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Structural Barriers to Condom Access in a Community-Based Cohort of Sex Workers in Vancouver, Canada: Influence of Policing, Violence, and End-Demand Criminalization

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Abstract

Objectives: Sex workers (SWs) face a disproportionate burden of HIV/sexually transmitted infections (STIs), violence, and other human rights violations. While recent HIV prevention research has largely focused on the HIV cascade, condoms remain a cornerstone of HIV prevention, requiring further research attention. Given serious concerns regarding barriers to condom use, including policing, violence, and 'end-demand' sex work criminalization, we evaluated structural correlates of difficulty accessing condoms amongst SWs in Vancouver over an 8-year period.

Methods: Baseline and prospective data were drawn from a community-based cohort of women SWs (2010–2018). SWs complete semi-annual questionnaires administered by a team that includes lived experience (SWs). Multivariable logistic regression using generalized estimating equations (GEE) modelled correlates of difficulty accessing condoms over time.

Results: Among 884 participants, 19.1% reported difficulty accessing condoms during the study. In multivariable GEE analysis, exposure to end-demand legislation was not associated with improved condom access; identifying as a sexual/gender minority (adjusted odds ratio [AOR]:1.62, 95%CI: 1.16–2.27), servicing outdoors (AOR:1.52, 95%CI: 1.17–1.97), physical/

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CONTRIBUTORS

KS and SG had full access to all of the data in the study and take full responsibility for the integrity of the data and the accuracy of the data analysis. SG and KS made substantial contributions to conception and design of the study. KS and SG made substantial contributions to the acquisition of the data. MB conducted the statistical analysis. SG and RL drafted the manuscript. KS and SG made substantial contributions to the interpretation of the data and revised the article critically for important intellectual content. All authors have approved the final version to be published.

COMPETING INTERESTS:

None.

ETHICS APPROVAL

Approval provided by the Providence Health Care/University of British Columbia and Simon Fraser University Research Ethics Boards. REB number H09–02803.

sexual workplace violence (AOR:1.98, 95%CI: 1.44–2.72), community violence (AOR: 1.79, 95%CI: 1.27–2.52) and police harassment (AOR:1.66, 95%CI: 1.24–2.24) were associated with enhanced difficulty accessing condoms.

Conclusions: One-fifth of SWs faced challenges accessing condoms, suggesting the need to scale-up SW-tailored HIV/STI prevention. Despite the purported goal of 'protecting communities', end-demand criminalization did not mitigate barriers to condom access, while sexual/gender minorities and those facing workplace violence, harassment, or who worked outdoors experienced poorest condom accessibility. Decriminalization of sex work is needed to support SWs' labour rights, including access to HIV/STI prevention supplies.

Keywords

sex work; condoms; structural factors; end-demand; criminalization; HIV/STI prevention; sex workers

INTRODUCTION

Women sex workers (SW) face enhanced health and social inequities, including a disproportionate burden of HIV(1–3) and sexually transmitted infections (STIs).(3, 4) These inequities are driven by high rates of criminalization, violence, and other human rights violations(3, 5) and vary across work environments and epidemic settings (1, 3). Whereas research has have increasingly focused on the HIV cascade(6) and emerging biomedical interventions (e.g., PreP), condoms remain a critical, cost-effective cornerstone of HIV/STI prevention and an ongoing human rights and HIV/STI prevention priority for SWs.(7)

While numerous studies have reported on patterns of condom use among SWs and their clients,(8–10) few have focused on condom accessibility, despite its importance within a rights-based response to HIV and evidence of suboptimal access to health and social services for SWs.(11, 12) Research has linked barriers to consistent condom use to individual-level factors including younger age(13) and drug use(14), as well as structural factors such as migration/mobility,(8) sexual/gender minority status,(15) lower educational attainment,(13) and socio-economic status(3, 16). A 2015 global review highlighted the central role of structural determinants in HIV/STI prevention in sex work,(3) with criminalization and policing,(9, 17) unsafe work environments,(18) and availability and accessibility of healthcare(8, 10) all strongly linked to sexual risk negotiation and the burden of HIV/STIs.

In recent years, a number of countries have implemented or considered 'end-demand' criminalization, which criminalizes purchase of sexual services rather than their sale.(19) In Canada, until 2013, sex work was criminalized through provisions against keeping a bawdy-house, living off the avails of prostitution, and public communication for the purposes of prostitution. Based on substantial evidence that these laws violated SWs' rights, they were struck down by the Supreme Court in 2013. However, these laws were replaced with 'end-demand 'legislation (i.e., *the Protection of Communities and Exploited Persons Act, 2014*),[2] which left the sale of sexual services legal while criminalizing their purchase, as well as many third party activities (e.g., advertising). This new legislation conflates sex work with

trafficking(19) and was enacted despite concerns that it could recreate or worsen harms faced under previous laws.(18, 20) Research has shown that laws and enforcement targeting the purchase of sex may encourage rushed sexual transactions to avoid police; increase police surveillance; cause displacement to new work environments; increase pressure to see more dangerous clients; impede access to third party supports; and reduce access to healthcare and community-based supports.(19, 21–23)

In Vancouver, Canada, high rates of policing and workplace violence have been linked to barriers to sexual negotiation(9, 14) a disproportionate HIV/STI burden among SWs(3, 24); however, robust quantitative evidence on condom access among SWs across diverse work environments remains limited, particularly post-implementation of ‘end-demand’ law reform. As such, this study aimed to evaluate structural correlates of difficulty accessing male condoms amongst SWs in Vancouver over an 8-year period, including working conditions, policing, and impacts of ‘end-demand’ sex work criminalization.

METHODS

This study was based on An Evaluation of Sex Workers’ Health Access (AESHA), an ongoing open community-based prospective cohort of women SWs in Metropolitan Vancouver.(20) Reporting conforms to the Strengthening the Reporting of Observational Studies guidelines (Appendix 1).(25)

Patient and Public Involvement

AESHA is based on deep community collaborations since inception, and is guided by a Community Advisory Board of >15 sex work, HIV, and women’s organizations. Recruitment and baseline and semi-annual questionnaires are conducted by a community-based team which prioritizes staff with lived experience (current/former SWs). All interviewers are highly trained in maintaining rapport and non-judgmental interactions to ensure a safe, trauma-informed, and non-stigmatizing approach.

Study Design

As previously described,(20) participants included cis- and transgender women aged ≥14 engaged in sex work within the past month. Participants were recruited through time-location sampling during outreach at various time daytime and evening hours to diverse indoor and outdoor venues (e.g., street, parks, massage parlours, bars, hotels, housing) and online. Venues were identified by mapping with current/former SWs(20); online recruitment is via postings on advertising sites and other SW online venues. Following informed consent, participants complete study visits at the study office or confidential location of their choosing.

Cohort procedures include regular follow-up to work environments by a community-based team, in close collaboration with partner organizations. Participants provide updated contact information at each visit to support follow-up. Between 10–15% of individuals screened are deemed ineligible (e.g., not engaged in sex work at baseline; live outside Metro Vancouver; unable to give informed consent). Annual retention of participants under active follow-up is >90%; primary reasons for attrition include mortality and migration. Extensive efforts are

made to continue to follow participants who move, including phone interviews. Mortality is tracked using linkages to provincial Vital Statistics registries. Our open cohort design allows us to maintain a sample size of approximately 800 participants. Power calculations for the larger study suggest that this is sufficient to detect associations between structural exposures and HIV/STI incidence outcomes.

Participants received $40CAD at each visit for their time, expertise and travel. Procedures were approved by the Providence Health Care/University of British Columbia and Simon Fraser University Research Ethics Boards.

Measures

The questionnaire included detailed questions regarding demographics, sex work patterns, condom use, drug use, work environment, criminalization and access to health supplies and services. At each visit, participants receive pre/post-test counseling and voluntary serological testing for HIV, hepatitis C (HCV) and STIs by the project nurse. Women with symptomatic STIs are provided treatment on-site. Free serology and Papanicolaou testing is offered regardless of enrolment.

Our dependent variable was a time-updated measure of experiencing difficulty accessing condoms in the last 6 months. At baseline and each follow-up visit, participants were asked, “in the last 6 months, have you had any difficulty accessing condoms while working?” Responses were coded as yes vs. no.

Independent variables were based on known and hypothesized individual and structural variables associated with condom use, condom access, or healthcare access amongst SWs. Time-fixed socio-demographics included identifying as a sexual/gender minority (i.e., lesbian, gay, bisexual, asexual, trans, queer, or two-spirit [a term used by some indigenous people to describe their sexual, gender and/or spiritual identity]), indigenous ancestry, and being Canadian-born (vs. born outside of Canada); age was time-updated at each study visit. All other time-updated variables were based on a 6 month recall period and included: recent homelessness; place of service (primarily street/public vs. formal/informal indoor establishment); and physical/sexual workplace violence by aggressors posing as clients (‘yes’ to abducted/kidnapped, attempted sexual assault/raped, strangled, physically assaulted/beaten, locked/trapped in car, thrown out of moving car, assaulted with weapon). Harassment by community residents or businesses while working included verbal harassment/threats, physical assault, or NIMBYs (i.e., ‘*not in my back yard*’, referring to local residents who oppose the presence/operation of SWs). Exposure to ‘end-demand’ criminalization was evaluated based on whether an interview took place before (2010–2013) or after (April 2015-onwards) implementation of the new legislation. Because this legislation was introduced in 2014, we excluded this year from analysis due to variation in how the laws may have been enforced, as well as the first 3 months of 2015 to account for measures referring to the previous 6 months. This measure was selected since the new laws primarily target clients and third parties rather than SWs, alongside evidence that SWs’ health outcomes and access are often greatly shaped by fear/anxiety related to SW laws (e.g., avoidance of accessing services or working in certain venues/areas due to fear of criminalization).(23, 26, 27) Questions on criminalization and policing included experiences

of police harassment without arrest (e.g., threatened with arrest/detainment/fine, verbally harassed, physically assaulted, propositioned to exchange sex) and police arrest. Finally, health and social services access questions included access to health services when needed (yes vs. no), utilization of STI and HIV testing, and utilization of SW outreach programs (e.g., SW-tailored outreach/drop-in services, outreach by public health nurses).

Statistical Analysis

Analysis was restricted to participants enrolled between 01/2010–02/2018 and observations where participants reported SW within the last 6 months. Interviews completed during the legislation transition period (01/2014–04/2015) were excluded. A complete case approach was used; visits with missing data were excluded. Descriptive statistics were derived at baseline to generate frequencies and proportions for categorical data, and medians and interquartile ranges (IQRs) for continuous data. Differences between groups were assessed using the Wilcoxon rank sum test for continuous variables and Pearson's Chi-square test (or Fisher's exact test) for categorical variables. Logistic regression with generalized estimating equations (GEE) and an exchangeable correlation structure measured associations between independent variables of interest and difficulty accessing condoms in the last 6 months. Bivariate and multivariable GEE analyses included baseline and all follow-up data during the study, accounting for repeated measures amongst participants.(28) Variables were considered for multivariable analysis if they were significant at $p < 0.10$ in bivariate analysis. The multivariable model with the best overall fit, indicated by the lowest quasi-likelihood under the independence model criterion, was determined using a manual backward selection process.(29) SAS v9.4 (SAS, Cary, NC) was used. All p-values are two-sided.

RESULTS

Of 884 participants, at baseline 9.6% experienced difficulty accessing condoms in the last 6 months, and 19.1% experienced difficulty accessing condoms during the 8-year study. Of 3626 observations, 264 events of difficulty accessing condoms were reported. Participants completed a median of 3 study visits (IQR: 1–6) for a total of 2307 person-years of follow-up. Among women facing difficulty accessing condoms at baseline, 83.5% sometimes/occasionally faced difficulty accessing condoms, whereas 10.6% usually/always faced difficulty. 58.9% accessed condoms from mobile outreach, who received a median of 10 (IQR: 6–40) condoms on each outreach contact. Participants reported carrying a median of 6 (IQR: 4–10) condoms per shift. The median age was 35 years (IQR: 28–42), 33.0% identified as LGBTQ2S, 38.6% were of indigenous ancestry, and 71.3% were Canadian-born (Table 1).

In bivariate GEE analysis, younger age, identifying as LGBTQ2S, and homelessness were correlated with greater difficulty accessing condoms (Table 2). Women servicing clients in outdoor/public spaces were more likely to report difficulty accessing condoms than those in informal indoor or in-call spaces (e.g., hotels, bars, massage parlours, micro-brothels). Although exposure to sex work law reform was negatively associated with difficulty accessing condoms (OR 0.52, 95%CI: 0.37–0.73), other structural measures of workplace violence, criminalization, and policing were strongly associated with enhanced difficulty

accessing condoms, including recent physical/sexual workplace violence (OR 2.87; 95%CI: 2.14–3.85), harassment by community residents/businesses (OR 2.57; 95%CI: 1.84–3.58), police harassment without arrest (OR 2.27; 95%CI: 1.75–2.94), and police arrest (OR 2.86; 95%CI 1.77–4.64).

In multivariable GEE analysis (Table 2), exposure to sex work law reform was not associated with changes in condom access and was not retained in the best fitting model; identifying as LGBTQ2S (adjusted odds ratio[AOR]: 1.62, 95%CI: 1.16–2.27), servicing clients in outdoor/public spaces (AOR 1.52, 95%CI: 1.17–1.97), physical/sexual workplace violence (AOR: 1.98, 95%CI: 1.44–2.72), harassment by community residents/businesses (AOR: 1.79, 95% CI:1.27–2.52) and police harassment without arrest (AOR: 1.66, 95% CI: 1.24–2.24) were significantly correlated with difficulty accessing condoms over time.

DISCUSSION

This 8-year study identified significant unmet need for condoms among SWs in Metropolitan Vancouver, with one-fifth reporting persistent challenges accessing condoms. End-demand criminalization did not mitigate barriers to condom access, and sexual/gender minorities, SWs facing workplace violence and harassment by police and community, and those working outdoors experienced poorest condom accessibility. These findings indicate the need to scale-up SW-friendly and rights-based HIV/STI prevention efforts, including structural interventions (e.g., decriminalization, mobile outreach).

Despite the purported goal of ‘protecting communities’, we found no significant difference in condom access following implementation of ‘end-demand’ criminalization after adjustment for other variables, suggesting that such legislation may perpetuate barriers faced under previous legislation. Whereas ‘end-demand’ legislation typically aims to combat exploitation and support linkage to support services, evidence suggests that such legislation may exacerbate harms for SWs - including barriers to health services and HIV/STI prevention, violence, and poor working conditions.(18, 19, 21, 22)

Research has linked barriers to condoms to health service delivery features, including geography, cost, stigma, and limited convenient, low-barrier distribution outlets.(16) Our findings move beyond this work to highlight the roles of criminalization and violence in shaping condom access for marginalized women. In addition to the lack of improvements in condom access post-law reform, the associations between workplace violence and harassment, policing, and barriers to condoms indicate the urgent need to address criminalization. The relationship between impeded access to HIV/STI prevention, violence, and criminalization has been documented previously.(16, 30) Criminalization can undermine health and human rights by encouraging rushed transactions and pushing SWs to hidden areas where outreach or peer supports may be limited.(9) SWs and third parties (e.g., managers) often avoid carrying or storing sufficient condoms due to fear that this will be used as evidence of criminalized activities;(27, 31) given the continued criminalization of third party activities under ‘end-demand’, such concerns are likely to persist.(22) Additionally, SWs may avoid interacting with health or outreach services due to stigma and fear of legal ramifications.(20, 23, 27, 31) Decriminalization would enable SWs and

workplaces to carry, store, and use HIV/STI prevention supplies without fear of criminalization. Scale-up of safer workplace interventions (e.g., indoor settings with onsite condoms, security) and peer-led mobile outreach are also recommended to support immediate occupational health.(3, 32)

Where sex work is uniquely stigmatized and singled out from other occupations, SWs' use of public space becomes restricted by community, which can exacerbate stigma, perpetuate barriers to health and safety, and increase adversarial police interactions due to community complaints(12, 15, 22). The barriers faced by sexual/gender minorities may relate to intersectional stigmas related to sex work, sexual orientation, and gender identity. There remain unacceptable gaps in gender-sensitive HIV prevention and related health services for sexual/gender minorities, which may be linked to the high levels of stigma, violence, displacement, and unmet health needs documented amongst this population.(12, 15, 33) Gender-affirming and inclusive policies in HIV/STI prevention services and scale-up of targeted interventions (e.g., outreach, drop-in services) that address the needs of sexual/gender minorities remain needed.

Strengths and weaknesses

Strengths of this study include its longitudinal nature, strong community collaborations, and a large, diverse sample. As with most research involving stigmatized populations, there is potential for under-reporting of self-reported risks; our community-based and experiential team, training in non-stigmatizing interview techniques, and community collaborations are designed to mitigate this. This study was designed to understand structural determinants of HIV/STI prevention and care; future research is needed to design and test the most effective interventions in this context.

CONCLUSIONS

In this 8-year study, one-fifth of women SWs reported difficulty accessing condoms. In multivariable GEE analysis, 'end-demand' criminalization was not associated with improvements in condom access, whereas identifying as LGBTQ2S, working in outdoor/public spaces, workplace violence, community harassment, and police harassment were associated with enhanced difficulty accessing condoms. SW-friendly HIV/STI programs, including uninterrupted access to low/no-cost condoms, remain needed to address current gaps in HIV/STI prevention. Structural interventions including decriminalization and safer work environment models are recommended.

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Key Messages

- In this longitudinal study, one-fifth of women sex workers reported difficulty accessing condoms over an 8-year period
- Identifying as LGBTQ2S, working in outdoor/public spaces, workplace and community violence, and police harassment were associated with difficulty accessing condoms
- Exposure to ‘end-demand’ sex work legislation was not associated with improvements in condom access
- Sex worker-friendly HIV/STI programs, including uninterrupted access to low/no-cost condoms, remain needed to address current gaps in HIV/STI prevention faced by sex workers
- Structural interventions including decriminalization and safer work environment models are recommended to improve condom access

TABLE 1:

Demographic and structural variables stratified by difficulty accessing condoms among sex workers (n = 884) in Metropolitan Vancouver, BC at baseline, 2010 – 2018

Characteristic	Difficulty accessing condoms			
	Total (%) (n = 884)	Yes (%) (n = 85)	No (%) (n = 799)	p-value
Individual and Interpersonal Variables				
Age, median (IQR), years	35 (28 – 42)	33 (29 – 42)	35 (28 – 42)	0.962
Sexual/gender minority (LGBTQ2S)	292 (33.0)	37 (43.5)	255 (31.9)	0.032
Indigenous ancestry	341 (38.6)	38 (44.7)	303 (37.9)	0.225
Canadian-born (vs. im/migrant)	630 (71.3)	68 (80.0)	562 (70.3)	0.064
Non-injection drug use *	586 (66.3)	67 (78.8)	519 (65.0)	0.007
Inconsistent condom use with clients *	157 (17.8)	22 (25.9)	135 (16.9)	0.034
Structural Variables				
Work and living environment				
Homelessness *	266 (30.1)	39 (45.9)	227 (28.4)	<0.001
Primary place of solicitation *				
Street/public	440 (49.8)	53 (62.4)	387 (48.4)	0.057
Indoor establishment	260 (29.4)	19 (22.4)	241 (30.2)	
Independent	180 (20.4)	13 (15.3)	167 (20.9)	
Primarily services in outdoor/public spaces *	342 (38.7)	40 (47.1)	302 (37.8)	0.088
Third party sex work support *	327 (37.0)	24 (28.2)	303 (37.9)	0.086
Physical/sexual workplace violence *	155 (17.5)	31 (36.5)	124 (15.5)	<0.001
Threatened/verbally assaulted by community residents or businesses *	117 (13.2)	22 (25.9)	95 (11.9)	<0.001
Criminalization and policing				
Police harassment without arrest *	282 (31.9)	39 (45.9)	243 (30.4)	0.004
Police arrest *	52 (5.9)	8 (9.4)	44 (5.5)	0.147
Rushed negotiations with clients due to police presence *	291 (32.9)	37 (43.5)	254 (31.8)	0.025
Health and Social Services Access				
Access to health services when needed *	758 (85.8)	68 (80.0)	690 (86.4)	0.079
Received STI testing *	380 (43.0)	41 (48.2)	339 (42.4)	0.438
Received HIV testing *	363 (41.1)	35 (41.2)	328 (41.1)	0.938

* Within the last 6 months.

NOTE: All variables refer to N (%) of participants, unless otherwise indicated

TABLE 2:

Results from bivariate and multivariable GEE analysis of factors associated with difficulty accessing condoms among sex workers (n = 884) in Metropolitan Vancouver, BC, 2010 – 2018

Characteristic	Unadjusted Odds Ratio (95% Confidence Interval)	Adjusted Odds Ratio (95% Confidence Interval)
Age *	0.97 (0.96 – 0.99)	
Sexual/gender minority (LGBTQ2S) *	1.87 (1.33 – 2.62)	**1.62 (1.16–2.27)**
Canadian-born *	1.19 (0.79 – 1.79)	
Homelessness †	2.06 (1.56 – 2.72)	
Exposure to sex work law reform	0.52 (0.37–0.73)	**
Primarily serviced clients in outdoor/public spaces †	1.92 (1.49 – 2.47)	**1.52 (1.17–1.97)**
Physical/sexual workplace violence †	2.87 (2.14 – 3.85)	**1.98 (1.44–2.72)**
Threatened/verbally assaulted by community residents or businesses †	2.57 (1.84 – 3.58)	**1.79 (1.27–2.52)**
Police harassment without arrest †	2.27 (1.75 – 2.94)	**1.66 (1.24–2.24)**
Police arrest †	2.86 (1.77 – 4.64)	
Rushed negotiation with client due to police presence †	2.05 (1.54 – 2.74)	

* Time-fixed measure

† Time-updated measures (serial measures at each study visit using last 6 months as reference point)

** Variable was included in final multivariable analysis but was non-significant and not retained in the final best-fitting model.