



Sex workers' experiences and occupational conditions post-implementation of end-demand criminalization in Metro Vancouver, Canada

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Abstract

Objectives In 2014, Canada introduced end-demand criminalization (the Protection of Communities and Exploited Persons Act (PCEPA)), criminalizing purchase of sexual services while leaving the sale of sex legal. We assessed factors correlated with self-reported changes in working conditions post-PCEPA among sex workers (SWs) in Metro Vancouver.

Methods Post-PCEPA data for one year were drawn from a community-based cohort of SWs. We analyzed self-reported changes in working conditions among 299 participants who worked prior to PCEPA and were asked about working conditions post-PCEPA. Multivariate GEE analysis evaluated factors correlated with negative changes post-PCEPA, including reduced capacity to screen clients and reduced access to workspaces/clients.

Results Most (72.2%) experienced no change in working conditions, and 26.4% reported negative changes (e.g., reduced ability to screen clients or reduced access to workspaces/clients). Reporting negative changes was correlated with being an im/migrant to Canada (adjusted odds ratio (AOR) 2.79, 95% CI 1.59–4.92) and recent physical workplace violence (AOR 4.01, 95% CI 1.12–14.40). In sub-analysis, physical/sexual workplace violence (AOR 3.77, 95% CI 1.17–12.16) and living in the suburbs of Richmond/Burnaby (AOR 2.81, 95% CI 1.15–6.84) correlated with reduced screening capacity; incarceration (AOR 2.98, 95% CI 1.04–8.57) and being an im/migrant (AOR 2.39, 95% CI 1.14–4.99) correlated with reduced access to workspaces/clients.

Conclusions Most SWs reported no change in working conditions and one quarter reported negative changes, suggesting that PCEPA may be failing to advance sex workers' safety. Im/migrants, women experiencing workplace violence, and those facing criminalization were most likely to report negative impacts. Decriminalization of all aspects of sex work is needed to support well-being, health, and safety.

Résumé

Objectifs Depuis 2014 (avec la *Loi sur la protection des collectivités et des personnes victimes d'exploitation*, LPCPVE), le Canada criminalise la « demande finale » de services sexuels en sanctionnant l'achat de tels services tout en dé penalisant la vente de relations sexuelles. Nous avons évalué les facteurs corrélés aux changements autodéclarés des conditions de travail post-LPCPVE des travailleuses du sexe (TS) du District régional du Grand Vancouver.

Méthode Une année de données post-LPCPVE proviennent d'une cohorte communautaire de TS. Nous avons analysé les changements autodéclarés dans les conditions de travail de 299 participantes ayant travaillé avant la LPCPVE, à qui nous avons

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posé des questions sur leurs conditions de travail après la LPCPVE. Au moyen d'une analyse multivariée avec des équations d'estimation généralisées (EEG), nous avons évalué les facteurs corrélés aux changements négatifs après la LPCPVE, dont la capacité réduite de sélectionner les clients et d'accéder aux espaces de travail ou aux clients.

Résultats La plupart des répondantes (72,2 %) n'ont connu aucun changement de leurs conditions de travail, et 26,4 % ont fait état de changements négatifs (p. ex. la capacité réduite de sélectionner les clients ou d'accéder aux espaces de travail ou aux clients). La déclaration de changements négatifs était corrélée au statut de migrante ou d'immigrante au Canada (rapport de cotes ajusté (RCa) 2,79, IC 95% 1,59-4,92) et à la violence physique récente au travail (RCa 4,01, IC 95% 1,12-14,40). Dans nos sous-analyses, la violence physique ou sexuelle au travail (RCa 3,77, IC 95% 1,17-12,16) et le fait d'habiter en banlieue, à Richmond ou Burnaby (RCa 2,81, IC 95% 1,15-6,84), étaient corrélés avec une capacité de sélection réduite; l'incarcération (RCa 2,98, IC 95% 1,04-8,57) et le statut de migrante ou d'immigrante (RCa 2,39 IC 95% 1,14-4,99) étaient corrélés à l'accès réduit aux espaces de travail ou aux clients.

Conclusions La plupart des TS n'ont déclaré aucun changement de leurs conditions de travail, mais le quart ont fait état de changements négatifs, ce qui indique que la LPCPVE pourrait ne pas améliorer la sécurité des travailleuses du sexe. Les femmes migrantes ou immigrantes, les femmes ayant subi de la violence au travail et celles confrontées à la criminalisation étaient les plus susceptibles de faire état d'effets nuisibles. Une décriminalisation de tous les aspects du travail du sexe est nécessaire pour favoriser le bien-être, la santé et la sécurité.

Keywords PCEPA · Sex work · Immigration · Nordic model · Criminalization · Occupational health

Mots-clés LPCPVE · Prostitution · Immigration · Modèle nordique · Criminalisation · Santé au travail

Introduction

In 2013, the Supreme Court of Canada overturned previous sex work laws in a decision known as *Canada (Attorney General) v. Bedford* (Supreme Court of Canada 2013). These laws made it a crime to keep a bawdy house, live off the avails of prostitution, or communicate in public for the purposes of prostitution and were unanimously struck down in 2013 as having violated sex workers' (SWs) rights to life, liberty, and security of the person under Section 7 of the Canadian Charter of Rights and Freedoms (Supreme Court of Canada 2013). The government of Canada subsequently replaced these laws with new legislation in 2014, known as the Protection of Communities and Exploited Persons Act (PCEPA). This legislation criminalized a new set of circumstances around sex work, while leaving the sale of sex itself legal: purchase of sexual services (i.e., clients); communication to offer or provide sexual services in a public place next to a school, playground, or daycare centre; receiving financial/material benefits from a person who has engaged in sex work (de facto criminalizing third parties, such as managers or security guards); and advertising offers to provide sexual services (Protection of Communities and Exploited Persons Act of 2014). These laws represent a shift towards what is known as end-demand criminalization—an approach used in Nordic countries that criminalizes the purchase of sexual services (i.e., also known as the 'Swedish' or 'Nordic' model).

Given continuing pressures and shifts towards end-demand criminalization across diverse countries and municipalities globally (NSWP 2011; Vanwesenbeeck 2017), there remains a critical need for rigorous research evidence regarding the impacts of such legislation on sex workers' occupational

conditions, especially in light of significant concerns by the community regarding the potential for these new laws to reproduce or worsen harms associated with previous sex work legislation, including barriers to health and social services access, enhanced HIV/STI-related risks, increased stigma, and poorer working conditions (NSWP 2011; Krüsi et al. 2014; Belak & Bennett 2016; Shannon et al. 2015; Platt et al. 2018). A review on the effects of end-demand criminalization found that this approach led to: increased police surveillance to find evidence with which to prosecute clients; reduced clientele in outdoor spaces, resulting in workers moving to indoor spaces or other jurisdictions; and fewer clients approaching workers in outdoor spaces, leading to increased competition and workers being more likely to see dangerous clients and less likely to engage in safer sex in order to make up for lost income (Chu & Glass 2013). Research on end-demand criminalization has also shown little to no change in numbers of SWs working in Sweden (Abel et al. 2009; Levy & Jakobsson 2014). Although quantitative evidence on the impacts of end-demand criminalization among SWs remains limited, particularly within North American settings, qualitative research with street-involved SWs in Vancouver, Canada, has found that the criminalization of clients may perpetuate the same harms as criminalizing sex workers, including vulnerability to violence and difficulty negotiating use of condoms due to fear of police presence (Krüsi et al. 2014).

In light of the recent implementation of end-demand criminalization (i.e., PCEPA) in Canada, despite significant concerns of increased harm and reduced access to supportive working conditions for SWs, we analyzed SWs' experiences of self-reported changes in working conditions and associations with these changes across Metro Vancouver, Canada, post-PCEPA.

This study analyzed data from an ongoing large, prospective community-based cohort of SWs on self-reported experiences of working conditions resulting from PCEPA in Metro Vancouver from March 2015 to February 2016, representing approximately one year post-implementation of PCEPA.

Methods

Study design

Data were drawn from an ongoing open prospective cohort, An Evaluation of Sex Workers' Health Access (AESHA), which initiated recruitment in late January 2010. AESHA was developed based on substantial community collaborations with sex work agencies since 2005 and is monitored and informed by a Community Advisory Board of representatives of 15+ community agencies (Allinott et al. 2007). Current eligibility includes being female, including transgender individuals, having exchanged sex for money within the last 30 days, and providing written informed consent. Given the challenges of recruiting SWs in isolated and hidden locations, time-location sampling is used to recruit youth and adult women and transgender SWs through day and late night outreach to outdoor/public sex work locations (i.e., streets, alleys) and indoor sex work venues (i.e., massage parlours, micro-brothels, and incall locations) across Metro Vancouver (Steueve et al. 2001). In addition, online recruitment is used to reach SWs working through online solicitation spaces. As previously, indoor sex work venues and outdoor solicitation spaces ('strolls') are identified through community mapping conducted together with current/former SWs (Allinott et al. 2007) and continued to be updated by the outreach team. The study holds ethical approval through Research Ethics Boards at Providence Health Care/University of British Columbia and Simon Fraser University.

In the AESHA study, at enrolment and on a bi-annual basis, SWs complete a questionnaire administered by a trained interviewer (both SWs and non-SWs) in either English or Mandarin and HIV/STI/HCV serology testing by a project nurse. SWs visit one of two storefront office locations in Metro Vancouver or complete the interviewer-administered questionnaire and nursing component at their work or home location. All participants receive an honorarium of \$40CAD at each bi-annual visit for their time, expertise, and travel. Treatment is provided by our project nurse onsite for symptomatic STI infections, and free serology and Papanicolaou testing are also available for those who need them.

Independent variables

The main questionnaire elicits responses related to socio-demographics (e.g., age, gender/sexual identity, ethnicity,

im/migration status, English fluency, place of residence, drug use), physical work environment (e.g., type of work environment: cars, incall, outcall at client's home or hotel, massage parlours, micro-brothels), social/interpersonal environment factors (e.g., exposure to occupational violence), and structural environment factors (e.g., adverse interactions with police, incarceration). Following pre-testing counselling questionnaire with the project nurse, Biolytical INSTI rapid tests are used for HIV screening, with reactive tests confirmed by blood draw for western blot. Swabs are collected for gonorrhoea and chlamydia, and blood is drawn for syphilis, HSV-2 antibody, and HCV testing.

Dependent variable

The primary outcome for analysis was a self-reported measure of whether or not participants had experienced any changes since the enactment of PCEPA at each semi-annual study visit during the study period (Supplementary Table 1). Participants were asked to select all that apply from a list of potential changes experienced since PCEPA, utilize an 'other' fill-in-the blank option, or indicate that they had not experienced any changes. During analysis, negative changes were coded as reduced ability to screen/negotiate health or safety with clients, reduced access to workspaces and clients, reduced health care access, increased fear related to policing, or reduced ability to work with other SWs or build community. Given relatively high reporting rates as well as health and policy implications for (1) reduced ability to screen/negotiate health and safety with clients and (2) reduced access to workspaces and clients, sub-analyses were undertaken to develop separate models for each of these outcomes as well.

Statistical analyses

Analyses were restricted to 299 participants who were actively engaged in sex work (i.e., within 6 months prior to each interview visit) during the study period (March 2015 to February 2016). Given that the changes in the law took place in late 2014, analyses were restricted to data captured post-law reform (2015–2016) among participants who responded to a subset of questions added to the questionnaire pertaining to experiences with the new laws. Among 299 participants, analyses included a total of 419 observations, with participants contributing a median of one study visit (IQR 1–2) during the follow-up period. Descriptive statistics at baseline were calculated for independent variables of interest, stratified by whether participants experienced negative changes as a result of the new laws at baseline. Differences were assessed using the Mann-Whitney test for continuous variables and Pearson's chi-square test (or Fisher's exact test for small cell counts) for categorical variables.

Subsequently, bivariate and multivariate logistic regression using generalized estimating equations (GEE) were used to evaluate correlates of experiencing negative changes post-PCEPA; an exchangeable correlation structure was used to account for repeated measures among the same individuals. Variables which were significant at $p < 0.05$ in bivariate analysis were considered for inclusion in the full multivariate model. A manual backward model selection process was used to obtain the model with the best overall fit, as indicated by the lowest quasi-likelihood under the independence model criterion (Pan 2001). Analyses were performed in SAS version 9.4 (SAS, Cary, NC) and all p values are two-sided.

Results

Over the study period, of 299 AESHA participants who had engaged in sex work in the last 6 months, 72.2% reported experiencing no changes, 26.4% reported experiencing negative changes, and 1.3% reported experiencing positive changes in working conditions as the result of PCEPA. The most common negative changes reported included reduced ability to screen/negotiate sexual transactions with clients (12.7%) and reduced access to workspaces and clients (13.0%).

At baseline, the median age of participants was 38 years old (interquartile range (IQR) 29.0–44.0) (Table 1). A total of 22.1% ($n = 66$) were im/migrants to Canada, and im/migrants were significantly more likely to report experiencing negative impacts of PCEPA on working conditions (35.1% vs. 17.8%, $p < 0.01$). A total of 11.4% ($n = 34$) lived in Richmond or Burnaby, which are Metro Vancouver municipalities outside the City of Vancouver that are characterized by large im/migrant communities and more limited sex work-related supports, and where many formal indoor sex work venues (e.g., massage parlours, health enhancement centres) are located. Almost one third (29.4%, $n = 88$) serviced clients primarily in outdoor or public spaces (e.g., cars), 50.5% ($n = 151$) worked in informal indoor workplaces (e.g., incall, outcall), and 18.1% ($n = 54$) worked in formal indoor workplaces (e.g., massage parlours). A total of 5.7% ($n = 17$) had recently been incarcerated.

In bivariate GEE analysis, workers who used non-injection drugs were less likely to report any negative changes than those who had not (odds ratio (OR) 0.56, 95% confidence interval (CI) 0.34–0.94) (Table 2). Women who reported servicing clients primarily in formal indoor environments had over three times higher odds of reporting negative changes in working conditions as a result of PCEPA than those who serviced primarily in outdoor spaces (OR 3.36, 95% CI 1.66–6.80). Im/migrants to Canada were also more likely to experience negative change (OR 2.71, 95% CI 1.56–4.72), as were the residents of Richmond or Burnaby (OR 2.35, 95% CI

1.12–4.90) and those who experienced recent physical workplace violence (OR 3.10, 95% CI 1.01–9.56).

In multivariate GEE analysis, after adjustment for other factors, im/migration status remained the most significant independent predictor of experiencing any negative changes related to PCEPA, with im/migrant workers having almost three times increased odds of reporting negative changes than those born in Canada (adjusted odds ratio (AOR) 2.79, 95% CI 1.59–4.92) (Table 2); additionally, experiencing recent workplace physical violence (AOR 4.01, 95% CI 1.12–14.40) was independently associated with experiencing negative changes related to PCEPA.

In sub-analysis, women living in suburbs of Richmond or Burnaby had higher odds of experiencing reduced ability to screen/negotiate with clients since the enactment of PCEPA (AOR 2.81, 95% CI 1.15–6.84), as had those who experienced recent physical and/or sexual violence from a client (AOR 3.77, 95% CI 1.17–12.16) (Table 3). Being an im/migrant to Canada (AOR 2.39, 95% CI 1.14–4.99) and recent incarceration (AOR 2.98, 95% CI 1.04–8.57) were both associated with experiencing reduced access to workspaces/clients since the enactment of PCEPA (Table 4).

Discussion

Almost three quarters of sex workers in this study reported no changes in working conditions, one quarter experienced negative changes, and less than 2% reported experiencing any improvements since the implementation of end-demand criminalization in Canada (PCEPA). These findings suggest that PCEPA has failed to improve self-reported working conditions among sex workers in Metro Vancouver, despite its purported aim of protecting vulnerable communities, and may rather contribute to increased harm.

Our findings suggest that im/migrant workers within formal indoor workspaces, women experiencing workplace violence, and those who already face high rates of criminalization may be most likely to experience negative impacts on working conditions as a result of the implementation of PCEPA. These results are alarming in suggesting that end-demand criminalization may further marginalize these groups rather than support their health, safety, and access to supportive working conditions. Workers born outside of Canada and working in formal indoor spaces were most likely to report experiencing negative changes following the enactment of PCEPA. Previous AESHA research has shown that in Metro Vancouver im/migrant workers are over-represented in formal indoor sex work spaces and are primarily of Chinese origin (Goldenberg et al. 2014). The unique challenges faced by im/migrant SWs (e.g., limited English fluency, racialization, legal status) make them both more likely to rely on formal indoor venues and more vulnerable to police harassment.

Table 1 Baseline individual and structural characteristics of women sex workers ($N=299$) in Metro Vancouver stratified by experiencing negative changes since implementation of PCEPA, 2015–2016

Characteristic	Yes, n (%) $n=74$	No, n (%) $n=225$	p value
Individual factors			
Age (years) (med, IQR)	38.5 (30–43)	37 (29–44)	0.860
Indigenous*	31 (41.9)	108 (48.0)	
Non-Indigenous	43 (58.1)	116 (51.6)	0.345
Sexual/gender minority	24 (32.4)	85 (37.8)	
Not a sexual/gender minority	50 (67.6)	140 (62.2)	0.407
Im/migrant to Canada	26 (35.1)	40 (17.8)	
Born in Canada	48 (64.9)	184 (81.8)	0.002
Lives in Richmond/Burnaby [†]	13 (17.6)	21 (9.3)	
Lives outside Richmond/Burnaby [†]	58 (78.4)	201 (89.3)	0.043
Non-injection drug use [‡]	37 (50.0)	144 (64.0)	
No non-injection drug use [‡]	37 (50.0)	79 (35.1)	0.026
Injection drug use	30 (40.5)	111 (49.3)	
No injection drug use	44 (59.5)	113 (50.2)	0.178
Structural factors			
Primary place of service			
Outdoor/public spaces	22 (29.7)	66 (29.3)	
Informal indoor	24 (32.4)	127 (56.4)	
Formal indoor	26 (35.1)	28 (12.4)	<0.001
Workplace violence			
Any physical/sexual			
Yes	6 (8.1)	4 (1.8)	
No	67 (90.5)	221 (98.2)	0.016
Physical violence			
Yes	5 (6.8)	1 (0.4)	
No	68 (91.9)	224 (99.6)	0.004
Sexual violence			
Yes	2 (2.7)	4 (1.8)	
No	71 (96.0)	221 (98.2)	0.637
Incarcerated	7 (9.5)	10 (4.4)	
Not incarcerated	67 (90.5)	213 (94.7)	0.145

*Including First Nations, Métis, Inuit

[†] Municipalities of Metro Vancouver that are removed from the downtown core/Downtown Eastside and have high proportions of im/migrant residents

[‡] Excluding alcohol and marijuana

All variables refer to instances in the last 6 months, except age, Indigenous identity, sexuality and gender identity, and im/migration status

Columns may not add to 100% due to missing data

Importantly, indoor spaces have been acknowledged in the Bedford decision as safer locations that can facilitate access to health, safety, and other supports for workers (SCC 2013). Limited English fluency means that im/migrant workers are particularly reliant upon the structural supports provided by formal indoor spaces, such as screening, booking, and advertising (Belak & Bennett 2016). Equally, lack of English fluency means that workers are less likely to be able to communicate with local police if translation is not provided; in such

situations, the intent and impacts of inspections or raids under the guise of end-demand criminalization (even if not directly targeted at workers) may be unclear and generate stress for workers, creating fear or mistrust of police (Belak & Bennett 2016). Im/migrant workers may further worry about consequences for their im/migration status, particularly when police are accompanied by immigration officials (Belak & Bennett 2016). Reasons for entering sex work in Canada reported by SWs include enhanced flexibility, remuneration, and working

Table 2 Bivariate and multivariate GEE analysis of factors associated with reporting any negative changes since implementation of PCEPA by women sex workers ($N=299$) in Metro Vancouver, 2015–2016

Characteristic	Bivariate		Multivariate	
	Odds ratio (95% CI)	<i>p</i> value	Odds ratio (95% CI)	<i>p</i> value
Im/migrant to Canada				
(Yes vs. no)	2.71 (1.56–4.72)	< 0.001	2.79 (1.59–4.92)	< 0.001
Live in Richmond/Burnaby [†]				
(Yes vs. no)	2.35 (1.12–4.90)	0.023		
Non-injection drug use [‡]				
(Yes vs. no)	0.56 (0.34–0.94)	0.027		
Primary place of service				
Informal indoor				
(vs. outdoor/public space)	0.54 (0.28–1.04)	0.067		
Formal indoor				
(vs. outdoor/public space)	3.36 (1.66–6.80)	< 0.001		
Workplace violence				
Any physical/sexual				
(Yes vs. no)	2.50 (0.91–6.90)	0.076		
Physical violence				
(Yes vs. no)	3.10 (1.01–9.56)	0.049	4.01 (1.12–14.40)	0.033
Incarcerated				
(Yes vs. no)	1.98 (0.72–5.43)	0.186		

[†] Municipalities of Metro Vancouver that are removed from the downtown core/Downtown Eastside and have high proportions of im/migrant residents[‡] Excluding alcohol and marijuana

All variables time updated with instances in the last 6 months except im/migration status

Other variables that were considered in bivariate analysis but were not significant included individual socio-demographics (e.g., age, gender/sexual minority, Indigenous), work environment (e.g., primary neighbourhood of solicitation and servicing, community harassment), policing (e.g., harassment, moving working areas to avoid police), health access, and HIV risks (e.g., condom access and use, use of health services)

conditions, which often provide important solutions and opportunities to address some of the challenges faced by im/migrant women (Butterfly Asian and Migrant Sex Workers Support Network 2016; Goldenberg et al. 2017).

In this study, the fact that SWs experiencing enhanced workplace violence were more likely to report reduced ability to screen/negotiate post-PCEPA, as well as the strong association between incarceration and reduced access to workspaces and clients, indicate that already-marginalized and criminalized groups of SWs may experience disproportionate negative impacts as a result of PCEPA. This is concerning given that these impacts appear to be in direct contradiction to the apparent intent of PCEPA of protecting vulnerable individuals. It is particularly worrisome that SWs who recently experienced incarceration reported significantly restricted access to workplaces and clients following PCEPA enactment, as reduced access may cause workers to operate in more isolated or dangerous workplaces (e.g., industrial areas), take more dangerous (aggressive/intoxicated) clients, or have to work longer hours to achieve the same income (Belak & Bennett 2016; Sex Workers United Against Violence et al. 2014; Stella 2015).

Local impacts occur within a global context of SWs facing marginalization, including punitive laws and policies that increase risk of HIV acquisition (Shannon et al. 2015); reduced access to HIV prevention, treatment, and care services (Beyrer et al. 2015); and increased risk of violence from a variety of sources (Shannon et al. 2015; Platt et al. 2018), resulting in decreased condom use (Shannon et al. 2015; Platt et al. 2018). In the Canadian context, PCEPA has been identified as likely to offend the Charter of Rights and Freedoms as it may increase challenges and workplace risks to SWs and is based on moral underpinnings which conflate sex work and sex trafficking (Bruckert 2014). Our work builds on prior literature showing that experiences of criminalization are closely tied to severe health and social inequities for SWs by specifically examining the self-reported impacts of recently enacted end-demand criminalization among SWs in Metro Vancouver.

Strengths and limitations

As with all observational research, associations detailed in this paper may not be causal. However, this study draws from a longitudinal study with multiple time points, offering a unique

Table 3 Bivariate and multivariate GEE analysis of factors associated with reporting reduced screening/negotiation since implementation of PCEPA by women sex workers ($N=299$) in Metro Vancouver, 2015–2016

Characteristic	Bivariate		Multivariate	
	Odds ratio (95% CI)	p value	Odds ratio (95% CI)	p value
Im/migrant to Canada**				
(Yes vs. no)	2.43 (1.18–4.98)	0.016		
Live in Richmond/Burnaby [†]				
(Yes vs. no)	2.78 (1.15–6.70)	0.023	2.81 (1.15–6.84)	0.023
Primary place of service				
Informal indoor				
(vs. outdoor/public space)	0.53 (0.24–1.19)	0.124		
Formal indoor				
(vs. outdoor/public space)	2.15 (0.93–5.00)	0.075		
Workplace violence				
Any physical/sexual violence				
(Yes vs. no)	3.81 (1.20–12.11)	0.024	3.77 (1.17–12.16)	0.026
Physical violence				
(Yes vs. no)	3.85 (1.04–14.20)	0.043		

[†] Municipalities of Metro Vancouver that are removed from the downtown core/Downtown Eastside and have high proportions of im/migrant residents
All variables time updated with instances in the last 6 months except im/migration status

Other variables that were considered in bivariate analysis but were not significant included individual socio-demographics (e.g., age, gender/sexual minority, Indigenous), work environment (e.g., primary neighbourhood of solicitation and servicing, community harassment), policing (e.g., harassment, moving working areas to avoid police), health access, and HIV risks (e.g., condom access and use, use of health services)

look at post-PCEPA implementation. Use of a manual backward model selection process to obtain the model with the best overall fit produced limited results for sub-analyses, due to the relatively small sample size interviewed during the study period; due to this limitation, we recommend more robust research on impacts of end-demand criminalization in Canada. Undocumented workers and workers with irregular im/

migration status—a well-known hard-to-reach population—may be under-represented in our study, as these populations are known to face elevated concerns regarding criminalization and legal im/migration status. In an effort to recruit and retain a larger number of im/migrant SWs, our team includes multicultural and multilingual staff, including Mandarin-speaking outreach workers who engage with im/migrant SWs within

Table 4 Bivariate and multivariate GEE analysis of factors associated with reporting reduced workspaces/clients since implementation of PCEPA by women sex workers ($N=299$) in Metro Vancouver, 2015–2016

Characteristic	Bivariate		Multivariate	
	Odds ratio (95% CI)	p value	Odds ratio (95% CI)	p value
Im/migrant to Canada				
(Yes vs. no)	2.23 (1.08–4.58)	0.030	2.39 (1.14–4.99)	0.021
Primary place of service				
Informal indoor				
(vs. outdoor/public space)	0.40 (0.16–0.95)	0.039		
Formal indoor				
(vs. outdoor/public space)	2.04 (0.88–4.74)	0.097		
Incarcerated				
(Yes vs. no)	2.57 (0.89–7.45)	0.083	2.98 (1.04–8.57)	0.042

All variables time updated with instances in the last 6 months except im/migration status

Other variables that were considered in bivariate analysis but were not significant included individual socio-demographics (e.g., age, gender/sexual minority, Indigenous), work environment (e.g., primary neighbourhood of solicitation and servicing, community harassment), policing (e.g., harassment, moving working areas to avoid police), health access, and HIV risks (e.g., condom access and use, use of health services)

indoor sex work venues. Our analysis draws on data from SWs in the Metro Vancouver area; although this includes a variety of law enforcement jurisdictions (e.g., Vancouver, Surrey), additional studies from other Canadian and global settings where end-demand criminalization has been implemented are needed. Results may be influenced by recall bias and social desirability bias due to use of self-reported data; our interviewers were trained in probing interview techniques and non-stigmatizing approaches intended to mitigate these issues and create a supportive interview environment. As SWs themselves are in the best position to help develop a fuller picture of their own lived work experiences, further community-based qualitative and mixed-methods studies addressing the impacts of end-demand criminalization among SWs are recommended, which should be carried out in close partnership with im/migrant and Canadian-born sex work communities.

Conclusions

Despite the purported aim of PCEPA to support marginalized communities, results from this Metro Vancouver-based study found that most sex workers experienced no changes in working conditions post-implementation of end-demand criminalization, and one quarter experienced negative changes. Im/migrant workers, women experiencing physical/sexual workplace violence, and those who already face high rates of criminalization were most likely to report experiencing negative impacts on working conditions as a result of the implementation of PCEPA.

Prior research indicates that the criminalization of sex work through various models, including 'end-demand' criminalization, puts up barriers to safer work practices for SWs, making a legal profession into an unnecessarily dangerous one. Criminalization—including criminalization of clients—undermines access to health, safety, and legal protections; elevates risk for harm; hinders SWs' abilities to establish safer work spaces and work collectively; does not reduce or eliminate sex work; and undermines efforts to address human trafficking (Platt et al. 2018; Gender & Sexual Health Initiative 2014). International policy bodies (e.g., WHO, UNAIDS, Amnesty International) now call for decriminalization as a best practice for supporting sex workers' health and labour rights (Platt et al. 2018). This is supported by evidence from modeling and research from sex work-decriminalized settings (e.g., New Zealand) (Shannon et al. 2015; Amnesty International 2016; UNAIDS 2014) suggesting that decriminalization is a critical evidence-based approach to enhance the human rights of SWs, largely through increased access to justice (Platt et al. 2018; Abel 2014), health, and social supports (Platt et al. 2018).

Our results underline the importance of law enforcement agencies developing a rights-based approach to sex work as opposed to criminalizing elements of the sex work industry,

both at a global level and in the local context. While the Vancouver Police Department's non-prosecutorial approach to sex work law enforcement has resulted in some improvements for SWs, the criminalization of clients has been shown in this study and others to perpetuate similar impacts as previous approaches targeting workers (Krüsi et al. 2014; Platt et al. 2018); furthermore, important inequities remain in suburban municipalities outside the city of Vancouver where no such policies are in place, suggesting the need for federal law reform. Im/migrant workers who face additional vulnerabilities related to legal immigration status, racialization, and language barriers continue to be negatively impacted by existing policy approaches, and law enforcement agencies must apply SW-centred, rights-based, and culturally safe approaches to working with and for im/migrant workers in formal indoor venues (Krüsi et al. 2014). Ending the targeting of im/migrant workers in formal indoor spaces through inspections would allow law enforcement to work towards building trust that could be funnelled into community dialogue and more effective community-based interventions, and would best enable collaboration in developing meaningful prevention and intervention strategies for cases of criminal activity directed towards SWs (e.g., assault, robbery) and actual or suspected human trafficking (Belak & Bennett 2016; Butterfly Asian and Migrant Sex Workers Support Network 2016). In addition to SW-specific policies, we echo and support growing calls for local municipalities to adhere to the key principles and practices of Sanctuary City policies that would protect im/migrants from deportation when accessing health care, community services, and police services and more broadly mitigate the multifaceted stressors faced by many im/migrant populations (Belak & Bennett 2016). In the case of im/migrant SWs, this would enable meaningful access to police services in the event of workplace violence, as well as enhanced access to sexual health, safety, and social supports without fear of im/migration-related consequences. Further research is needed to examine the nuances and impacts of end-demand criminalization on the lived experiences of sex workers, including im/migrant workers who operate in Metro Vancouver municipalities (e.g., Surrey, Burnaby).

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Compliance with ethical standards

The study holds ethical approval through Research Ethics Boards at Providence Health Care/University of British Columbia and Simon Fraser University.

Conflict of interest The authors declare that they have no conflict of interest.

References

Abel, G. M. (2014). A decade of decriminalization: sex work “down under” but not underground. *Criminology and Criminal Justice*, 14(5), 580–592. <https://doi.org/10.1177/1748895814523024>.

Abel, G. M., Fitzgerald, L. J., & Brunton, C. (2009). The impact of decriminalisation on the number of sex workers in New Zealand. *Journal of Social Policy*, 38(03), 515. <https://doi.org/10.1017/S0047279409003080>.

Allinott, K. S. S., Alexson, D., Gibson, K., Tyndall, M. W., & the Maka Project Partnership VB. (2007). Community-based HIV prevention research among substance-using women in survival sex work: The Maka Project Partnership. *Harm Reduction Journal*, 4(20). <https://doi.org/10.1186/1477-7517-4-20>.

Amnesty International (2016) Decision on state obligations to respect, protect, and fulfil the human rights of sex workers. <https://www.amnesty.org/en/documents/pol30/4062/2016/en/>. Accessed April 2017.

Belak, B., & Bennett, D. (2016). Evaluating Canada’s Sex Work Laws: The Case for Repeal: Let’s Open the Discussion. Pivot Legal Society. https://www.d3n8a8pro7vhmx.cloudfront.net/pivotlegal/pages/1960/attachments/original/1480910826/PIVOT_Sex_workers_Report_FINAL_hires_ONLINE.pdf?1480910826. Accessed November 2016.

Beyrer, C., Crago, A., Bekker, L., et al. (2015). *NIH Public Access*, 385(9964), 287–301. [https://doi.org/10.1016/S0140-6736\(14\)60933-8.AN](https://doi.org/10.1016/S0140-6736(14)60933-8.AN).

Bruckert, C. (2014). Protection of communities and exploited persons act: misogynistic law making in action. *Canadian Journal of Law and Society*, 30(1), 1–3. <https://doi.org/10.1017/cls.2015.2>.

Butterfly Asian and Migrant Sex Workers Support Network. (2016). Journey of Butterflies 2016. https://www.docs.wixstatic.com/ugd/5bd754_6d9ddae30e947efbef4e94b7e7ee828.pdf. Accessed November 2016

Chu, S. K. H., & Glass, R. (2013). Sex work law reform in Canada: considering problems with the Nordic model. *Alberta Law Review* 51(101).

Gender & Sexual Health Initiative. (2014). Time for evidence: More than 300 Canadian academics call for the decriminalization of sex work and voice opposition to criminalizing the purchasing of sex. <https://doi.org/10.17269/s41997-019-00226-z>.

Goldenberg, S. M., Chettiar, J., Nguyen, P., Dобрер, S., Montaner, J., & Shannon, K. (2014). Complexities of short-term mobility for sex work and migration among sex workers: violence and sexual risks, barriers to care, and enhanced social and economic opportunities. *Journal of Urban Health*, 91(4), 736–751. <https://doi.org/10.1007/s11524-014-9888-1>.

Goldenberg, S. M., Krüsi, A., Zhang, E., Chettiar, J., & Shannon, K. (2017). Structural determinants of health among im/migrants in the indoor sex industry: experiences of workers and managers/owners in metropolitan Vancouver. *PLoS One*, 12(1), 1–18. <https://doi.org/10.1371/journal.pone.0170642>.

Government of Canada. Protection of Communities and Exploited Persons Act (2014). http://laws-lois.justice.gc.ca/PDF/2014_25.pdf. Accessed November 2016

Krüsi, A., Pacey, K., Bird, L., et al. (2014). Criminalisation of clients: reproducing vulnerabilities for violence and poor health among street-based sex workers in Canada—a qualitative study. *BMJ Open*, 4(6). <http://bmjopen.bmjjournals.org/content/4/6/e005191.abstract>. Accessed April 2017.

Levy, J., & Jakobsson, P. (2014). Sweden’s abolitionist discourse and law: Effects on the dynamics of Swedish sex work and on the lives of Sweden’s sex workers background: The Swedish Abolitionist Construction of Prostitution. *Criminology and Criminal Justice*, 14(145), 593–607. <https://doi.org/10.1177/1748895814528926>.

NSWP (2011) Briefing Paper #02: The Criminalisation of Clients

Pan, W. (2001). Akaike’s information criterion in generalized estimating equations. *Biometrics*, 57(1), 120–125. <https://doi.org/10.1111/j.0006-341X.2001.00120.x>.

Platt, L., Grenfell, P., Meiksin, R., et al. (2018). Associations between sex work laws and sex workers’ health: a systematic review and meta-analysis of quantitative and qualitative studies., 15. <https://doi.org/10.1371/journal.pmed.1002680>.

Sex Workers United Against Violence, Darcie Bennett, Chettiar, J., Jackson, G., Krüsi, A., Pacey, K., Porth, K., Price, M., Shannon, K., Chrissy Taylor, S. A., & Society PL. (2014). *My work should not cost me my life*. Pivot Legal Society. http://www.nswp.org/sites/nswp.org/files/My_Work_Should_Not_Cost_Me_My_Life.pdf.

Shannon, K., Strathdee, S. A., Goldenberg, S. M., et al. (2015). Global epidemiology of HIV among female sex workers: influence of structural determinants. *Lancet*, 385(9962), 55–71. [https://doi.org/10.1016/S0140-6736\(14\)60931-4](https://doi.org/10.1016/S0140-6736(14)60931-4).

Stella (2015). Clients and the Law. Stella, ed. http://swanvancouver.ca/wp-content/uploads/2015/05/stella_clientsen.pdf. Accessed April 2017.

Steueve, A., Duran, R., San Doval, A., & Blome, J. O. L. N. (2001). Time-space sampling in minority communities: results with young Latino men who have sex with men. *American Journal of Public Health*, 96(1), 922–926.

Supreme Court of Canada (2013) Canada (Attorney General) v. Bedford. <https://scc-csc.lexum.com/scc-csc/sccsc/en/item/13389/index>. Accessed November 2016.

UNAIDS. (2014). *The gap report 2014*. Geneva: Switzerland. <https://doi.org/10.1136/sti.2007.027151>.

Vanwesenbeeck, I. (2017). Sex work criminalization is barking up the wrong tree. *Archives of Sexual Behavior*, 46(6), 1631–1640. <https://doi.org/10.1007/s10508-017-1008-3>.

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