (54.4)	35 (63.6)	101 (51.8)	.12

Note. STI = sexually transmitted infection.

^aPast 3 mo.

^bNot as prescribed by a doctor or nurse.

^cGonorrhea, chlamydia, or trichomoniasis infection.

Frequency of Police Interactions

We found that all of the women had previous interactions with the police. The participants had, on average, experienced 6.2 different types of police interactions in their lifetime (out of the 14 that were considered), made up of a mean of 4.1 patrol or

enforcement activities and 2.1 abusive encounters (Table 2). The most common patrol or enforcement experiences included being arrested and routine stops. Of the abusive encounters, the most common were verbal or emotional harassment and sexual harassment or assault. One in 10 women had daily police

TABLE 2—Police Encounters and Recent Client-Perpetrated Violence Among 250 Female Sex Workers in Baltimore City, MD, 2016–2017

	Total, No. (%) or Mean \pm SD	Client Violence in Past 3 Months		
		Yes, No. (%) or Mean \pm SD	No, No. (%) or Mean \pm SD	<i>P</i>
Patrol or enforcement activities, ever				
Police arrested respondent	206 (82.4)	51 (92.7)	155 (79.5)	.023
Police asked respondent to move along	202 (80.8)	51 (92.7)	151 (77.4)	.016
Police conducted a routine stop (e.g., ID, warrant check)	215 (86.8)	54 (98.2)	162 (83.1)	.021
Police conducted a search of person or property	159 (63.6)	41 (74.5)	118 (60.5)	.06
Police confiscated drugs or drug paraphernalia	150 (60.0)	38 (69.1)	112 (57.4)	.13
Police confiscated condoms	13 (5.2)	5 (9.1)	8 (4.1)	.14
Police offered assistance (e.g., referral, ride to services)	75 (30.0)	20 (26.7)	35 (20.0)	.25
No. of patrol practices experienced	4.1 \pm 1.7	4.7 \pm 1.3	3.9 \pm 1.8	<.001
Abusive practices, ever				
Police verbally or emotionally harassed respondent	174 (69.6)	44 (80.0)	130 (66.7)	.06
Police sexually harassed or assaulted respondent	120 (48.0)	36 (65.5)	84 (43.1)	.004
Police damaged respondent's property	77 (30.8)	28 (50.9)	49 (25.1)	<.001
Police physical violence (threatened or enacted)	64 (25.6)	20 (36.4)	44 (22.6)	.042
Police pressured respondent to have sex in exchange for no arrest	58 (23.2)	24 (43.6)	34 (17.4)	<.001
Police accepted money or other goods to avoid trouble	16 (6.4)	4 (7.3)	12 (6.2)	.77
Had police as clients (past 3 mo)	41 (16.7)	16 (29.1)	25 (12.8)	.004
No. of abusive practices experienced	2.1 \pm 1.8	3.1 \pm 2.0	1.9 \pm 1.6	<.001
Total practices, ever: no. of different practices experienced	6.2 \pm 3.0	7.9 \pm 2.6	5.9 \pm 2.9	<.001

encounters, 41% had at least 1 encounter on at least a weekly basis, and 23% at least 2 encounters over this timeframe (Table 3). Excluding arrest, 92% had experienced at least 1 patrol or enforcement activity, and 78% had experienced at least 1 abusive encounter. Patrol or enforcement encounters occurred more frequently than abusive ones, with 37% of women experiencing patrol or enforcement activities on at least a weekly basis compared with 12% for abusive activities.

Drug use appeared to be key to the frequency and type of police encounters. The FSWs who reported daily heroin use had a wider range of police encounters than FSWs who did not. Daily heroin users experienced an average of 4.3 different lifetime patrol or

enforcement activities compared with 3.6 patrol or enforcement activities for other participants (*P* value for difference .009) and 2.5 abusive encounters compared with 1.6 among other participants (*P* < .001). Forty-two percent of daily heroin users reported that at least 1 patrol or enforcement activity occurred weekly, and 14% reported that at least 1 abusive encounter occurred over the same timeframe compared with 25% and 5%, respectively, among other participants.

Associations With Client-Perpetrated Violence

Fifty-five (22%) women had experienced physical or sexual client-perpetrated violence

in the past 3 months: 19% of women had experienced physical violence, 16% sexual violence, and 12% both. Experiencing client-perpetrated violence was significantly associated with being non-Hispanic White, engaging in daily sex work, and daily use of heroin, as well as 10 of the 14 different police measures considered (Tables 1 and 2). Client-perpetrated violence was particularly high among drug users with FSWs who reported daily heroin use reporting 2.2 times as much client-perpetrated violence as those who did not (26% vs 12%; *P* = .02).

In bivariate analysis (Table 4), we found that the odds of recently experiencing client-perpetrated violence were higher for FSWs who conducted daily sex work (odds ratio [OR] = 2.10; 95% confidence interval [CI] = 1.34, 3.29) and used heroin daily (OR = 2.58; 95% CI = 1.37, 4.84). Of the patrol or enforcement practices, arrest, routine stops, being searched, drug or paraphernalia confiscations, and providing assistance were significantly associated with client-perpetrated violence. Abusive practices were also linked to client-perpetrated violence including verbal or emotional harassment, sexual harassment or assault by the police, police damaging their property, and police being recent clients.

Our multivariable model was adjusted for age, race/ethnicity, daily sex work, and daily heroin use. We found that for each additional type of patrol or enforcement practice experienced, FSWs had 1.3 times the odds of experiencing client-perpetrated violence (95% CI = 1.0, 1.6; *P* = .089). In addition, each additional type of abusive practice experienced was associated with a 1.3 times increase in the odds of experiencing client-perpetrated violence (95% CI = 1.1, 1.5). The association of daily heroin use with client-perpetrated violence attenuated to non-significance in the adjusted model (*P* = .50). We obtained consistent results with robust Poisson regression (Table A, available as a supplement to the online version of this article at <http://www.ajph.org>).

DISCUSSION

Globally, it is known that criminalization, alongside social marginalization, places FSWs in vulnerable positions, including putting

TABLE 3—Frequency of Different Police Interactions Among 250 Female Sex Workers in Baltimore City, MD, 2016–2017

	Daily, %	Weekly, %	Monthly, %	1–3 Months, %	> 3 Months, %	Never, %
Patrol or enforcement activities (excluding arrest)						
Respondent asked to move along	7.2	22.9	8.4	28.9	13.3	19.3
Routine stop	4.0	18.1	11.6	33.3	19.7	13.3
Search of person or property	1.2	6.8	5.6	26.0	24.0	36.4
Condom confiscation	0.0	0.4	0.4	2.8	1.6	94.8
Drug confiscation	0.4	3.2	1.2	20.9	34.5	39.8
Police offered assistance	0.4	2.4	1.2	16.4	9.6	70.0
At least 1 patrol or enforcement practice	8.8	28.4	12.8	31.6	10.4	8.0
At least 2 patrol or enforcement practices	3.2	16.0	8.8	36.4	24.0	11.6
Abusive activity (excluding police as client)						
Police verbally or emotionally harassed respondent	0.4	6.5	7.7	16.1	38.7	30.6
Police sexually harassed or assaulted respondent	2.0	4.8	1.2	9.6	30.5	51.8
Police damaged respondent's property	0.0	0.8	0.4	4.0	25.6	69.2
Police physical violence (threatened or enacted)	0.0	0.0	0.0	1.6	23.7	74.7
Police pressured respondent to have sex	0.0	0.0	0.4	2.4	20.4	76.8
Police accepted money or other goods to avoid trouble	0.0	0.0	0.8	0.4	5.2	93.6
At least 1 abusive activity	2.4	9.2	6.8	19.6	40.0	22.0
At least 2 abusive activities	0.0	2.8	2.4	8.8	40.8	45.2
Overall						
At least 1 activity (patrol or abusive)	10.0	30.8	14.4	28.0	10.0	6.8
At least 2 activities (patrol or abusive)	4.4	18.8	11.2	37.6	18.8	9.2

them at risk for work-related, client-perpetrated violence. However, in the context of the United States in particular, the role of the police had previously been poorly understood. In particular, it has been unclear the extent to which FSWs encounter the police and whether these encounters are associated with changes in their risk environment. To fill this knowledge gap, we characterized FSW encounters with the police and explored the contribution that both day-to-day and abusive police practices may have on a risk environment that promotes client-perpetrated violence.

The complex social and structural risk environment in which FSWs operate means that it is unlikely that specific police behaviors directly result in experiences of client-perpetrated violence. Instead, a build up of frequent negative interactions accumulated over months and years may promote mistrust

or fear of the police. This has previously been linked to different types of riskiness, including rushing of client negotiations and moving to unfamiliar or unsafe areas.^{11,28,29} It is proposed that these and other types of risk have an additive impact on FSWs' likelihood of exposure to the situational vulnerability that promotes the experience of client-perpetrated violence. This hypothesis is supported by qualitative studies that have highlighted the police's role in promoting sex-work and drug-using populations' experience of structural violence, manifested in a complex interplay of unequal power relations that reinforce a cycle of individual and interpersonal risk taking.³⁰

We found that our entire cohort population had at least 1 type of interaction with the police in their lifetime and that 10 out of the 14 different police measures, across both routine and abusive practices, were

significantly associated with client-perpetrated violence in bivariate analyses. We found evidence that police interactions had a profoundly negative association with each additional type of abusive interaction being associated with client-perpetrated violence in adjusted analysis. Although it was not significant, the association of the patrol or enforcement activities in adjusted analysis with client-perpetrated violence was of the same magnitude as the abusive interactions. These findings suggest that even nonabusive encounters, which occur on a much more frequent basis than abusive ones, also contribute to a risk environment that can facilitate client-perpetrated violence.

In this population, 70% of women used heroin daily. Previous work has identified drug use as strongly linked to client-perpetrated violence.^{1,31} We also found a strong association between the 2, with daily heroin users having more than 2 times the odds of experiencing client-perpetrated violence compared with those that did not use heroin daily. The FSWs who used heroin daily also had more encounters with the police (abusive and nonabusive) and were more likely to engage in sex work on a daily basis compared with other participants, likely linked to increased financial need for their drug dependency. These findings point to a complex layering of risk in which those with the highest dependence on drugs have increased exposure to the police because of their dual criminalized status and physical location in highly policed open-air drug markets. In addition, higher frequency of engagement in sex work potentiates encounters with violent clients. In multivariable regression, when we adjusted for police interactions, we found that heroin use was no longer significantly associated with client-perpetrated violence. This provides some evidence that police encounters may mediate at least some of the complex relationship between drug use and client-perpetrated violence. Findings from this study suggest that research with FSWs who are injection drug users should take into consideration the dynamics and the intertwined nature of drug use and police interactions on experiences of client-perpetrated violence.

Although we identified policing measures as important correlates of client-perpetrated violence among street-based FSWs, account

TABLE 4—Unadjusted and Adjusted Multivariable Models of the Relationship Between Police Practices and Client-Perpetrated Violence Among 250 Female Sex Workers in Baltimore City, MD, 2016–2017

	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Descriptive characteristics		
Age (per year increase)	0.96 (0.92, 0.99)	0.96 (0.92, 1.00)
Black, Hispanic, or other (vs White)	0.35 (0.13, 0.92)	0.44 (0.19, 1.01)
Daily sex work	2.10 (1.34, 3.29)	1.99 (0.94, 4.20)
Daily heroin use	2.58 (1.37, 4.84)	1.26 (0.65, 2.44)
Patrol or enforcement practices, ever		
Police arrested respondent	3.29 (1.06, 10.21)	
Police asked respondent to move along	3.67 (1.35, 9.97)	
Police conducted a routine stop of respondent (e.g., ID, warrant check)	9.93 (1.88, 52.47)	
Police conducted a search of person or property of respondent	1.91 (1.01, 3.61)	
Police confiscated drugs or drug paraphernalia of respondent	1.62 (0.90, 2.93)	
Police confiscated condoms	2.20 (0.37, 13.13)	
Police offered assistance to respondent (e.g., referral, ride to services)	1.45 (0.86, 2.43)	
No. of patrol or enforcement practices	1.42 (1.18, 1.70)	1.27 (0.96, 1.69)
Abusive practices, ever		
Police verbally or emotionally harassed respondent	1.95 (1.32, 2.88)	
Police sexually harassed or assaulted respondent	2.48 (1.54, 3.99)	
Police damaged respondent's property	3.06 (2.52, 3.71)	
Police physical violence (threatened or enacted)	2.01 (1.03, 3.94)	
Police pressured respondent to have sex in exchange for no arrest	3.62 (1.69, 7.77)	
Police accepted money or other goods to avoid trouble	1.16 (0.41, 3.24)	
Had police as clients	2.74 (1.53, 4.90)	
No. of abusive practices	1.46 (1.22, 1.75)	1.29 (1.09, 1.54)

Note. CI = confidence interval; OR = odds ratio.

must be taken of the complexity of women's underlying vulnerability. These include more proximal and upstream risk factors including choice of work environment (e.g., indoor vs outdoor), financial need, and gendered power dynamics that may contribute to FSWs' overall risk.¹ For instance, we found evidence that, in this population, Black FSWs experienced less violence than their White counterparts. Mechanisms that could explain this observation are unclear; however, different confounding factors by ethnicity may be relevant (e.g., predominant work environment, immediacy of financial need [for example, drug-driven—60% of Black FSWs in this population used heroin daily compared with 75% of White FSWs]). Further research is needed to disentangle the factors that may explain these differences. We also found that positive police interactions, such as providing

assistance, were also associated with increases in risk of client-perpetrated violence. This finding should be considered in the context in which such interactions are still typically coercive in nature (i.e., instigated to promote FSW compliance with the provision of information).

This study adds to the knowledge base on the relationship between policing and client-perpetrated abuse among FSWs, but a number of limitations must be noted. We used aggregate measures to capture the overall level of abusive and patrol or enforcement activities experienced by the women, which requires a relatively strong assumptions that each of the individual measures are of equal weight. It is interesting to note that, although 4 of the patrol or enforcement practices were significant in bivariate analysis, the single aggregate measure in multivariable analysis

was not. Further work is needed to develop robust police exposure measurement tools that can help identify the relative importance of individual measures for specific outcomes.

Although this represents one of the largest FSW cohorts in the United States, the sample size may have been insufficient to identify some risk factors and, as with all studies of this nature, there remains the real possibility of unmeasured confounding from factors we did not capture. In addition, we cannot ascertain the degree to which our targeted sampling strategy was able to generate a representative sample of FSWs. Results should also be viewed in light of the fact that, despite 63% of the population of Baltimore being Black,³² this cis-female cohort was overwhelmingly White. Reasons for this may include that Black FSWs engage in sex work away from the street, including indoor venues such as exotic dance clubs and private homes.³³

Owing to the self-reported nature of the data, there is the possibility of response or social desirability bias on the part of participants with respect to violence and police measures. However, studies have shown a tendency to underreport issues around which there is sensitivity, particularly among populations such as FSWs, given the stigmatized and criminalized nature of their work.³⁴ The use of interview-administered surveys was intended to help clarify questions and improve survey reliability. Despite this, it is acknowledged that some survey items overlapped and may have been difficult for participants to distinguish between, even with explanation (e.g., verbal or emotional harassment vs sexual harassment). Although data are taken from an ongoing cohort study, the data analyzed here are cross-sectional, thereby limiting our understanding of causality. Finally, the focus of this study is on street-based FSWs in the context of a North American setting, the majority of whom are people who inject drugs. Given the variety of FSW venues and the types of legal and social settings where sex work is undertaken, results may not be generalizable to all sex-worker environments.

This study highlights the need to support and foster the development of police–sex worker partnerships and violence-prevention strategies that can modify key elements of FSWs' risk environment. Evidence in other settings has pointed to the positive impact of police sensitivity trainings, alongside FSW

empowerment and rights awareness in reducing rates of violence.³⁵ Modifying the enabling environment for client-perpetrated violence, including legal enforcement approaches and abuses, that may contribute to a climate of impunity around client-perpetrated violence and police misconduct is critical. In line with current evidence, decriminalization offers the most impactful structural change. In addition, interventions can target other aspects of the upstream legal and policy environment in which policing of sex work occurs (e.g., introducing policies that prioritize FSW safety) as well as tackling downstream day-to-day practices of police officers (e.g., police sensitivity trainings, designated sex-worker liaison officers). Development of interventions should also consider the duality of risk experienced by many FSWs who also inject drugs. The impact of women's drug use on their risk environment, as evidenced in this study's findings, points to the importance of intervention approaches that also reduce barriers to drug treatment. **AJPH**

CONTRIBUTORS

K. H. A. Footer developed the data analysis plan and wrote the original draft of the article. J. N. Park conducted the data analysis. N. Galai provided content expertise on the analysis plan. J. N. Park, S. T. Allen, M. R. Decker, B. E. Silberzahn, S. Huettner, and S. G. Sherman provided content expertise and critical feedback on the analysis and interpretation and provided final approval for the article.

ACKNOWLEDGMENTS

This work was supported by the National Institute of Drug Research (R01DA038499-01).

We thank the SAPHIRE research staff, community advisory board, and the women who participated in the study. We acknowledge the data management support provided by Miles Morris and Katelyn Riegger.

Note. The funder had no role in study design, data collection, or in analysis and interpretation of the results, and this article does not necessarily reflect views or opinions of the funder.

CONFLICTS OF INTEREST

The authors report no conflicting interests.

HUMAN PARTICIPANT PROTECTION

The study was approved by the Johns Hopkins Bloomberg School of Public Health institutional review board and holds a Certificate of Confidentiality.

REFERENCES

- Deering KN, Amin A, Shoveller J, et al. A systematic review of the correlates of violence against sex workers. *Am J Public Health*. 2014;104(5):e42–e54.
- Sanders T, Campbell R. Designing out vulnerability, building in respect: violence, safety and sex work policy. *Br J Sociol*. 2007;58(1):1–19.
- Goldenberg SM, Duff P, Krusi A. Work environments and HIV prevention: a qualitative review and meta-synthesis of sex worker narratives. *BMC Public Health*. 2015;15(1):1241.
- Rekart ML. Sex-work harm reduction. *Lancet*. 2005;366(9503):2123–2134.
- Campbell R, Kinnell H. “We shouldn’t have to put up with this”: street sex work and violence. *Crim Justice Matters*. 2000;42(1):12–13.
- Campbell JC. Health consequences of intimate partner violence. *Lancet*. 2002;359(9314):1331–1336.
- Canadian HIV/AIDS Legal Network. A human rights-based commentary on UNAIDS guidance note: HIV and sex work. Executive summary. 2007:1–23. Available at: <http://www.hivpolicy.org/Library/HP001558.pdf>. Accessed October 25, 2018.
- Decker MR, Wirtz AL, Moguilnyi V, et al. Female sex workers in three cities in Russia: HIV prevalence, risk factors and experience with targeted HIV prevention. *AIDS Behav*. 2014;18(3):562–572.
- Ulibarri MD, Strathdee SA, Lozada R, et al. Intimate partner violence among female sex workers in two Mexico–U.S. border cities: partner characteristics and HIV risk-behaviors as correlates of abuse. *Psychol Trauma*. 2010;2(4):318–325.
- Shannon K, Kerr T, Strathdee SA, Shoveller J, Montaner JS, Tyndall MW. Prevalence and structural correlates of gender based violence among a prospective cohort of female sex workers. *BMJ*. 2009;339:b2939.
- Sanders T. The risks of street prostitution: punters, police and protesters. *Urban Stud*. 2004;41(9):1703–1717.
- Rhodes T, Simic M. Transition and the HIV risk environment. *BMJ*. 2005;331(7510):220–223.
- Erausquin JT, Reed E, Blankenship KM. Police-related experiences and HIV risk among female sex workers in Andhra Pradesh, India. *J Infect Dis*. 2011;204(suppl 5):S1223–S1228.
- Decker MR, Wirtz AL, Baral SD, et al. Injection drug use, sexual risk, violence and STI/HIV among Moscow female sex workers. *Sex Transm Infect*. 2012;88(4):278–283.
- Erausquin JT, Reed E, Blankenship KM. Change over time in police interactions and HIV risk behavior among female sex workers in Andhra Pradesh, India. *AIDS Behav*. 2015;19(6):1108–1115.
- Dewey S, St Germain T. “It depends on the cop”: street-based sex workers’ perspectives on police patrol officers. *Sex Res Soc Policy*. 2014;11(3):256–270.
- Krüsi A, Kerr T, Taylor C, Rhodes T, Shannon K. “They won’t change it back in their heads that we’re trash”: the intersection of sex work-related stigma and evolving policing strategies. *Sociol Health Illn*. 2016;38(7):1137–1150.
- Sherman SG, Footer K, Illangasekare S, Clark E, Pearson S, Decker MR. “What makes you think you have special privileges because you are a police officer?” A qualitative exploration of police’s role in the risk environment of female sex workers. *AIDS Care*. 2015;27(4):473–480.
- Platt L, Grenfell P, Bonell C, et al. Risk of sexually transmitted infections and violence among indoor-working female sex workers in London: the effect of migration from Eastern Europe. *Sex Transm Infect*. 2011;87(5):377–384.
- Deering KN, Bhattacharjee P, Mohan HL, et al. Violence and HIV risk among female sex workers in Southern India. *Sex Transm Dis*. 2013;40(2):168–174.
- Tenni B, Carpenter J, Thomson N. Arresting HIV: fostering partnerships between sex workers and police to reduce HIV risk and promote professionalization within policing institutions: a realist review. *PLoS One*. 2015;10(10):e0134900.
- Krieger N, Chen JT, Waterman PD, Kiang MV, Feldman J. Police killings and police deaths are public health data and can be counted. *PLoS Med*. 2015;12(12):e1001915.
- Wurth MH, Schleifer R, McLemore M, Todrys KW, Amon JJ. Condoms as evidence of prostitution in the United States and the criminalization of sex work. *J Int AIDS Soc*. 2013;16(1):18626.
- Bluthenthal RN, Watters JK. Multimethod research from targeted sampling to HIV risk environments. *NIDA Res Monogr*. 1995;157:212–230.
- Brantley ML, Footer KHA, Lim S, Kerrigan D, Sherman SG. Experiences of structural vulnerability among exotic dancers in Baltimore, Maryland: co-occurring social and economic antecedents of HIV/STI risk. *Int J Drug Policy*. 2017;50:74–81.
- Straus MA, Hamby SL, Boney-McCoy S, Sugarman DB. The revised conflict tactics scales (CTS2) development and preliminary psychometric data. *J Fam Issues*. 1996;17(3):283–316.
- Footer KH, Silberzahn BE, Tormohlen KN, Sherman SG. Policing practices as a structural determinant for HIV among sex workers: a systematic review of empirical findings. *J Int AIDS Soc*. 2016;19(4, suppl 3):20883.
- Shannon K, Strathdee SA, Shoveller J, Rusch M, Kerr T, Tyndall MW. Structural and environmental barriers to condom use negotiation with clients among female sex workers: implications for HIV-prevention strategies and policy. *Am J Public Health*. 2009;99(4):659–665.
- Blankenship KM, Koester S. Criminal law, policing policy, and HIV risk in female street sex workers and injection drug users. *J Law Med Ethics*. 2002;30(4):548–559.
- Rhodes T, Wagner K, Strathdee SA, Shannon K, Davidson P, Bourgois P. Structural violence and structural vulnerability within the risk environment: theoretical and methodological perspectives for a social epidemiology of HIV risk among injection drug users and sex workers. In: O’Campo P, Dunn JR, eds. *Rethinking Social Epidemiology*. Dordrecht, The Netherlands: Springer Netherlands; 2012:205–230.
- Ulibarri MD, Strathdee SA, Ulloa EC, et al. Injection drug use as a mediator between client-perpetrated abuse and HIV status among female sex workers in two Mexico–US border cities. *AIDS Behav*. 2011;15(1):179–185.
- US Census Bureau. Baltimore City, Maryland, United States. Available at: <https://www.census.gov/quickfacts/fact/table/baltimorecitymaryland,US/PST045217>. Accessed October 30, 2018.
- Brantley ML, Kerrigan D, German D, Lim S, Sherman SG. Identifying patterns of social and economic hardship among structurally vulnerable women: a latent class analysis of HIV/STI risk. *AIDS Behav*. 2017;21(10):3047–3056.
- Hanck SE, Blankenship KM, Irwin KS, West BS, Kershaw T. Assessment of self-reported sexual behavior and condom use among female sex workers in India using a polling box approach: a preliminary report. *Sex Transm Dis*. 2008;35(5):489–494.
- Beattie TSH, Bhattacharjee P, Ramesh BM, et al. Violence against female sex workers in Karnataka state, south India: impact on health, and reductions in violence following an intervention program. *BMC Public Health*. 2010;10(1):476.